

PATTERSON CREEK PARK NATURAL AREA

Site Management Plan



Prepared for:

King County Department of Parks and Recreation

Prepared by:

King County Department of Construction and Facilities Management
Division of Capital Planning and Development

July, 1999

TABLE OF CONTENTS

Table of Contents	i
Acknowledgments	ii
Executive Summary	iii
Part I - Introduction	
Foreword	1
Purpose	1
Site Plan goals	1
Location.....	1
Description	2
Conservation Significance.....	2
Passive Recreational and Educational Significance.....	2
Part II - Site Inventory and Analysis	
Natural Resources	
Topography	5
Soils	5
Hydrology.....	5
Vegetation	6
Wildlife.....	11
Land Use	
Historic Use.....	15
Current Use	16
Part III - Site Management	
Land Use Classification/Park Use Areas	17
Planning Elements and Recommendations	17
Special Management Areas	18
Natural Areas.....	18
Site-wide Issues	20
Future Acquisitions	22
Phasing and Priorities	23
Part IV - Appendix	24

LIST OF FIGURES & TABLES

Figures

• Figure 1: The Skykomish/Snoqualmie (Snohomish) River Watershed	3
• Figure 2: Region/Location	4
• Figure 3: Existing Conditions	7
• Figure 4: Natural Resources.	10
• Figure 5: Site Management.....	19

Tables

• Table 1: Plant Species Observed at Patterson Creek Park Natural Area.....	9
• Table 2: Wildlife Species Expected to Utilize Patterson Creek Park Natural Area.....	12
• Table 3: Priority Invasive Plant Species at Patterson Creek Park Natural Area	24
• Table 4: 1996 Washington State Noxious Weed List/Class A Weeds	24
• Table 5: 1996 Washington State Noxious Weed List/Class B Weeds	24
• Table 6: 1997 Washington State Noxious Weed List/Class C Weeds	24

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.

King County Executive

Ron Sims

Metropolitan King County Council

Maggi Fimia, District 1
Cynthia Sullivan, District 2
Louise Miller, District 3
Larry Phillips, District 4
Dwight Pelz, District 5
Rob McKenna, District 6
Peter von Reichbauer, District 7
Greg Nickels, District 8
Kent Pullen, District 9
Larry Gossett, District 10
Jane Hague, District 11
Brian Derdowski, District 12
Christopher Vance District 13

King County Open Space Citizen Oversight Committee

Waterways 2000 Subcommittee

Carol James, Chair
Gerald Edlund
Durlyn Finnie
Mark Johnson
Teresa Lavender
Kal LeMaster
Thomas A. Rasmussen

King County Park System

Craig Larson, Director
Sharon Claussen, Parks Representative
Recreation & Aquatics Division
Chuck Lennox, Recreation Coordinator (Interpretation & Education)
Maintenance & Facilities Division
Warrick Matthews, Maintenance Specialist
Dave Kimmett, Parks Resource Coordinator

Department of Natural Resources

Pam Bissonette, Director
Office of Open Space, Resource Lands Section
Lise Ward, Acquisition Agent
Water and Land Resources Division
Catherine Houck, Ecologist
Kirk Anderson, Assistant Snoqualmie Watershed Coordinator
Megan Smith, Snoqualmie Watershed Coordinator

Department of Information and Administrative Services

Sheryl Whitney, Director
Geographic Information Systems, Technical Resources Center
Michael Jenkins, GIS Analyst

Department of Construction and Facilities Management

Pearl McElheran, Director
Division of Capitol Improvement and Planning
Diane Steen, Research Consultant
Leslie McLean, Project Manager

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 2,000 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

Patterson Creek (WRIA # 07.0376) was targeted by the Waterways program for its continuing ability to provide flood moderation and habitat for salmonids and wildlife, despite basin-wide development and agricultural activities. It is part of the larger Snohomish/Snoqualmie system which has, in recent years, contributed up to one-third of the wild coho production of the Puget Sound system. Patterson Creek is located east of Seattle and southwest of Carnation, immediately east of the Urban Growth Area (UGA) boundary. More than 150 acres of wetlands and forests in two discontinuous stretches along Patterson Creek were purchased as part of the Waterways program. The Natural Area is located near the King County Section 36 Park and Carnation Marsh Natural Area, as well as in the vicinity of the Griffin Creek Park Natural Area, also a Waterways 2000 purchase within the Snoqualmie basin. The listing of wild Puget Sound Chinook and bull trout under the federal Endangered Species Act (ESA) will likely result in increased protection and restoration activities within the Snohomish/Snoqualmie basin, and this Natural Area will be an important asset in those efforts.

As a natural area, the site will be managed to protect natural systems, maintain and enhance wildlife habitats and corridors, and preserve scenic areas. Where public use does not compromise these resources, low-impact passive recreational, interpretive, and educational opportunities can be provided. The following reflect Waterways 2000 program goals and will be used to establish balanced management of the natural area:

- 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 interpretive experiences for 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 Patterson Creek Park Natural Area include:

- Patterson Creek, a King County Class 2 stream system which provides significant habitat for a number of salmonids including coho, Chinook, steelhead and cutthroat trout
- Tributary 0383, a King County Class 2 stream with the densest concentration of spawning coho in the Patterson basin
- Upland and lowland habitat for a variety of terrestrial and aquatic wildlife, including pileated woodpecker, river otter, and black bear
- Opportunities for onsite restoration of natural floodplain features and enhancement of instream and riparian habitats
- Limited educational and interpretive opportunities in the areas of natural area restoration and wetland interpretation

The following general planning and design elements are recommended for the Patterson Creek Park Natural Area:

- Maintain and enhance stream and riparian systems for salmonids and wildlife with native species plantings in degraded areas, buffer and riparian zones
- Retire and replant degraded, informal use areas and trails with native species and discourage creation of new trails
- Provide interpretive signage as feasible, addressing significant onsite resources, historic uses and restoration activities
- Periodically monitor general site conditions for dumping, illegal access and resource degradation
- Cooperate with potential SPU mitigation project that involves planting native conifers and other species along a portion of Patterson Creek and Tributary 0383.
- Coordinate with neighbors, community groups, and schools to steward the property in conjunction with KC Parks
- 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
- Control current and future infestations of non-native and invasive plant species, utilizing existing KC Parks/KC DNR monitoring and removal programs.
- Pursue future acquisitions and taxation agreements within the basin to add buffers to the Natural Area, improve connection between the natural area and other resource lands, preserve habitat corridors, and potentially provide appropriate areas for passive public access and interpretive opportunities
- At appropriate intervals, review this site plan to ensure that the goals and recommendations are being met and plan for additional restoration or preventative measures if public use threatens onsite natural resources or public safety

Part I - INTRODUCTION

Foreword

The Snoqualmie River forms the largest drainage basin in King County, flowing roughly northwest from its source in the Cascade Mountains to its outlet in Puget Sound. At the 268-foot Snoqualmie Falls near Snoqualmie, the upper Snoqualmie basin dramatically ends and the lower Snoqualmie basin begins. Approximately 43 miles downstream, the river joins the Skykomish to become the Snohomish River, eventually entering Puget Sound near Everett. Within the Snoqualmie River Basin, Waterways 2000 has acquired nearly 350 acres of important habitat, including natural areas along Griffin Creek, Canyon Creek and the Middle Fork of the Snoqualmie River. The Patterson Creek basin is a small sub-basin of the larger Snoqualmie system which, despite impacts of historic agricultural activities and more recent urban development, continues to provide good water quality, flood moderation, and diverse and productive habitat for salmonids, freshwater mollusks, and wildlife. The Snoqualmie system contains the largest amount of high-quality salmonid habitat existing in King County. In the future, the Snoqualmie River system and the Patterson Creek 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 watersheds 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 Patterson Creek. This plan reflects: 1) a site inventory and analysis of existing natural resources and land uses; 2) Waterways 2000 program goals; 3) King County Park System (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 interpretive experiences for 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

Location

The Patterson Creek Park Natural Area consists of two non-contiguous areas within the Patterson Creek watershed of unincorporated King County southwest of Carnation, arranged roughly east-west along State Highway 202 (SH 202), also known as the Redmond-Fall City Road. This route is designated a state "Scenic and Historic Byway". The parcels lie less than one-quarter mile north of King County Section 36 Park (*Figure 2*).

Description

The Natural Area consists of 150.45 acres in two discontinuous sections referred to as "Patterson Creek East" ("PCE") and "Patterson Creek West" ("PCW"). Most of the Natural Area lies to the south of SH 202. A small parcel is located to the north of SH 202 (considered part of PCW) and provides some forested cover upslope of the creek. Both PCW and PCE contain forested uplands, several tributaries and significant stretches of Patterson Creek, which drains hillside seeps and tributaries and meanders through approximately 100 acres of low-lying, extensive wetlands south of SH 202. Portions of the Natural Area were surveyed and boundaries posted in the spring of 1998, and "Waterways 2000 Acquisition" signs posted at both PCE and PCW along SH 202 (*Figures 2 & 3*).

Conservation Significance

The Patterson Creek basin is regionally significant because it is relatively undeveloped and supports high quality wildlife and salmon habitat, despite impacts from agricultural and logging activities and non-point source pollution common to rural areas throughout King County. The Patterson Creek Park Natural Area encompasses several significant habitat features in the basin such as the lower portion of Tributary 0383, extensive floodplain wetlands, patches of forested wetlands dominated by Sitka spruce and western red cedar, forested uplands, and over 4500 linear feet of Patterson Creek. Freshwater mollusks have been observed in Patterson Creek and are a good indicator of high water quality. Forested, scrub-shrub, and emergent wetlands and forested uplands provide habitat for a variety of resident and migratory birds as well as aquatic and terrestrial mammals, amphibians, and reptiles. The Patterson Creek basin is part of the Wildlife Habitat Network as described in the [1996 King County Comprehensive Plan](#).

As a major tributary to the Snoqualmie River, the Patterson Creek basin contributes to the wild coho production of the Snohomish/Snoqualmie River system which, in turn, is a significant contributor to wild coho production in Puget Sound. In addition to coho, Patterson Creek supports Chinook, steelhead/rainbow trout, and cutthroat trout. In early 1999, Puget Sound Chinook was listed as "Threatened" under the Federal Endangered Species Act (ESA) and other salmonid species (coho, and steelhead) may be listed in the near future. Each of these species use the mainstem of Patterson Creek for rearing. Tributary 0383 supports a high concentration of spawning coho.

The Natural Area is adjacent to forested land held by a private trust, which connects the eastern portion of the Natural Area to King County's Section 36 Park, a 628-acre parcel of open space which will include some active and passive recreation areas. No development plans currently exist for the private acreage. The western portion of the Natural Area is surrounded by 160 acres of forested land owned by the Washington State Department of Natural Resources (WA DNR). This forest land is designated "common school trust land" for the purpose of revenue generation for school construction and rehabilitation.

Passive Recreational and Educational Significance

Currently, there is little opportunity for low-impact, passive recreation at the Natural Area. At PCW, the most accessible, dry ground (the former home site) lies within the stream buffer. At the upland portion of PCE, the drier quarry area has attracted ATV use, but provides little in the way of passive recreational opportunities. However, interpretation of onsite restoration activities could provide a good opportunity for public education on watershed processes within the basin as well as stimulate interest and ownership in the management of the Natural Area. Informal roadside viewing of restoration projects could be possible along SH 202. Other County parks in the vicinity are better suited for public access, including Section 36 Park immediately to the south of the Natural Area and Griffin Creek Park Natural Area to the east. There is no legal public access between Section 36 and the Natural Area, though informal trails through private property link the two areas.

[insert fig. 1]

[insert fig. 2]

Part II - SITE INVENTORY AND ANALYSIS

NATURAL RESOURCES

Topography

The Patterson Creek/Evans Creek valley extends in a relatively broad valley (¼ to ½ mile width), in an east-southeast direction from the northeast corner of Lake Sammamish to the Snoqualmie River. Minor topographic differences (about 20 feet in elevation) divide Evans and Patterson Creek sub-basins, causing Evans Creek to flow into Lake Sammamish (Lake Sammamish/Sammamish River Watershed) and Patterson Creek into the Snoqualmie River (Snohomish River Watershed). Steep slopes rise several hundred feet above the valley floor to plateaus, and streams cut steep-sided ravines into the valley walls.

Soils

In general, soils in the valley bottom are mucks and mucky peats, and all are poorly drained. Silt loams and silty clay loams are found near the confluence of Patterson Creek and its tributaries. Excessively drained Everett gravelly sandy loam (5- to 15-percent slope), Alderwood gravelly sandy loam (15- to 30- percent slope) and steep Alderwood and Kitsap soils (25- to 70- percent slope) are mapped on the slopes south of Patterson Creek Park Natural Area. Alderwood soils have a consolidated substratum (glacial till) at a depth of 24- to 40- inches. This substratum often restricts water flow, causing a seasonal water table near or within a foot of the soil surface. Due to these conditions, portions of the steep slopes flanking the Patterson Creek valley are designated as Erosion Hazard Areas and Landslide Hazard Areas in the King County Sensitive Areas Ordinance (SAO) map folio. Alderwood and Kitsap soils on the southern half of the upland areas of PCW are designated as very steep and as having very severe erosion hazard. Alderwood gravelly sandy loam on the upland portion of PCE are also designated as severe to very severe erosion hazards. To the north and south of the Natural Area, steep slopes of more than 15-percent with impermeable soils and ground water seeps are designated as Landslide Hazard Areas.

Hydrology

The Patterson Creek basin is a small sub-basin of the Snoqualmie River covering approximately 20 square miles and including 28 inventoried wetlands. Patterson Creek, a King County Class 2, salmonid-bearing stream, originates from the eight-acre Patterson Creek #2 and #3 wetlands on the plateau north of SH 202, and descends 280 feet in elevation through a steep-sided ravine for about 1.5 miles until it meets flat land in the Evans Creek/Patterson Creek valley, meandering through a wide, gently sloping valley and approximately eight miles of wetlands to its confluence with the Snoqualmie. The water moves slowly through the main channel, limiting sediment transport and the amount of salmonid spawning habitat available.

At the Natural Area, Patterson Creek flows in a deep, narrow, and relatively straight channel in the lowland portion of PCW, almost parallel with SH 202. At PCE, the creek is U-shaped, four feet deep at low flow, forming a 16-foot wide channel with a mucky peat substrate. East of 276th Ave. NE, the creek has slightly more instream structural diversity. Channel width varies from 10 to 25 feet and depths range from 2 to 2.75 feet at low flow. Creek bends form pools and support two recently constructed beaver dams, one in an area where a much larger dam previously existed. Gravels predominate the substrate downstream of the dam and mucky peats predominate upstream, with reed canarygrass lining the stream channel.

Several tributaries flow into Patterson Creek onsite. An unclassified perennial stream flows through a steep-sided ravine on the upland forest portion of PCW and it lessens in gradient as it flows into forested wetland in two channels along the edges of old logging roads. Tributary 0383 joins Patterson Creek at the lowland portion of PCW. This area has been drastically altered, except for a forested slope above it which remains mostly intact. This

tributary flows in a straight, deep, narrow channel. At PCE, several tributaries flow into Patterson Creek west of 276th Ave. NE, as well as two perennial creeks from the south.

The quality of riparian zones varies from poor to good at the Natural Area, reflecting differences in land use. Reed canarygrass is prolific throughout the floodplain. At PCW, the lowland portion lacks a riparian zone. However, red alder, black cottonwood, willow, and spirea are colonizing the northwestern corner of this low area near the creek, alongside mature forested wetlands within 50 feet of the creek. At PCE, a deciduous shrub and forested riparian zone extends along the south side of the creek, west of 276th Ave. NE. Wetlands composed of deciduous shrubs and trees, and several groves of Sitka spruce, extend about 15- to 30-feet on the south side of the channel. On the north side of the creek, reed canarygrass and other invasive emergent plants extend for 50 feet or more. At PCE, to the east of 276th Ave. NE, both sides of the creek support mature coniferous and deciduous forested wetlands, though the canopy does not extend over the creek. Many red alder snags occur between the swath of reed canarygrass along the creek and mature forested wetlands, upstream of the lower beaver dam. They were likely killed when the dam was larger and more extensively ponded.

Urbanization and basin hydrology

Patterson Creek's ability to support a diversity of resident and anadromous fish as well as other aquatic species, is directly related to the quality and quantity of instream and riparian habitats, habitats which are tied to processes and conditions that exist at the watershed scale. Development within a watershed results in fragmentation of upland and riparian habitats, changes to the basin's hydrology, a decrease in water quality, increase in sediment load, and channel and instream alterations which are damaging to fish and wildlife habitats. Non-point source pollution from increased traffic on roads, clearing, impermeable surfaces, runoff from residential areas and agricultural activities contributes sediments, nutrients and heavy metals to the system. Urbanization also affects the magnitude and frequency of storm flows. Storm flows can scour stream beds with sediment-laden, high-velocity flows and wash away large woody debris that create pools and trap sediment, reducing the channels' habitat quality and sediment storage capacity. The net result of changes in landuse and runoff patterns can be the loss of spawning and rearing habitat. Clearing of riparian vegetation, removal of instream woody debris, loss of side channels and off-channel areas, and channel straightening and armoring are further damaging effects of urbanization on streams and riparian habitats. These incremental changes to the stream system ultimately result in the loss of habitat complexity which is necessary to support of fish and wildlife species.

Future Stream Condition

In the Patterson Creek basin before European settlement, stormwater retention rates were historically high, enabling the stream to maintain flows throughout the summer, in spite of the absence of snowpack in its headwaters. Mature forests on the slopes and on the valley floor played a primary role in retaining precipitation. Wetlands also contributed to stable hydrologic conditions, including those wetlands created by beavers. Beaver ponds increased the rearing capacity of the main channel, which is the primary function of the main channel for salmonids. These conditions have been altered over time, with the removal of forests and agricultural ditching and dredging activities. At the Natural Area, Patterson Creek may increase in sinuosity as large flooding events initiate major channel modifications and eventually erase the ditched channel structure. Without these events, it is likely that the ditched channel structure will remain for decades. New meanders may form from obstructions such as wood and beaver dams, or from sediment buildup. Increased meanders would likely increase instream habitat diversity.

Vegetation

Emergent, scrub-shrub, and forested wetlands characterize the valley bottom. At the Natural Area, former agricultural and residential areas are dominated by invasive wetland plants. At PCW, the remnants of a small orchard include Oregon white oak, aspen and apple trees, which provide some noise and visual buffer from SH202.

[insert fig. 3]

The following general vegetation descriptions correspond to plant species observed on site (*Table 1*) and mapped natural resource areas (*Figure 4*):

Emergent Wetlands

Emergent and scrub-shrub wetlands typically occur in areas that experienced logging and subsequent farming and grazing. Soft rush and reed canarygrass dominate the emergent wetlands west of 264th Ave. NE at PCW, which also include non-native yellow flag iris, beaked sedge, creeping buttercup, bittersweet nightshade and Japanese knotweed. Skunk cabbage is common near forested areas to the south and west. A mosaic of emergent and scrub-shrub wetlands occurs in the floodplain on the north side of the creek at PCE. Wetland areas here are slightly lower in elevation, supporting more obligate wetland species such as common cattail, pennyroyal, American brooklime, duckweed, and horsetail.

Scrub-shrub Wetlands

Spiraea and willow dominate the scrub-shrub wetlands at both PCE and PCW. Spiraea is colonizing a small area of pasture on the western end of PCW, along with evergreen and Himalayan blackberry.

Forested Wetlands

Coniferous and deciduous forested wetlands occur in the floodplain portions of the Natural Area. A perennially shallow water table at or near the soil surface results in toppled trees throughout, and mixed patches of coniferous and deciduous wetlands. The most mature group of forested wetlands exists along the lowland portion of PCW. Fire-scarred, old growth, western red cedar snags are scattered throughout this patch, providing old-growth-like structure to the stand. Conifer diameters range in size from 26-inch western hemlock to 43-inch Sitka spruce. Mixed upland forests occur in well-drained soils of the upland portions of PCW and PCE. Extensive hillside seeps at PCW support deciduous forested wetlands. Species composition and maturity of forested wetlands and uplands most likely indicate varied logging histories.

Coniferous Forested Wetlands: Western red cedar, western hemlock, and Sitka spruce form the canopy, with intermittent red alder and cascara. The subcanopy consists of cedar and saplings of cedar and hemlock. Canopy closure varies, ranging from roughly 75-to 85-percent cover. Recent hemlock and cedar snags are common and generally 20 feet in height, 18- to- 24 inches in diameter. Vine maple and salmonberry are common in the understory, with red huckleberry, false azalea and salal restricted to logs and stumps. The understory also supports devil's club, twinberry, red-twig dogwood, red elderberry, and black swamp gooseberry. Skunk Cabbage and lady fern dominate the groundcover, though foam flower, water parsley, wild lily-of-the-valley, deer fern, sword fern, and bracken fern are present in lower numbers

Deciduous Forested Wetlands: Deciduous forested wetlands are interspersed with patches of coniferous-forested wetlands. Red alder occurs in deciduous patches in a partially closed canopy (50- to 75- percent canopy coverage), with western red cedar and western hemlock in the subcanopy. Thick tangles of salmonberry, vine maple, willow, devil's club, twinberry, and red-twig dogwood form the understory, with occasional cedar saplings. Skunk cabbage, water parsley, wild lily-of-the-valley, and lady fern compose a dense groundcover layer. Red alder snags, generally 30 to 60 feet in height and 8 inches in diameter, as well as alder trunks cover the forest floor. Hillside seeps on the forested upland of PCW also support deciduous forests. Species composition is similar to deciduous forests on the flat floodplain, though big leaf maple accompanies red alder in the sparse canopy (roughly 30- to 50 percent coverage), largely as a result of recent winter tree toppling. The hillside is littered with red alder trunks. Travel through this area is difficult because of steep slopes, saturated, mucky soils, numerous downed trees, and dense, prickly understory. Vine maple, devil's club, salmonberry, and red elderberry compose the understory thicket. Stinging nettle, skunk cabbage, piggy-back, Siberian miner's lettuce, lady fern, and sword fern form the groundcover.

Table 1. Plant Species Observed at Patterson Creek Park Natural Area

SCIENTIFIC NAME	COMMON NAME	PCW *	PCE *	SCIENTIFIC NAME	COMMON NAME	PCW *	PCE *
FERNS AND ALLIES:				<i>Juncus</i> spp.	Rush		X
<i>Athyrium filix-femina</i>	Lady Fern	X	X	<i>Carex utriculata</i> **	Beaked Sedge	X	X
<i>Blechnum spicant</i>	Deer Fern	X		<i>Carex</i> spp.	Sedge		X
<i>Equisetum</i> spp.	Horsetail	X		SHRUBS AND SMALL TREES:			
<i>Polystichum munitum</i>	Sword Fern	X	X	<i>Acer circinatum</i>	Vine Maple	X	X
<i>Pteridium aquilinum</i>	Bracken Fern	X	X	<i>Berberis nervosa</i>	Oregon Grape	X	X
AQUATICS:				<i>Cornus stolonifera</i>	Red-osier Dogwood	X	X
<i>Lemna minor</i>	Duckweed	X	X	<i>Cytisus scoparius</i>	Scot's Broom		X
<i>Sparganium</i> sp.	Bur-reed		X	<i>Gaultheria shallon</i>	Salal	X	X
HERBS:				<i>Hedera helix</i>	Ivy	X	
<i>Claytonia sibirica</i>	Siberian Miner's-Lettuce	X	X	<i>Ilex</i> sp.	Holly	X	X
<i>Conium maculatum</i>	Poison-hemlock	X		<i>Lonicera involucrata</i>	Twinberry	X	X
<i>Dicentra formosa</i>	Pacific Bleeding Heart	X	X	<i>Menziesia ferruginea</i>	False Azalea	X	
<i>Galium</i> sp.	Bedstraw	X		<i>Oemleria cerasiformis</i>	Indian Plum	X	X
<i>Iris pseudocorus</i>	Yellow Flag-lily	X	X	<i>Oplopanax horridus</i>	Devil's Club	X	X
<i>Maianthemum dilatatum</i>	False Lily of the Valley	X	X	<i>Ribes lacutre</i>	Black Swamp Currant	X	
<i>Mentha pulegium</i>	Pennyroyal		X	<i>Rosa</i> sp.	Rose	X	X
<i>Myosotis</i> spp.	Forget-me-not	X	X	<i>Rubus discolor</i>	Himalayan Blackberry	X	X
<i>Oenanthe sarmentosa</i>	Water Parsley	X	X	<i>Rubus laciniatus</i>	Evergreen Blackberry	X	X
<i>Polygonum cuspidatum</i>	Japanese Knotweed	X		<i>Rubus parviflorus</i>	Thimbleberry		X
<i>Ranunculus repens</i>	Creeping Buttercup	X	X	<i>Rubus spectabilis</i>	Salmonberry	X	X
<i>Sium suave</i>	Water Parsnip	X		<i>Rubus ursinus</i>	Trailing Blackberry (Dewberry)	X	X
<i>Solanum dulcamara</i>	Bittersweet	X	X	<i>Salix</i> spp.	Willow	X	X
<i>Streptopus roseus</i>	Rosy Twistedstalk	X	X	<i>Sambucus racemosa</i>	Red Elderberry	X	X
<i>Tiarella trifoliata</i>	Foamflower	X	X	<i>Spiraea douglassii</i>	Hardhack	X	X
<i>Tolmiea menziesii</i>	Piggy-back Plant	X	X	<i>Vaccinium parvifolium</i>	Red Huckleberry	X	X
<i>Trifolium pratense</i>	Red Clover		X	TREES:			
<i>Trillium ovatum</i>	Western Trillium	X	X	<i>Acer macrophyllum</i>	Big Leaf Maple	X	X
<i>Typha latifolia</i>	Broad-leaved Cattail	X		<i>Alnus rubra</i>	Red Alder	Y	X
<i>Urtica dioica</i>	Stinging Nettle	X	X	<i>Malus fusca</i>	Crab Apple	X	
<i>Veronica americana</i>	American Speedwell	X	X	<i>Picea sitchensis</i>	Sitka Spruce	X	X
<i>Lysichiton americanum</i> **	Skunk Cabbage	X	X	<i>Populus balsamifera</i> var. <i>trichocarpa</i> **	Black Cottonwood		X
GRASSES:				<i>Prunus emarginata</i>	Bittersweet Cherry	X	X
<i>Phalaris arundinacea</i> +	Reed Canary Grass	X	X	<i>Pseudotsuga menziesii</i>	Douglas Fir	X	X
RUSHES AND SEDGES:				<i>Rhamnus purshiana</i>	Cascara	X	X
<i>Juncus effusus</i>	Soft Rush	X	X	<i>Salix lucida</i> ssp.	Pacific Willow	X	X
				<i>Lasiandra</i> **			
				<i>Thuja plicata</i>	Western Red Cedar	X	X
				<i>Tsuga heterophylla</i>	Western Hemlock	X	X

Notes:

* "PCW" refers to Patterson Creek West, "PCE" refers to Patterson Creek East.

X Indicates species observed on site in early spring of 1997. Information is therefore seasonal in scope and limited in nature.

Bold indicates non-native and/or invasive plant species.

+ Indicates native species status undetermined.

** Identifies updated plant names following Hickman (1993). All others follow Hitchcock and Cronquist (1978).

[insert fig. 4]

Invasive Species

Reed canarygrass, yellow flag iris, soft rush, bittersweet nightshade, and blackberries are well established in the basin and tend to dominate disturbed habitats, making succession of native species difficult. Japanese knotweed and English ivy are currently restricted to Patterson Creek along SH 202 and lowland portions of the Natural Area. Butterfly bush is found at the upland portion of PCE.

Vegetative Succession

Hillsides and lowlands within the Patterson Creek valley will develop a more coniferous character with time, barring stand replacement disturbances such as logging, fire, or landslides. Upland forests have western red cedar and western hemlock in the understory; patches of red alder-dominated forested wetlands likely will be replaced by western red cedar, Sitka spruce and western hemlock. Scrub-shrub wetlands eventually may colonize wet meadows which currently support reed canarygrass and soft rush, with willow and spirea thickets along the edges. Reed canarygrass and yellow flag iris may persist for decades. Red alder, Sitka spruce, and western red cedar establishment within emergent and scrub-shrub wetlands may be limited by standing water and saturated soils, though forested wetlands may extend into areas that have elevated rooting zones (such as rotting logs) and/or areas that are only seasonally inundated. About 60 acres contain upland forests that, while not mature, are progressing towards conifer dominance. The lowland properties contain examples of both highly degraded and highly productive valley floor habitat. At PCE, to the east of 276th Ave. NE and at PCW along its western edge, are excellent examples of a mature, coniferous-forested wetland.

Wildlife

A variety of resident and migratory birds and mammals is found at the Natural Area due to diversity of vegetation types and connection to other habitat lands. The sites' coniferous and deciduous forested wetlands, scrub-shrub wetlands, and mixed upland forests are in good ecological condition and are connected to, or near natural lands on the plateau or containing Patterson Creek. 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 the natural resources map (*Figure 4*).

Fish

The Patterson Creek system supports coho, Chinook, steelhead/rainbow trout, and cutthroat trout. The main stem provides extensive rearing as well as some spawning habitat for salmonids. Much of the fish production occurs in tributaries such as Canyon Creek (WRIA # 07.0382). Patterson Creek provides an important fishery to the Snoqualmie River, as a major tributary. In turn, the Snohomish/Snoqualmie River system is a significant contributor of wild coho to Puget Sound; up to one third of total in the last decade. Fingerling salmonids and sticklebacks were observed in Patterson Creek during a 1997 summer stream survey.

Amphibians and Reptiles

Amphibian surveys have not been performed in wetlands associated with Patterson Creek, although a native Pacific chorus frog was observed at PCE during a site visit as well as (non-native) bullfrogs at PCW. A young western garter snake was seen at PCE. Based on existing vegetation cover types at the Natural Area, other reptile species such as western skink, long-toed salamander, and northern alligator lizard probably occur onsite.

Birds

A variety of resident and migratory bird species are expected to use the Natural Area's willow thickets, forested wetlands and hillsides. Wood duck, mallard, Virginia rail, and belted kingfisher have been observed. Bald eagles (a federally "Threatened" species in Washington State and designated as a "Species of Significance" in King County) have been seen in the Patterson Creek valley during salmon spawning, and pileated woodpecker (a candidate for both listings) have been observed onsite. Mature forested wetlands and uplands with snags may provide high quality habitat for woodpecker.

Table 2. Wildlife Species Expected to Utilize Patterson Creek Park Natural Area

SCIENTIFIC NAME	COMMON	OBSERVED	SCIENTIFIC NAME	COMMON NAME	OBSERVED
MAMMALS			<i>Tamiasciurus douglasi</i>	Douglas Squirrel	X
<u>Pouched Mammals (Marsupialia)</u>			<u>Castoridae</u>		
<i>Didelphis marsupialis</i>	Opossum		<i>Castor canadensis</i>	Beaver	X
<u>Insect-eaters (Insectivora)</u>			<u>Cricetidae</u>		
<u>Soricidae</u>			<i>Peromyscus maniculatus</i>	Deer Mouse	
<i>Sorex bendirei</i>	Marsh Shrew		<i>Peromyscus oreas</i>		
<i>Sorex cinereus</i>	Masked Shrew		<i>Microtus oregoni</i>	Oregon Vole	
<i>Sorex palustris</i>	Water Shrew		<i>Microtus longicaudus</i>	Long-tailed Meadow Vole	
<i>Sorex trowbridgei</i>	Trowbridge Shrew		<i>Microtus richardsoni</i>	Water Vole	
<i>Sorex vagrans</i>	Vagrant Shrew		<i>Microtus townsendii</i>	Townsend's Vole	
<u>Talpidae</u>			<i>Ondatra zibethica</i>	Muskrat	X
<i>Neurotrichus gibbsi</i>	Shrew-mole		<u>Muridae</u>		
<i>Scapanus orarius</i>	True-coast Mole		<i>Rattus norvegicus</i>	Norway Rat	
<i>Scapanus townsendi</i>	Townsend's Mole		<u>Erethizontidae</u>		
<u>Bats (Chiroptera)</u>			<i>Erethizon dorsatum</i>	Porcupine	
<i>Eptesicus fuscus</i>	Big Brown Bat		<u>Pikas, Hares, and Rabbits (Lagomorpha)</u>		
<i>Lasionycteris noctivagans</i>	Silver Haired Bat		<u>Leporidae</u>		
<i>Myotis californicus</i>	California Myotis		<i>Sylvilagus</i> spp.	Cottontail Rabbit	
<i>Myotis evotis</i>	Long-eared Myotis		<u>Even-hoofed Mammals (Artiodactyla)</u>		
<i>Myotis lucifugus</i>	Little Brown Myotis		<u>Cervidae</u>		
<i>Myotis volans</i>	Long-legged Myotis		<i>Odocoileus hemionus</i>	Blacktail Deer	X
<u>Flesh-eaters (Carnivora)</u>			BIRDS		
<u>Ursidae</u>			<u>Herons, Bitterns (Ardeidae)</u>		
<i>Ursus americanus</i>	Black Bear	X	<i>Botaurus lentiginosus</i>	American Bittern	
<u>Procyonidae</u>			<i>Ardea herodias</i>	Great Blue Heron	X
<i>Procyon lotor</i>	Raccoon	X	<i>Butorides virescens</i>	Green Heron	
<u>Mustelidae</u>			<u>Waterfowl (Anatidae)</u>		
<i>Lutra canadensis</i>	River Otter	X	<u>Geese (Anserini)</u>		
<i>Mustela erminea</i>	Short-tailed Weasel		<i>Branta canadensis</i>	Canada Goose	X
<i>Mustela frenata</i>	Long-tailed Weasel		<u>Ducks (Anatinae)</u>		
<i>Mustela vison</i>	Mink		<i>Aix sponsa</i>	Wood Duck	X+
<i>Mephitis mephitis</i>	Striped Skunk		<i>Anas crecca</i>	Green-winged Teal	
<i>Spilogale putorius</i>	Spotted Skunk		<i>Anas platyrhynchos</i>	Mallard	X
<u>Canidae</u>			<i>Anas discors</i>	Blue-winged Teal	
<i>Canis latrans</i>	Coyote	X	<i>Anas cyanoptera</i>	Cinnamon Teal	
<u>Felidae</u>			<i>Anas clypeata</i>	Northern Shoveler	
<i>Felis concolor</i>	Mountain Lion		<i>Anas strepera</i>	Gadwall	
<u>Gnawing Mammals (Rodentia)</u>			<i>Anas americana</i>	American Wigeon	
<u>Aplodontiidae</u>			<i>Bucephala clangula</i>	Common Goldeneye	
<i>Aplodontia rufa</i>	Mountain Beaver		<i>Bucephala albeola</i>	Bufflehead	
<u>Sciuridae</u>			<i>Mergus merganser</i>	Common Merganser	
<i>Eutamias townsendi</i>	Townsend Chipmunk		<i>Oxyura jamaicensis</i>	Ruddy Duck	
<i>Glauconys sabrinus</i>	Northern Flying Squirrel				
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel				

Table 2. (Cont.)

SCIENTIFIC NAME	COMMON	OBSERVED	SCIENTIFIC NAME	COMMON NAME	OBSERVED
<u>Hawks, etc. (Accipitridae)</u>			<u>Flycatchers (Tyrannidae)</u>		
<i>Pandion haliaetus</i>	Osprey		<i>Contopus borealis</i>	Olive-sided Flycatcher	
<i>Haliaeetus leucocephalus</i>	Bald Eagle	X+	<i>Contopus sordidulus</i>	Western Wood Pewee	X
<i>Circus cyaneus</i>	Northern Harrier	X	<i>Empidonax traillii</i>	Willow Flycatcher	
<i>Accipiter striatus</i>	Sharp-shinned Hawk		<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	
<i>Accipiter cooperii</i>	Cooper's Hawk		<i>Empidonax hammondii</i>	Hammond's Flycatcher	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	X	<i>Empidonax oberholseri</i>	Dusky Flycatcher	
<u>Falcons (Falconidae)</u>			<u>Swallows (Hirundinidae)</u>		
<i>Falco sparverius</i>	American Kestrel		<i>Tachycineta bicolor</i>	Tree Swallow	
<i>Falco columbarius</i>	Merlin		<i>Tachycineta thalassina</i>	Violet-green Swallow	
<u>Fowl-Like Birds (Phasianidae)</u>			<i>Stelgidopteryx serripennis</i>	N. Rough-winged Swallow	
<i>Phasianus colchicus</i>	Ring-Necked Pheasant		<u>Jays, Magpies, Crows (Corvidae)</u>		
<i>Bonasa umbellus</i>	Ruffed Grouse		<i>Cuanoatta stelleri</i>	Steller's Jay	X
<i>Callipepla californica</i>	California Quail		<i>Corvus brachyrhynchos</i>	American Crow	
<u>Rails, etc. (Rallidae)</u>			<i>Corvus caurinus</i>	Northwestern Crow	
<i>Rallus limicola</i>	Virginia Rail	X	<u>Chickadees, Titmice (Paridae)</u>		
<i>Porzana carolina</i>	Sora		<i>Parvus atricapilus</i>	Black-capped Chickadee	X
<i>Fulica americana</i>	American Coot		<i>Parvus rufescens</i>	Chestnut-backed Chickadee	X
<u>Plovers (Charadriidae)</u>			<u>Bushtit (Aegithalidae)</u>		
<i>Charadrius vociferus</i>	Killdeer		<i>Psaltriparus minimus</i>	Bushtit	
<u>Jaeger, Gulls, etc. (Laridae)</u>			<u>Nuthatches (Sittidae)</u>		
<i>Larus delawarensis</i>	Ring-billed Gull		<i>Sitta canadensis</i>	Red-breasted Nuthatch	
<i>Larus californicus</i>	California Gull		<u>Creepers (Certhiidae)</u>		
<i>Larus glaucescens</i>	Glaucous-winged Gull		<i>Certhia americana</i>	Brown Creeper	
<u>Pigeons, Doves (Columbidae)</u>			<u>Wrens (Troglodytidae)</u>		
<i>Columba livia</i>	Rock Dove		<i>Thryomanes bewickii</i>	Bewick's Wren	
<i>Columba fasciata</i>	Band-tailed Pigeon		<i>Troglodytes aedon</i>	House Wren	
<i>Zenaidura macroura</i>	Mourning Dove		<i>Troglodytes troglodytes</i>	Winter Wren	X
<u>Owls (Tytonidae, Strigidae)</u>			<i>Cistothorus palustris</i>	Marsh Wren	
<i>Tyto alba</i>	Barn Owl		<u>Dippers (Cinclidae)</u>		
<i>Otus kennicottii</i>	Western Screech-owl		<i>Cinclus mexicanus</i>	American Dipper	
<i>Bubo virginianus</i>	Great Horned Owl		<u>Kinglets, etc. (Muscicapidae)</u>		
<i>Glaucidium gnoma</i>	Northern Pygmy Owl		<i>Regulus satrapa</i>	Golden-crowned Kinglet	X
<i>Strix varia</i>	Barred Owl		<i>Catharus ustulatus</i>	Swainson's Thrush	
<i>Aegolius acadicus</i>	Northern Saw-whet Owl		<i>Catharus guttatus</i>	Hermit Thrush	
<u>Swifts (Apodidae)</u>			<i>Turdus migratorius</i>	American Robin	X
<i>Chaetura vauxi</i>	Vaux's Swift		<i>Ixoreus naevius</i>	Varied Thrush	
<u>Hummingbirds (Trochilidae)</u>			<u>Waxwings (Bombycillidae)</u>		
<i>Selasphorus rufus</i>	Rufous Hummingbird		<i>Bombycilla garrulus</i>	Cedar Waxwing	X
<u>Kingfishers (Alcedinidae)</u>			<u>Starlings (Sturnidae)</u>		
<i>Ceryle alcyon</i>	Belted Kingfisher	X	<i>Sturnus vulgaris</i>	European Starling	
<u>Woodpeckers (Picidae)</u>			<u>Vireos (Vireonidae)</u>		
<i>Sphyrapicus thyroides</i>	Red-breasted Sapsucker	X	<i>Vireo huttoni</i>	Hutton Vireo	
<i>Picoides pubescens</i>	Downy Woodpecker		<i>Vireo solitarius</i>	Solitary Vireo	
<i>Picoides villosus</i>	Hairy Woodpecker				

Table 2. (Cont.)

SCIENTIFIC NAME	COMMON	OBSERVED	SCIENTIFIC NAME	COMMON NAME	OBSERVED
<i>Drycopus pileatus</i>	Pileated Woodpecker	X	<i>Vireo gilvus</i>	Warbling Vireo	
<i>Colaptes auratus</i>	Northern Flicker		<i>Vireo olivaceus</i>	Red-eyed Vireo	
<u>Emberizids (Emberizidae)</u>			FISH		
<u>Wood Warblers (Parulinae)</u>			<u>Salmons, Trouts, etc..</u>		
<i>Vermiuora celata</i>	Orange-crowned		<i>Oncorhynchus clarki</i>	Cutthroat Trout	X+
<i>Dendroica petechia</i>	Yellow Warbler		<i>Oncorhynchus kisutch</i>	Coho Salmon	X+
<i>Dendroica nigrescens</i>	Black-throated Gray		<i>Oncorhynchus mykiss</i>	Steelhead/Rainbow Trout	X+
<i>Dendroica coronata</i>	Yellow-rumped Warbler		<i>Oncorhynchus tshawytscha</i>	Chinook Salmon	X+
<i>Dendroica townsendi</i>	Townsend's Warbler		<u>Sticklebacks (Gasterosteidae)</u>		
<i>Dendroica occidentalis</i>	Hermit Warbler		<i>Gasterosteus aculeatus</i>	Three-spine Stickleback	X
<i>Oporornis tolmiei</i>	MacGillivray's Warbler		<u>Sculpin (Cottidae)</u>		
<i>Geothlypis trichas</i>	Common Yellow		<i>Cottus</i> sp.	Sculpin	
<i>Wilsonia pusilla</i>	Wilson's Warbler		AMPHIBIANS		
<u>Tanagers (Thraupinae)</u>			<u>Salamanders and Relatives</u>		
<i>Piranga ludoviciana</i>	Western Tanager		<u>Ambystomatidae</u>		
<u>Grosbeaks, etc. (Cardinalinae)</u>			<i>Ambystoma gracile</i>	Northwestern Salamander	
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	X	<i>Ambystoma macrodactylum</i>	Long-toed Salamander	
<i>Passerina amoena</i>	Lazuli Bunting		<i>Dicamptodon tenebrosus</i>	Pacific Giant Salamander	
<u>Towhees, Sparrows, etc. (Emberizinae)</u>			<u>Newts (Salamandridae)</u>		
<i>Pipilo erythrophthalmus</i>	Spotted Towhee	X	<i>Taricha granulosa</i>	Rough-skinned Newt	
<i>Spizella passerina</i>	Chipping Sparrow		<u>Lungless Salamanders</u>		
<i>Passerculus sandwichensis</i>	Savannah Sparrow		<i>Ensatina eschscholtzii</i>	Ensatina	
<i>Passerella iliaca</i>	Fox Sparrow		<i>Plethodon vehiculum</i>	Western Red-backed Salamander	
<i>Melospiza melodia</i>	Song Sparrow		Frogs and Toads (Ascaphidae)		
<i>Melospiza lincolni</i>	Lincoln's Sparrow		<u>Bufonidae</u>		
<i>Zonotrichia leucophrys</i>	White-crowned		<i>Bufo boreas</i>	Western Toad	
<i>Zonotrichia atricapilla</i>	Gold-crowned Sparrow		<u>Tree Frogs and their Allies (Hylidae)</u>		
<i>Junco hyemalis</i>	Dark-eyed Junco		<i>Hyla regilla</i>	Pacific Chorus Frog	X
<u>Blackbirds, Orioles, etc. (Icterinae)</u>			<u>True Frogs (Ranidae)</u>		
<i>Agelaius phoeniceus</i>	Red-winged Blackbird		<i>Rana aurora</i>	Red-legged Frog	
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird		<i>Rana catesbiana</i>	Bullfrog	X
<i>Molothrus ater</i>	Brown-headed Cowbird		<i>Ascaphus truei</i>	Tailed Frog	
<i>Icterus galbula</i>	Northern Oriole		REPTILES		
<u>Finches (Fringillidae)</u>			<u>Colubrids (Colubridae)</u>		
<i>Carpodacus purpureus</i>	Purple Finch		<i>Thamnophis elegans</i>	W. Terrestrial Garter Snake	
<i>Carpodacus mexicanus</i>	House Finch		<i>Thamnophis ordinoides</i>	Northwestern Garter Snake	
<i>Loxia curvirostra</i>	Red Crossbill		<i>Thamnophis sirtalis</i>	Common Garter Snake	
<i>Carduelis pinus</i>	Pine Siskin		<u>Alligator Lizards (Anguillidae)</u>		
<i>Carduelis tristis</i>	American Goldfinch		<i>Elgaria coerulea</i>	Northern Alligator Lizard	
<i>Coccothraustes vespertina</i>	Evening Grosbeak		OTHER FRESHWATER FAUNA		
<u>Weaver Finches (Passeridae)</u>			<i>Margaritifera falcata</i>	Freshwater Mussel	
<i>Passer domesticus</i>	House Sparrow				

Notes:

Bold indicates non-native species.

X Indicates species observed onsite by County staff.

X+ Indicates species observed onsite by others.

Mammals

Black-tailed deer, coyote, and black bear sign have been observed at the Natural Area, and mountain lion and bobcat may also occur. Beavers are active in Patterson Creek, especially to the east of 276th Ave. NE. Muskrat scat was observed along the creek bank here, along with river otter scat piles and scent mounds. Healthy populations of small mammals (e.g., mice, voles, weasels, and skunk) likely occur. Mountain beaver burrows are common on the steep slopes south of Patterson Creek. Snags on these coniferous slopes and in the forested wetlands may also provide roost sites for bats.

Other Freshwater Fauna

In 1995, freshwater mussels were observed in Patterson Creek and tributary 0383 downstream of the Natural Area.

LAND USE

Historic Use

Regional Cultural History

For centuries, the land along Patterson Creek was used by different groups, all loosely connected with the Snoqualmie people who hunted and fished and used the waterways for trade both west and east of the valley. Known as the *People of the Moon*, this was the largest native tribe in the region. The *People* used the Snoqualmie as a highway, traveling up river as far as Snoqualmie Falls and from there to trails over the mountains where they traded with Yakama and Klickitat people from east of the Cascades. Patterson Creek also served to carry them west to Evans Creek and from there to Lake Sammamish and other tribes further west in the Puget Sound lowlands. Fishing was the primary attraction of this area, especially the abundant salmon. Wildlife such as deer, elk, beaver and numerous game bird species as well as roots, bulbs, berries and nuts would have provided ample food to the *People*.

European settlement started in the Snoqualmie Valley in the late 1850s. Near the confluence of Patterson Creek and the Snoqualmie, less than a mile west of Griffin Creek North, a marker commemorates one of the early buildings, Fort Patterson. Although there is no record of discord with the Snoqualmie, this fort was built at the time of the “Indian Wars” and was abandoned 10 years later. No trace other than this marker remains. Beginning in the 1860s loggers began coming to the area, clearing the hillsides and setting up small camps throughout the region. Saw mills were set up at a number of locations, particularly along the waterways. Ox teams dragged logs off the hills to Patterson Creek where they were floated to the nearest saw mill. By 1872, a saw mill was located at Tokul Creek, and additional mills were built at Fall City. There was once a Patterson Creek Shingle Mill and a Straight Shingle Mill operated near the creek. By the late 1800s some settlements were beginning to grow along the fertile valley, attracting both loggers and farmers. In the 1880s one logger, a bachelor from Germany named Frank Ludwig, settled down on a 160-acre homestead and built a cabin near Patterson Creek. The creek’s flooding caused him to move his small cabin several times before he finally settled on a spot away from the creek and at the edge of what is now PCE. Mr. Ludwig apparently worked in lumber and shake mills and was very skilled in his work. His cabin is noted in the King County Historic Sites Survey as being of outstanding craftsmanship. Eventually Mr. Ludwig sold his land and cabin and returned to Germany. The building underwent a number of changes by subsequent owners before being partially destroyed by a fire in 1974. Since that time the cabin has been abandoned and the current owner has no plans for its restoration.

The Redmond-Fall City Road, (SH 202) was for a while the primary link from Seattle to Snoqualmie Pass and beyond. As early as 1869 efforts were made to build a wagon road that would connect the Seattle area to the mountains to the east over Snoqualmie Pass. By the late 1880s a wagon road was laid out along this corridor to the Snoqualmie River and followed that to the North Bend area. From there the road followed the trail the Snoqualmie people had used when trading with Yakama and Klickitat tribes east of the mountains. The road was later incorporated into the Yellowstone Trail, which was to connect Seattle to Boston, via Yellowstone. Kirkland considered itself to be the actual terminus of this route, as travelers went to Seattle from there by ferry.

Old-growth timber was logged from the basin by the turn of the century, and second growth uplands and wetlands logged again in the 1920s and 1930s. Many forty-acre parcels were logged for a third time in the 1950s and 1960s. Peat was mined from several locations in the valley in the 1940s through the 1960s on a relatively small scale, and Patterson Creek was dredged and straightened in the 1950s to accommodate agricultural activities. The past two decades have witnessed considerable residential growth in the Patterson Creek basin.

Patterson Creek West

Corn and/or hay was grown on the lowland portion of the site from the 1940s until the early 1990s, and steers were grazed on the property until its sale to the county. Blueberry bushes planted onsite south of Patterson Creek in the early 1950s still remain, now overgrown by reed canarygrass, spiraea, and willow. Houses and out buildings were removed from the site after purchase by King County, though a concrete foundation was left.

Patterson Creek East

From the 1950s to the 1990s, the area north of Patterson Creek and west of 276th Ave. NE was used as pasture. Gravel was mined from the slope south of the creek, resulting in steep, bare, slopes along the hillside. The largest and most recently exposed gravel slope measures approximately 100 feet in height and 50 feet in width. Prior to County purchase, a wood sculptor used a small forested area to the south of the slope as a carving operation area.

Current Use

Current Use Patterns

Current site use is characterized by limited informal activities: ATV and bicycle use, hiking, and some nature observation. Areas adjacent to steady traffic along SH 202 are impacted by noise and wind, which may discourage visitation in addition to limited access locations. The most intensive use of the Natural Area occurs at the upland portion of PCE, where vandalism of KC Parks-installed gates and barriers, and ATV use is a problem. Heavy equipment has been used to make pits, jumps and trails in this old gravel quarry area, resulting in runoff that washes cobbles, gravels and fines downslope. Dumping is also an issue along roadsides in general. At the upland property boundary of PCE, construction and vegetative debris continues to be dumped into a ravine on private property, and should be monitored to prevent spread to the Natural Area. “King County Parks Boundary” signs were posted near here in the spring of 1998.

Site Access

Access to the Natural Area is currently limited. At PCW, just below the intersection of 264th Ave. NE and SH 202, direct access to Patterson Creek is possible via the former home site, which is within the 100-foot stream buffer. However, the remainder of the area is scrubby and wet, the creek is deep, and there is little draw for visitors. More significantly, the intersection is impacted by limited turning room, limited visibility and speed of traffic on SH 202.

At PCE, access exists from 276th Ave. NE, but that intersection is also impacted by traffic speeds on SH 202, limited visibility and turning room. At this time, no significant reason exists to direct the public to PCE, though there is limited space for maintenance vehicle parking at the gate to the upland portion of the site.

Maintenance Access Easement

An access easement for maintenance purposes exists off of 264th Ave. NE, connecting that road with the upland portion of PCW. The approximate easement location is noted on *Figure 3* and *Figure 5*. Currently, the location of that road past its midpoint (Point “B”) is blocked by a fence and does not continue through to the property, though an unused road exists beyond that fence which does not follow the legal description of the easement. The title report indicates that,

“Such easement shall be solely for the purpose of ingress and egress to [KC Parks’] adjacent property...by [KC Parks], its employees, contractors and agents to enable [KC Parks] to maintain [KC Parks’] Property as open space. Vehicular ingress and egress shall be limited to that portion...easterly of ...Point “B”. The easement shall not include any rights of access by the general public over the easement area...the easement area is improved only from 264th Avenue Northeast to Point “B” in order to enable

[KC Parks] to use the easement. If [KC Parks] requires that the easement area be further improved West of "Point "B:, such additional improvement shall be entirely at the expense of [KC Parks]."

Parking

Informal parking occurs infrequently along 264th Ave. NE and within a small pull-out directly to the east of this area. This pull-out is on private property, and possibly within the legal road right-of-way. The former house site at PCW contains an elevated, graveled area that lies within the stream buffer and is blocked with large boulders to prevent onsite parking.

Utility Easements

WA DOT retains a road right-of-way alongside SH 202. Currently, the agency has no long-term plans for SH 202 road improvement or widening.

Mitigation

Wetland enhancement onsite such as increasing native conifer cover to the creek could be an added value to the site. Wetland creation as mitigation for wetlands lost elsewhere in the basin, however, would not be considered appropriate for areas purchased under the Waterways program. Any mitigation proposals must be coordinated with and approved by KC Parks, with technical assistance from KC Department of Natural Resources (KC DNR).

Part III - SITE MANAGEMENT

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 Patterson Creek site is classified as a *Natural Area* of *local* significance, with *natural 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. *Special management areas* would be habitat protection areas, which discourage public access. There are currently no *staging areas* for parking, restrooms, or maintenance facilities available at the Patterson Creek Park Natural 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 use is the secondary objective. Following are recommended public uses for the Natural Area:

- Nature observation
- Stream and wetland restoration
- Nature interpretation as feasible
- Volunteer stewardship
- Photography

Separation of Uses

In order to conserve resources at the Natural Area, emphasis should be placed on discouraging direct access to the creek and wetland areas. Appropriate signage along roadsides could explain the significance of the wetland and forested uplands could provide a passive appreciation of the area.

Special Management Areas

Habitat Preservation Areas

The site's most sensitive areas are located within wetland and stream buffers. Public access to these areas 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 creek with signage as feasible and do not maintain or construct trails or parking areas.
- Introduce no new footpaths or structures to areas which currently see little human use.
- Restore areas damaged by informal uses, including the upland portion of PCE.
- Maintain and enhance the condition of wetland and riparian buffers onsite as feasible.
- Comply with all regulations and restrictions which may result from ESA listings of salmonids in the management of the Natural Area.

Natural Areas

The Patterson Creek Park Natural Area was purchased for its conservation significance as well as potential passive recreational and educational opportunities. Public appreciation of the resources at the Natural Area will be important for future support of conservation efforts and site stewardship. However, the size and scope of current public use is not large and until such time as additional properties may be purchased with more appropriate access areas, public use at the Natural Area should be limited to passive (roadside) interpretive opportunities. Design issues for the Natural Area will include interpretive sign locations along roadways and the extent of restoration activities onsite.

Internal trails and water access

Internal trails at PCE should be removed and revegetated. These existing trails are circular routes for ATV users, and lead to adjacent private properties. The gated access should be blocked off 276th Ave. NE, and the chain-link fencing along the southern boundary improved and monitored for vandalism. There is no current legal access to other publicly owned parcels and the possibility of future links is small. Other accessible areas are within stream buffers, wetland and riparian areas. The remainder of the Natural Area contains dense scrub-shrub vegetation and generally wet conditions; therefore no new routes are recommended. (*Figure 5*).

Scenic View Areas

The side roads 264th Ave. NE and 276th Ave. NE. in addition to SH 202 afford the best viewing opportunities onsite. Much of the rest of the property is impassable. Interest in viewing opportunities could increase subsequent to restoration activities at PCW and PCE.

[insert fig.5]

Interpretation

Interpretive signage along roadsides could highlight the importance of the Patterson Creek system to wildlife habitat and water quality in the Snoqualmie system. Design and installation of interpretive signs would be to KC Parks interpretive standards. The following are potential signage locations at the Natural Area:

- Interpretive signage along SH 202 at PCW and/or PCE, subsequent to potential Patterson Creek stream restoration projects.
- Interpretive signage along 264th Ave. NE and/or 276th Ave. NE if feasible.

Parking

The Natural Area contains no suitable staging areas for either parking, nor optimal access from SH 202, and therefore public access should not be actively encouraged at PCE or PCW. Informal parking occurs along 264th Ave. NE and 276th Ave. NE, but continued use must not create access problems for neighbors. Informal parking at the pullout on the east side of 264th Ave. NE will likely continue if “Private Property” signs are not installed.

Site-wide Issues

Revegetation/Habitat restoration

The future of the Patterson Creek Park Natural Area will depend upon proper management and conservation of its natural resources, as well as conservation activities within the larger basin. Even with onsite restoration and enhancement, the Natural Area will be impacted by activities throughout the basin. Population is growing within the Patterson Creek basin and the Natural Area occupies a transitional area between the urban and rural landscapes. Over time, urban development (houses, roads and increased impermeable surfaces) within the basin will continue to add sediments to the creek and its tributaries and likely affect basin-wide hydrology, flood storage capacity, and health of the wetlands and salmonids and wildlife dependent upon them. King County’s support of forest retention on the hills and enforcement of wetlands protection in the valley will be key to the protection of the Natural Area and the basin as a whole. Preservation of forested slopes, wetlands, and beaver dams will help ensure that this system continues to support salmonids and other important wildlife species.

Management of the Natural Area should focus on the protection of existing systems, with restoration of degraded elements within the system. Such restoration should focus on the reestablishment of coniferous forest cover to the creek, restoration of natural hydrology, control of invasive species, and increased native vegetation onsite. Management of invasive plant species at the Natural Area will also be an important and long-term effort, preventing the spread of less common “satellite” populations into unaffected areas. The Natural Area should function as a small, but significant portion of protected wetland and riparian land in the Patterson Creek basin which could be augmented with the purchase or cooperative protection of surrounding habitats. Following are recommendations for restoration onsite:

- Cooperate with potential SPU mitigation project that involves planting native conifers and other species along a portion of Patterson Creek and Tributary 0383 at PCW. *SPU would have monitoring and replacement responsibility for at least 5 years onsite.*
- Plant native coniferous trees (Sitka spruce, western red cedar) and other riparian species along stream banks and riparian zones (currently a minimum of a 100 feet) to promote long-term conifer cover along Patterson Creek.
- Add large woody debris (LWD) to both tributary 0383 and Patterson Creek to increase instream habitat complexity as feasible.
- Control current and future infestations of non-native and invasive plant species (including reed canarygrass, yellow flag iris, and Japanese knotweed) in creek and tributaries utilizing existing KC Parks/KC DNR monitoring and removal programs. Monitor access corridors (trails, roads) and creek for weed establishment and remove as feasible (see *Appendix*).
- Discourage access into stream as necessary with appropriate signage and/or buffer zone plantings at PCW.

- Remove concrete pad within buffer at PCW (prior to, or in conjunction with SPU riparian restoration) and replant with native species.
- As an aspect of restoration projects, monitor the survival of restoration plantings and provide necessary maintenance, watering, and replacement.
- Retire and replant ATV roads and old gravel quarry at upland PCE access road and install erosion-controlling structures as necessary.
- Evaluate feasibility of KC DNR plan to add sinuosity to Patterson Creek and Tributary 0383 through channel modifications.

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 and monitor for continued and trespassing on upland portion of PCE.
- Install KC Parks signs at appropriate access points.
- Remove gate at upland PCE access road (subsequent to restoration activities) and replace with barriers to prevent further vehicle access.

Maintenance/Staffing

The following are maintenance issues at the Natural Area:

- Budget for appropriate Parks maintenance staff to ensure that general property condition monitoring is accomplished, garbage is collected, and natural resources are protected.
- Solicit and establish community volunteer stewardship in the maintenance and monitoring of the site.
- Prevent onsite use of herbicides, native plant removal, or removal of downed trees (unless impacting roads).
- Monitor for the occurrence and construction of social trails, structures, and related activities throughout the site, particularly in sensitive areas and in existing problem areas. Remove and revegetate trails as they are built and install appropriate barriers to access as necessary.

Park Furnishings

Park furnishings are limited within natural areas, as distinct from more traditional parks. Only those improvements that serve to preserve and protect natural resources onsite and minimize the impact of public use are considered. At this time, there are no recommended park furnishings.

Site Safety

- Discourage uses that cause unsafe site conditions such as access to creek and ATV use.
- 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:

- Utilize 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.
- Control current and future infestations of non-native and invasive plant species, using existing KC Parks/KC DNR monitoring and removal programs. Monitor access corridors (trails, roads) for weed establishment and remove as feasible (see *Part IV - Appendix*).
- Monitor the overall quality/integrity of the natural area and specific aspects of restoration projects as appropriate.
- Monitor the survival of restoration plantings and apply contingencies as appropriate.

Community Development

- Encourage and expand 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", and KC DNR's "Habitat Partners" and groups such as the Patterson Creek Flood Control Zone Board to encourage and manage volunteer stewardship efforts.
- Organize events to remove priority invasive species and plant native species in riparian zone buffers and other selected areas of the property. Projects could include invasive weed pulls, litter collection, and native species plantings.

Future Acquisitions

The Patterson Creek Park Natural Area is a key set of properties within the basin which contribute habitat to the Snoqualmie system and Puget Sound. 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, improve linkages between protected areas, and potentially provide suitable locations for interpretive and educational programming. 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. Maintaining and adding to forested corridors connecting the Natural Area to other conservation and open space lands may help to offset the negative effects of fragmentation that inevitably follow surrounding development. The addition of appropriate interpretive and educational staging areas could also facilitate stewardship and appreciation of the Natural Area and the Patterson Creek Basin as a whole.



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, 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 DCFM as the implementing agency for KC Parks. Other entities such as WLRD 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.

Highest Priority

- **ATV trail removal, revegetation** and erosion-control at upland PCE including decommissioning of old gravel quarry
- **Fencing and barrier improvement/replacement** at upland PCE
- **Gate removal** and barrier placement at upland PCE subsequent to trail removal
- **Cement pad removal at PCW** (prior to, or in conjunction with SPU riparian restoration) and replant with native species, including former home site
- **Safety signage** at appropriate locations
- **KC Parks signage** at appropriate locations

Secondary Priority

- **Interpretive signage** at appropriate locations
- **KC DNR stream restoration/modification** as feasible
- Native conifer and shrub underplantings along within stream buffers, wetland and upland Areas

Estimated Costs of Parks Capital Improvement Projects

Part IV - Appendix

Table 3: Priority Invasive Plant Species at Patterson Creek Park Natural Area

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

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

SCIENTIFIC NAME	COMMON NAME
<i>Abutilon theophrasti</i>	Velvetleaf
<i>Carduus pycnocephalus</i>	Italian Thistle
<i>Carduus tenuiflorus</i>	Slenderflower Thistle
<i>Centaurea calcitrapa</i>	Purple Starthistle
<i>Centaurea macrocephala</i>	Bighead Knapweed
<i>Centaurea nigrescens</i>	Vochin Knapweed
<i>Crupina vulgaris</i>	Common Crupina
<i>Helianthus ciliaris</i>	Texas Blueweed
<i>Heracleum mantegazzianum</i>	Giant Hogweed
<i>Hibiscus trionum</i>	Venice Mallow
<i>Hieracium pilosella</i>	Mouseear Hawkweed
<i>Hydrilla verticillata</i>	Hydrilla
<i>Isatis tinctoria</i>	Dyers Woad
<i>Mirabilis nyctaginea</i>	Wild Four O'clock
<i>Peganum harmala</i>	Peganum
<i>Proboscidea louisianica</i>	Unicorn-plant
<i>Salvia aethiopsis</i>	Mediterranean Sage
<i>Silybum marianum</i>	Milk Thistle
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade
<i>Solanum rostratum</i>	Buffalobur
<i>Sorghum halepense</i>	Johnsongrass
<i>Spartina patens</i>	Salt Meadow Cordgrass
<i>Zygophyllum fabago</i>	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
<i>Acroptilon repens</i>	Russian Knapweed
<i>Alhagi maurorum</i>	Camelthorn
<i>Amorpha fruticosa</i>	Indigobush
<i>Anchusa arvensis</i>	Annual Bugloss
<i>Anchusa officinalis</i>	Common Bugloss
<i>Cabomba caroliniana</i>	Fanwort
<i>Carduus acanthoides, C. nutans</i>	Plumeless and Musk Thistle
<i>Centaurea biebersteinii, C. diffusa, C. jacea, C. nigra, C. jacea x nigra</i>	Spotted, Diffuse, Brown, Black, & Meadow Knapweed
<i>Cenchrus longispinus</i>	Longspine Sandbur
<i>Centaurea solstitialis</i>	Yellow Starthistle
<i>Chondrilla juncea</i>	Rush Skeletonweed
<i>Cyperus esculentus</i>	Yellow Nutsedge
<i>Echium vulgare</i>	Blueweed
<i>Euphorbia esula</i>	Leafy Spurge
<i>Hieracium caespitosum</i>	Yellow Hawkweed
<i>Lamium hybridum</i>	Hybrid Deadnettle
<i>Lepidium latifolium</i>	Perennial Pepperweed
<i>Lepyroclis holosteoides</i>	Lepyroclis
<i>Linaria dalmatica ssp. dalmatica</i>	Dalmatian Toadflax
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Myriophyllum aquaticum</i>	Parrotfeather
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Picris hieracioides</i>	Hawkweed Oxtongue
<i>Potentilla recta</i>	Sulfur Cinquefoil
<i>Rorippa austriaca</i>	Austrian Fieldcress
<i>Senecio jacobaea</i>	Tansy Ragwort
<i>Sonchus arvensis spp. arvensis</i>	Perennial Sowthistle
<i>Spartina alterniflora, S. anglica</i>	Smooth, Common Cordgrass
<i>Sphaerophysa salsula</i>	Swainsonpea
<i>Torilis arvensis</i>	Hedgeparsley
<i>Tribulus terrestris</i>	Puncturevine
<i>Ulex eropaeus</i>	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
<i>Aegilops cylindrica</i>	Jointed Goatgrass	<i>Hyoscyamus niger</i>	Black Henbane
<i>Anthriscus sylvestris</i>	Wild Chervil	<i>Hypericum perforatum</i>	Common St. Johnswort
<i>Artemisia absinthium</i>	Absinth Wormwood	<i>Linaria vulgaris</i>	Yellow Toadflax
<i>Cardaria pubescens</i>	Hairy Whitetop	<i>Matricaria perforata</i>	Scentless Mayweed
<i>Chaenorrhinum minus</i>	Dwarf Snapdragon	<i>Phalaris arundinacea</i>	Reed Canarygrass
<i>Cirsium arvense</i>	Canada Thistle	<i>Polygonum cuspidatum</i>	Japanese Knotweed
<i>Cirsium vulgare</i>	Bull Thistle	<i>Secale cereale</i>	Cereal Rye
<i>Conium maculatum</i>	Poison-hemlock	<i>Silene latifolia ssp. alba</i>	White Cockle
<i>Convolvulus arvensis</i>	Field Bindweed	<i>Xanthium spinosum</i>	Spiny Cocklebur
<i>Cuscuta approximata</i>	Soothseed Alfalfa Dodder	<i>Cardaria draba</i>	Hoary Cress
<i>Cynoglossum officinale</i>	Houndstongue	<i>Tanacetum vulgare</i>	Common Tansy
<i>Daucus carota</i>	Wild Carrot	<i>Solanum dulcamara</i>	Bitter Nightshade
<i>Eruca vesicaria ssp. sativa</i>	Garden Rocket	<i>Tamarix spp.</i>	Saltcedar
<i>Gypsophila paniculata</i>	Babysbreath	<i>Verbascum thapsus</i>	Common Mullein
<i>Hemizonia pungens</i>	Spikeweed		

