Hatchery Natural Area
Site Management Guidelines

September 2004

King County
Department of Natural Resources and Parks
Water and Land Resources Division

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King County Water and Land Resources Division

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Executive Summary

The King County Department of Natural of Natural Resources and Parks (DNRP) acquired Hatchery Natural Area in fee for parks and recreation purposes in 1979 for $105,500 in Forward Thrust funds. The 23-acre Hatchery Natural Area is located at the confluence of the Green River (RM 33.6) and Big Soos Creek in south King County just upstream of Highway 18 and east of Auburn, WA. The surrounding area includes the Soos Creek Hatchery, King County's Porter Levee and Auburn Narrows Natural Areas, open space, residential and agricultural properties.

The mostly flat site sits on the Soos Creek delta. Vegetation is primarily pasture grasses, reed canarygrass, Himalayan blackberry and Japanese knotweed. The Middle Green River supports populations of coho, chinook, and chum salmon, steelhead, rainbow, and resident and sea-run cutthroat trout. Bull trout have also been found. Other wildlife that use the property are deer, mergansers, great blue herons, beaver, nutria, and bald eagles. The Wildlife Habitat Network runs through the Green River Corridor at the Hatchery Natural Area.

Evidence of Green River use by three threatened species listed under the Endangered Species Act, chinook salmon, bull trout, and bald eagle, and the presence of great blue herons, a species of concern in Washington State, make habitat preservation and necessary enhancement management priorities at the Hatchery Natural Area. Several native vegetation enhancement projects have been installed at this site.

Visitors use the Hatchery Natural Area for fishing. Use appears to be relatively low except during the juvenile fishery in October where children 15 and under are allowed to fish for coho. Although the site is available for passive recreation activities such as walking, fishing or hiking, King County staff have observed few visitors engaging in these activities. Inappropriate public use at the site has included poaching and littering and occasional damage to native plants installed as part of vegetation enhancement projects. There are no obvious revenue generating opportunities at the site at this time.

King County Department of Natural Resource and Parks goals for all ecological lands are to conserve and enhance the site’s ecological value and support appropriate public use that does not harm ecological resources. The following recommendations have been made for the site.

- complete a ecological assessment to improve understanding of the site's ecological characteristics
- fund a restoration study/plan for the Middle Green River Reach to identify preferred habitat enhancement alternatives in this reach based on ecological and landscape principles
- allow the current level of passive recreation opportunities.
- monitor visitor impacts on the ecological values
- monitor the site for encroachment, dumping, and other trash and respond as necessary
- control noxious weeds
- maintain and monitor enhancement projects
- install enhancement effort planned for 2004

Hatchery Natural Area Site Management Guidelines

Introduction

Hatchery Natural Area is a King County Department of Natural Resources and Parks (DNRP) Ecological Land. Ecological Lands are a category of Water and Land Resource Division (WLRD) properties managed for the protection of their ecological value. Public access and interpretive opportunities are accommodated where they do not harm the ecological value of the site.

This document provides general property information, a description of existing site conditions, a chronology of land management actions, and a list of management objectives and recommendations for the Hatchery Natural Area. These site management guidelines were developed using guidance established in the *King County Water and Land Resources Ecological Lands Handbook* (King County 2003b*).*

Part 1. General Property Information

The Hatchery Natural Area is located at the confluence of the Green River (RM 33.6) and Big Soos Creek in south King County just upstream of Highway 18 and east of Auburn, Washington. (Refer to Figure 1 for a general vicinity map.) South of the natural area is agricultural property, the Green River, King County's Porter Levee Natural Area and King County property managed by the Property Services Division (parcel number 2121059065). To the north is the Washington Department of Fish and Wildlife's (WDFW) Soos Creek Hatchery. To the west is Highway 18, the Burlington Northern Railroad, open space owned by the Green River Community College and King County's Auburn Narrows Natural Area. To the east are open space properties owned by Washington State and private landowners, the SE Lake Holm Road, the Auburn-Black Diamond road and a few residences.

Table 1. Hatchery Natural Area general information.

Best Available Address	Northwest of the intersection of the Auburn-Black Diamond Road and SE Lake Holm Road
Thomas Guide Map	Page 746
Legal Description	Section 16, Township 21N, Range 5E, W.M.;
Acreage	23.06
Drainage Basin	Soos Creek
WRIA	9
Council District	9
King County Sensitive Areas	100-year floodplain, wetlands, erosion, landslide, and seismic hazards; moderate channel migration zone

Table 2. Hatchery Natural Area parcel information.

Parcel Number	Acres*	Purchase Date	Ownership type/price	Other Names	Zoning	Funding Source
1621059039	23.06	11/6/1979	Owned in Fee $105,500	Soos Creek Park, John and Mary Anne Abel	RA5-SO or A10-SO[+]	Forward Thrust

*acreage taken from the King County Assessor's real property records.

[+]KC DDES lists the property as A10. Metroscan lists it as RA5. Regardless, it is outside of the Agricultural Production district.

Part 2. Acquisition, Funding Source and Deed Restrictions

The King County Parks and Recreation Department purchased the Hatchery Natural Area in fee in 1979 for $105,500 in Forward Thrust funds.

Forward Thrust was a major King County works program with bond proposals encompassing transportation, community, housing, water issues, and other publicly financed capital improvements. On February 13, 1968, voters approved Proposition 6 (authorized by King County Council Resolution 34571), a $118 million bond proposal for the purchase, creation and improvement of parks throughout King County.

Land use restrictions associated with Forward Thrust Funding are identified in Section 7 and Section 9 of King County Resolution 34571.

> *"Public Park and Recreation Facilities acquired, developed, constructed or improved by the County or any City in whole or in part from the proceeds of the bonds authorized pursuant to this resolution shall not be transferred or conveyed except by agreement providing that such lands shall continue to be used for the purposes contemplated by this resolution, or be converted to a different use unless other equivalent lands and facilities within the County or City shall be received in exchange therefore. The proceeds of any award in condemnation applicable to such Public Park and Recreation Facilities shall be used for the acquisition or provision of other equivalent lands and facilities. However, nothing in this resolution shall prevent the grant of easements or franchises or the making of joint use agreements not incompatible with the use of Public Park and Recreation Facilities for the purposes of this resolution." (Section 7)*
>
> *"…Public Park and Recreation Facilities acquired or developed pursuant to this resolution whether located partly or wholly within or without the Cities of the County will be available to and be of general benefit to all of the residents of the County and, together with existing lands and facilities set aside for such purposes, will constitute a necessary system of Public Park and Recreation Facilities for the County and its residents." (Section 9).*

Part 3. Ecological Resources

This section describes the natural resources and ecological processes present at the Hatchery Natural Area. A complete ecological assessment has not been conducted at this location. Therefore, the information presented here is not comprehensive. Hatchery Natural Area lies within the Middle Green River Reach. Please refer to the Middle Green River Reach report (King County 2003c) for landscape-level natural resource and land use information.

Figure 2 and 3 are aerial photographs of Hatchery Natural Area showing topography and the location of signs, enhancement efforts and Japanese knotweed infestation areas.

Topography and Soils

Hatchery Natural Area is a mostly flat, low elevation stream valley property. The property sits on the Soos Creek delta, just upstream of the Green River. The delta is mainly outwash eroded from the extensive outwash plain to the Northeast. Soils are comprised of Puyallup fine sandy loam and Briscot silt loam (USDA 1973). The soil elevations adjacent to the stream tend to be slightly higher than those areas further away from the stream.

Figure 1

Hatchery Natural Area

Vicinity Map

- River Miles
- Site Boundary
- Natural Areas
- Parks
- Cities

N

0 0.2 0.4 0.6 0.8 1 Miles

King County
Department of Natural Resources and Parks
Water and Land Resources Division

December 12, 2003

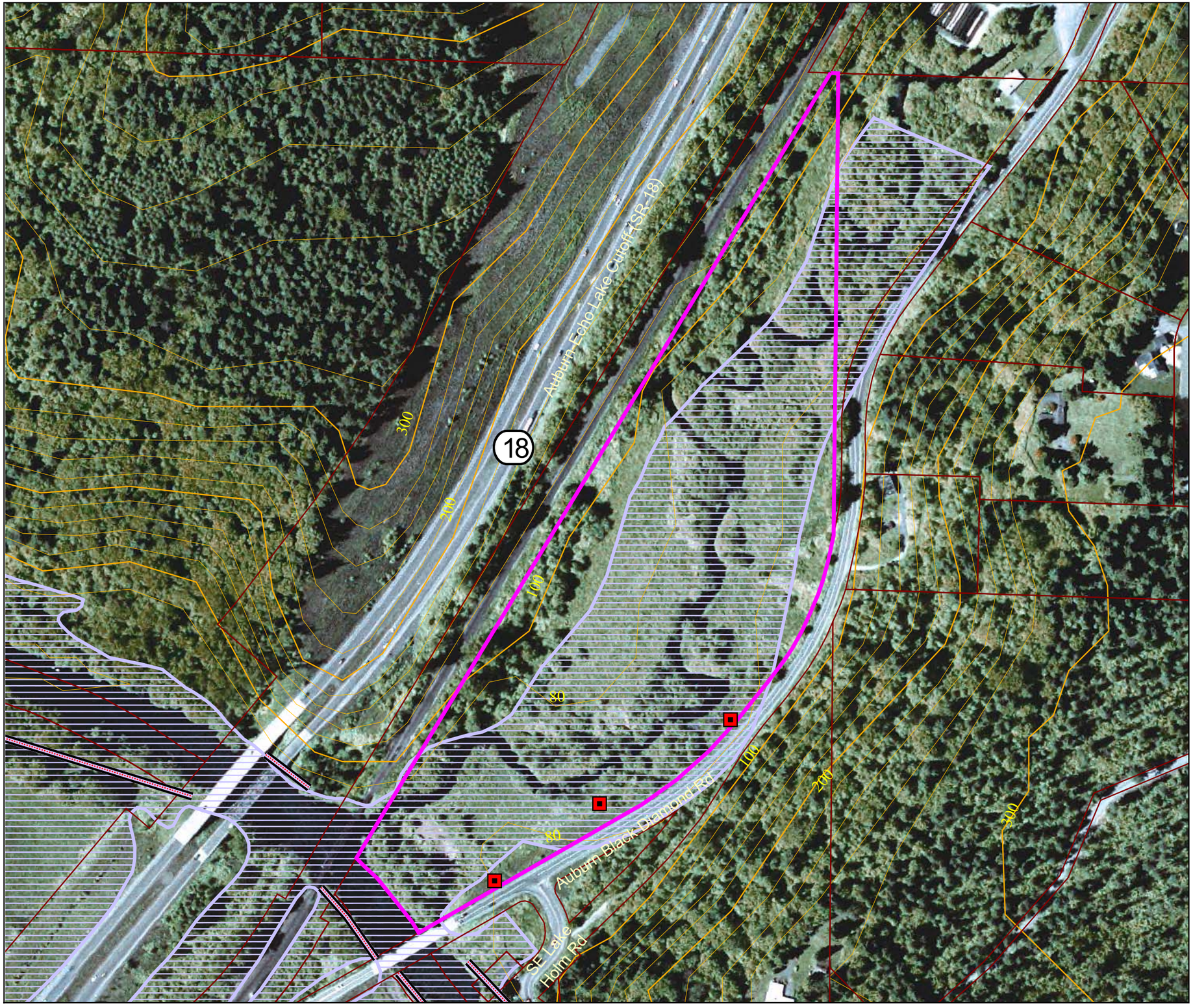
File Name: gg \\Dnrp1\Projects\parks\working\projects\smg_maps\siteprojects\hatchery_na\apps\hatchery_na.apr

Kent
East Auburn Athletic Fields
Green River Trail Site
North Green River Park
Lea Hill Park
Auburn
Hatchery Natural Area
Soos Creek Fish Hatchery
Auburn Narrows Natural Area
Porter Levee Natural Area
Neely Bridge Natural Area
Red Barn Ranch
Auburn Game Farm/ Game Farm Wilderness Park
Green River Natural Area
29
30
31
32
33
34
35
36
37
38
112th Ave SE
124th Ave SE
132 Av
148th Ave SE
SE 304th St
SE 312th St
SE 320th St
Auburn Ave N
8th St NE
Main St E
17th St SE
21st St SE
29th St SE
Harvey Rd
C St SW
East Valley Hwy
R St SE
Kersey Way
Auburn Way S
SE Lake Holm Rd
SE Lake Moneysmith Rd
SE Green Valley Rd
Kent - Black Diamond Rd
Auburn - Black Diamond Rd
Soos Creek
Green River
White River
18
164

Figure 2

Hatchery Natural Area

Existing Conditions Map



- Site Boundary
- Interpretive Signs
- River Facilities
- Parcels
- Contours (20 foot)
- 100 Year Floodplain

N

50 0 50 100 150 200 250 Feet

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Figure 3

Hatchery Natural Area

Enhancement Efforts Map

- Site Boundary
- Plantings
- Knotweed
- Knotweed Control
- Parcels
- Contours (20 foot)

N

50 0 50 100 150 200 250 Feet

King County
Department of Natural Resources and Parks
Water and Land Resources Division

December 12, 2003

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Hydrology

Big Soos Creek flows through Hatchery Park and enters into the Green River at RM 33.6 upstream of the Highway 18 bridge. This 14.0 mile stream originates from springs and groundwater drainage in the hills 1.5 miles south of Renton (WDF 1975). The Green River forms the southwestern boundary of the natural area. The site often floods between October and March. The discussion should note that nearly the entire site is within the mapped FEMA 100-year floodplain.

According to the 2003 King County District and Development Parcel Conditions Report (King County 2003a), the site has one 3.2-acre wetland, ID# 5486, rated class 2. The 1991 King County Wetlands Inventory (King County 1991) classifies the wetland, also labeled Soos Creek 86, as PEM5 (Palustrine Emergent Narrow-leaved Persistent – Juncus effusus). The 2003 National Wetlands Inventory (USFWS 2003) identifies an additional .6-acre wetland classified as PEMU (Palustrine/Emergent/Unknown water regime).

King County Flood Hazard Reduction (FHRS) staff reported that portions of the Green River mainstem riverbank upstream of the Soos Creek confluence my be the remains of an historic revetment with rip-rap and rubble beneath the vegetation extending downstream into the water column. FHRS staff plans to confirm the presence or absence of this structure in 2004.

Vegetation

The vegetation on the site is primarily pasture grasses, reed canarygrass, Himalayan blackberry, and Japanese knotweed. Several willow species, red alder, common rush and other rush species, small-fruited bulrush, yellow iris, nightshade, St. Johnswort, common tansy, and tansy ragwort are also present. No comprehensive vegetation list has been compiled for the site.

The following vegetation alterations have occurred at the site.

March 2003 – King County Small Habitat Project Program (SHRP) covered 10,000 sq. feet of knotweed on the north shore of Big Soos Creek with weed fabric.

October 14-November 21, 2002 – One hundred fifty one 5-gallon Sitka spruce; one hundred 2-gallon Sitka spruce; nineteen 2-gallon Sitka willow; sixty 1-gallon Sitka willow; forty 1-gallon Pacific willow; seventeen 2-gallon Scoulers' willow; and fifty 5-gallon shore pine were installed in 11,000 square feet of landscape fabric on the south shore of Big Soos Creek.

Fall 2001 – EarthCorps and King County Park staff planted 40 black cottonwood, 25 red alder, 36 westernredcedar, 130 Sitka spruce, 20 Oregon ash, 154 Scoulers' willow, and 45 Pacific willow in nine 15 x 30 foot landscape fabric covered plots adjacent to the south shore of Big Soos Creek. All plants except for the Sitka spruce had a rodent protector installed. Approximately 400 square feet of Japanese knotweed was cut and covered with landscape fabric.

September and October 2000 – Green Duwamish 2000 planting event. Volunteers, King County Park staff, King County Water and Land Resource Division (WLRD) staff and SCAR grubbed blackberries and planted trees in the open area across from Lake Holm Road on the south side of Big Soos Creek. They spread 37 pounds of seed mix containing 90% annual ryegrass and 10% crimson clover in the grubbed blackberry area. They planted 92 western redcedar, 25 shore pine, 25 red alder, 28 bigleaf maple, 35 Scouler's willow, 2 Oregon ash, 50 black cottonwood, 22 Sitka spruce, and 22 Douglas-fir. (No 'as built' plant lists were filed for these projects. This list was taken from the proposed plant list.) EarthCorps and Park staff cut down several plots of Japanese knotweed and covered them with fabric. They installed landscape fabric and planted about 400 trees. Beavers cut almost all the western redcedar installed, although many have survived.

Spring 2000 – SHRP established six to eight 15x30 foot plots of Sitka spruce, westernredcedar and willow in an area dominated by reed canarygrass. They mowed and covered the reed canarygrass with landscape fabric. They then staked the fabric with live willow stakes and planted Sitka spruce and western redcedar in an effort to establish deep-rooting native vegetation on the outside bend of Big Soos Creek to slow the natural channel migration process and provide shade for the creek. The willows were 6 to 8 foot long stakes planted at a minimum depth of 3 feet along about 120 linear feet of streambank.

Spring 2000 – A Jobs for the Environment (JFE) crew removed blackberries in the area adjacent to the Green River and cut and covered with landscape fabric a 15x15 section of Japanese knotweed adjacent to Big Soos Creek across from the Lake Holm road.

Fall 1999 – King County DNR staff, SCAR and volunteers planted 150 red alder, 60 cascara, 150 red-osier dogwood, 35 snowberry, 75 willow, 35 vine maple, 80 Douglas-fir, and 30 Sitka spruce in the open area across from Lake Holm Road and south of Big Soos Creek.

November 7, 1998 – SCAR planted fifty 4 to 6 foot Douglas-fir on the berm beside the highway and additional shrubs adjacent to the south shore of Big Soos Creek.

February 24 and March 28, 1998– Mid Sound Fisheries Enhancement and SCAR (February) and the King Conservation District *Duwmish Yes!* Program, SCAR and urban youth volunteers (March) removed non-native vegetation, primarily blackberries, in preparation for installing native plants on the south shore of Big Soos Creek. They planted 8 bigleaf maple; 20 populus sp., 10 Oregon ash, 12 western redcedar, 16 Douglas-fir, 7 western hemlock, 13 Sitka spruce, 10 vine maple, and 140 red-osier dogwood to provide shade for Big Soos Creek for salmon habitat. (Plant list is taken from the proposed plant list. No ‘as built’ plant list exists.)

Fish and Wildlife

According to the Green/Duwamish River Ecosystem Restoration Feasibility Study (UASCE 2000),

> The Middle Green River supports populations of coho, chinook, and chum salmon, steelhead, rainbow, and resident and sea-run cut-throat trout. Bull trout have also been found in the Middle Green River Sub-watershed, but their use of this portion of the river is not understood. The reach between RM 33.6 to 41.5 [which includes Hatchery Natural Area] is noted to be particularly good chinook spawning habitat.

Both chinook and bull trout are listed as threatened under the Endangered Species Act. The WDFW operates the Soos Creek Salmon Hatchery just upstream of the natural area.

Other verified wildlife that use the property are deer, mergansers, great blue herons, beaver, nutria, and bald eagles. The Wildlife Habitat Network, established in the King County Comprehensive Plan, traverses the Green River corridor at the Hatchery Natural Area.

Part 4. Land Use and Infrastructure

This section describes current public use, access opportunities, signage and trails. Figure 2, illustrates the sign locations and access points at the Hatchery Natural Area.

Public Use

Hatchery Natural Area is used for fishing. Use appears to be relatively low except during the juvenile fishery in October where children 15 and under are allowed to fish for coho. When returns of chinook to the fish hatchery are high, a short but intense chinook fishery may occur at

this site Although the site is available for passive recreation activities such as walking and nature observation, King County staff have observed few visitors engaging in these activities..

Soos Creek Area Response (SCAR), a non-profit corporation dedicated to preserving and protecting the existing rural and residential environment of the Lakeheights Plateau in Unincorporated southeast King County, has taken an active role in enhancing the habitat at Hatchery Natural Area. The organization has initiated and participated in organizing and funding volunteer native planting events and assisted in maintaining the site by picking up trash, removing invasive plants and weeding enhancement projects. Dalice Snider is SCAR's representative at Hatchery Natural Area. She occasionally leads interpretive walks for local groups.

People toss litter from their cars as they drive along he Auburn-Black Diamond road and this causes an increased litter problem for the site.

Access

Visitors typically access the east side of the Hatchery Natural Area off of the Auburn-Black Diamond Road. There is a wide area on the side of the road that visitors use for parking. WDFW Hatchery Manager Mike Wilson gave permission to King County staff to access the west side of the park via the WDFW bridge for maintenance purposes.

Trails and Roads

No formal trails or roads exist at Hatchery Natural Area. Occasionally Park staff mows narrow paths to access restoration plantings for maintenance purposes. Anglers then use these mowed trails to access fishing spots. During fishing season, anglers also create paths along the banks of the creek.

Signs

The site has a rules sign and three interpretive signs. One describes the Big Soos Creek ecosystem, another describes features that make up salmon habitat, and the third describes responsible fishing practices. (See Figure 2 for interpretive sign locations.)

Part 5. Site Management Chronology

This section chronicles management activities at Hatchery Natural Area. When known, costs associated with these activities are included. (Note: an asterisk (*) in the funding column indicates that Parks Department labor costs are included in an annual figure listed in the table at the end of each year.)

Table 3. Primary management activities associated with the Hatchery Natural Area.

Date	Action	Associated Costs (if known)
Summer 1997	Dalice Snider of Soos Creek Area Response (SCAR) contacted the KC Green/Duwamish River Basin Steward about doing a restoration project at Hatchery NA.	
Fall 1997	Dalice applied for a KC Watershed Action Grant; she partnered with the King Conservation District and Mid-Sound Fisheries Enhancement Group.	
Fall 1997	King Conservation District staff installed willow stakes.	
Winter 1997	KC Watershed Action Grant awarded to SCAR for $3200 for restoration and stewardship of Big Soos Creek at Hatchery Natural Area.	
Feb 24, 1998 and March 28, 1998	Mid Sound Fisheries Enhancement Group, volunteers and SCAR (Feb.) and King Conservation District *Duwmish Yes!* Program, SCAR and urban youth volunteers (March) removed non-native vegetation, primarily blackberries, in preparation for native plantings. They planted 236 trees and shrubs in the area across from Lake Holm Road.	
Spring/summer 1998	SCAR and local volunteers weeded native plants and picked up trash.	
Spring/summer 1998	King County Parks staff, funded by the Watershed Action Grant, removed an old tractor and raker left on site by the prior property owner.	
Nov 7, 1998	SCAR and volunteers planted 50 4-6 foot Douglas-firs on the berm adjacent to the Auburn-Black Diamond Road and additional shrubs adjacent to the south side of Big Soos Creek.	**Cost: $1,070** $500 for materials; $570 In Kind: (10 volunteers at $5.00 per hour; 4 staff at $20.00 per hour for four hours)
Fall 1998	Interpretive signage installed at Hatchery Natural Area. Funded with the Watershed Action Grant.	

Date	Action	Associated Costs (if known)
Fall 1998	SCAR petitioned the Washington State Dept. of Fish & Wildlife to close the salmon fishery. The fishery was cut down from 2 months of unrestricted fishing to about 3 weeks for anglers age 15 and under only. SCAR pursued this in response to habitat and restoration project damage and excessive littering by anglers.	
Fall 1999	King County DNR staff, SCAR and volunteers planted about 600 trees and shrubs in the field across from Lake Holm Road.	
April 17-18, 2000	The King County SHRP program installed weed fabric adjacent to Big Soos Creek and planted Sitka spruce and willow stakes. They also removed blackberries near the confluence of Big Soos Creek and the Green River with a brush hog.	**Cost: $7,000** Includes labor and materials. Funded by Small Habitat Restoration Program.
Spring/summer 2000	SCAR and KC Park staff maintained plantings by controlling reed canarygrass and cutting and grubbing blackberries.	*
Spring/summer 2000	Park staff grubbed and pulled tansy ragwort, common tansy and St. Johnswort.	*
Spring/summer 2000	A Jobs for the Environment crew cut a 200 square foot area of Japanese Knotweed, covered the area with weed fabric and fenced the area to protect the fabric from anglers. They planned to leave the fabric on for five years before planting in an attempt to starve the knotweed root system.	**Cost: $1,200** Includes materials and labor. Funded by Jobs for the Environment.
Spring/summer 2000	Park staff cut the knotweed that grows around the fabric.	*
Spring/summer 2000	SCAR was awarded a $5,000 Waterways grant for trees.	
Spring/summer 2000	Large blackberry area at Hatchery Natural Area cut.	**Cost: $1,000** Funded with King Conservation District funds.
Fall 2000	EarthCorps and Park staff cut down several Japanese knotweed plots and cover the areas with landscape fabric. They planted about 400 trees in landscape fabric. Beavers cut almost all the western redcedar installed.	**Cost: $8,300** $6,300 for EarthCorps Labor Costs (5 people, 8 hours a day, 7 days @$900 a day). Funding came from KC Parks Department CIP. $2,000 for materials from Parks CIP, King Conservation

Date	Action	Associated Costs (if known)
		District and Waterways grant funding.
Sept. 16, 2000	Day of Caring – 30 volunteers, King County Park staff and SCAR's Dalice Snider planted 85 conifers and grubbed blackberries at an area slated for planting on October 21st. They scalped a three-foot diameter circle of sod prior to planting each tree as an experiment to increase survival because many of the previously planted plants, while alive, were not meeting height objectives.	**Cost:$2,950** In Kind: $2,250 (30 volunteers x 6 hours =180 hours. 180 hours x $12.5=$2, 250;Trees: $500 funded by King County Waterways Grant; Refreshments: $200 funded by SCAR
Oct. 21, 2000	Green/Duwamish 2000 restoration program. KC Parks, KC DNR, SCAR, and volunteers engaged in an enhancement effort at the blackberry area at the confluence of Big Soos Creek and the Green (about 1.5-2 acres) and the large open field at Hatchery. Seventy three volunteers planted 315 plants utilizing the three foot diameter scalping method. Staff spread a seed mix of 90% ryegrass and 10% crimson clover in the area where the blackberries were cut and grubbed to help control any erosion problems.	**Cost: $4,875** In Kind: $3,000(60 volunteers at 4 hours each =240 hours. 240 hours x $12.5=$3,000.) Trees: $1,575 funded by King County Waterways Grant; Refreshments: $200 funded by SCAR; Seed $100 funded with King Conservation District Funds.
		Year 2000 Park Costs: $4,665 Invasive weed removal (47 hours x $20 an hour = $940); restoration/maintenance (149 hours x $25 an hour = $3,725)
Spring 2001	King County Parks was awarded a grant from the Washington State Department of Natural Resources Community Forestry program for $10,000 for materials for a restoration effort on 4 acres at Porter Levee and 1/2 acre at Hatchery.	*
Summer 2001	Park staff maintained plantings by stomping and cutting reed canarygrass, cutting and grubbing blackberries, and cutting new Japanese knotweed growth.	*
Summer 2001	Park staff grubbed and pulled tansy ragwort, common tansy, yellow iris and St. Johnswort.	*
Summer 2001	Park Resource Coordinator and Green River Basin Steward designed a 1/2-acre restoration planting modeled on the successful 2000 SHRP project.	*
Fall 2001	EarthCorps and Park staff planted approximately 440 trees in weed fabric adjacent to Big Soos Creek. All plants except for Sitka spruce had a rodent protector installed.	**Cost: $13,400** (5 people for 8 days @ $900 a day = $7,200) paid for by King County Parks

Date	Action	Associated Costs (if known)
		CIP funds. Trees, staples, weed fabric, rodent protection = $3,200 funded with WDNR grant funds. $3,000 in trees funded by King County Waterways Grant.
		Year 2001 Park Costs: $8,790 Invasive weed removal (52 hours x $20 an hour = $1,040; restoration/maintenance (310 hours x $25= $7,750)
Spring/Summer 2002	King County Park staff maintained and monitored enhancement projects.	*
Oct. 14-Nov. 21, 2002	King County DNRP hired EarthCorps to lay 11,175 square feet of weed fabric and installed 437 trees and shrubs.	**Cost: $17,185** EarthCorps (12 days x $1,470 per day =$15,600) funded by the King County Wastewater Treatment Division. Materials $1,585
Fall 2002	King County awards SCAR $20,000 for planting and maintenance of streamside and wetland habitat at Hatchery Natural Area.	
		Year 2002 Park Costs: $9,470 Invasive weed removal (156 hours x $20 = $3,120; restoration/ maintenance (206 hours x $25= $5,150); project planning (28 hours x $25=$700); monitoring (20 hours x $25 =$500). **(**Funded by the King County Water and Land Resource Division)
May 2003	Volunteers and park staff cut about 300 square feet of knotweed.	**Cost: $600** In Kind:(12 volunteers x 4 hours x $12.5 an hour = $600)

Date	Action	Associated Costs (if known)
April 21-24, 2003	KC WLRD Small Habitat Project Program covered 10,000 sq. feet of knotweed on the north shore of Big Soos Creek with weed fabric	**Cost: $8,800** Includes labor and materials Funded by the SHRP program.
July –August, 2003	EarthCorps and Park staff covered about 500 square feet of canary grass with weed fabric. Previously planted areas were cleared of blackberries and grass, and select parts were watered. English Ivy was removed from a section close to the fish hatchery.	**Cost:** $10,174.50 for nine EarthCorps crew days. Funded with King Conservation District Funds.
Summer 2003	SCAR volunteers cut back blackberries and freed plantings from tall grasses.	**In Kind: $250** ($20 hours x $12.50 per hour)
	.	**Year 2003 Park Costs (through August: $3,150** Invasive weed removal (45 hours x $20 = $900; restoration/ maintenance (69 hours x $25= $1,725); project planning (19 hours x $25=$475); monitoring (2 hours x $25 =$50). **(**Funded by the King County Water and Land Resource Division)

Part 6. Analysis

In this section, site specific information is integrated with larger landscape conservation considerations and fiscal and political constraints to formulate management recommendations that will be summarized in Part 7.

Species of Concern

Because of the lack of a comprehensive ecological assessment at the Hatchery Natural Area, the species identified in this document do not account for all species that use the natural area for one or more stages of their lifecycles. However, evidence of Green River use by three threatened species listed under the Endangered Species Act, chinook salmon, bull trout, and bald eagle, and the presence of great blue herons, a species of concern in Washington State, make habitat preservation and necessary enhancement management priorities at the Hatchery Natural Area.

Information Gaps

In the absence of more complete site information, actions intended to restore parts of the systems present at Hatchery Natural Area may inadvertently harm rare or critical species and habitats, or negatively affect the ecological processes at the site. A comprehensive ecological assessment would provide an understanding of the species that use this natural area and a characterization of river habitat forming processes such as channel migration, LWD sources, sediment accumulation, current flood flows, and channel complexity. This information would be useful when evaluating the spectrum of ecological impacts from proposed habitat restoration and management activities in the Middle Green River Reach.

Habitat Enhancement Opportunities

Hatchery Natural Area is part of the Middle Green River Reach which has been identified by the Waterways 2000 program and the Green/Duwamish River Habitat Limiting Factors and Reconnaissance Assessment Report as a focal point for fish and wildlife habitat protection and enhancement. (King County 2002).

In a 2002 grant request to the Small Habitat Restoration Program, the Green River Basin Steward pointed out that six species of salmonids are directly influenced by the riparian zone of this natural area, including chinook. Lower Big Soos Creek not only provides habitat for salmonids using the Big Soos Creek basin, but because of its low-elevation and meandering characteristics, provides fish in the mainstem Green River refuge during high flow events.

Flooding processes have likely been greatly altered in this reach as a consequence of operations at Howard A. Hanson Dam since 1961. Therefore floodplain modifications may be useful to re-establish functional habitat components to the river system. (Levesque pers. comm.)

The Green River Basin steward suggests that enhancing the riparian habitat at this site would greatly benefit salmon as well as other terrestrial wildlife including beaver, deer, elk and many bird species. He has identified streambank erosion, a lack of large woody debris in Big Soos Creek, a lack of terrestrial snags, and large amounts of Japanese knotweed as areas for future habitat improvement.

Plans exist to continue invasive control and native plant establishment efforts. In 2002, SCAR received a King County Waterworks grant for $20,000 for planting and maintenance of streamside and wetland habitat at Hatchery Natural Area. SCAR plans to use the funds to control invasive vegetation and plant 600-1,000 native trees in the riparian zone of Big Soos Creek by March 2004. There are also plans to establish a ‘fire line’ at the edge of the large Japanese

knotweed infestation at the northeast side of the property to prevent further knotweed encroachment.

Three planning processes are underway that may result in additions or changes to the enhancement recommendations mentioned in this document. King County Stewardship staff is developing the Middle Green River Blueprint (scheduled for completion in 2005), King County Flood Hazard Reduction Services Section staff is revising the Flood Hazard Reduction Plan and WRIA 9 staff is working on the WRIA 9 Habitat Plan (scheduled for completion in 2005).

Noxious Weeds

Washington State law requires the removal of some noxious weeds. At this time, tansy ragwort is the only known noxious weed on the site that must be controlled. The site has many weeds that are on the King County Noxious Weed List for which there are no legal removal requirements. Common tansy and St. Johnswort are two of these species that currently occur in small numbers and at this time can be relatively easily and inexpensively controlled. Applying concentrated effort to control or eliminate these species now would stop them from becoming well established and problematic in the future.

Land Use

Site inspections indicate that the Hatchery Natural Area currently supports relatively low numbers of visitors, primarily anglers. The highest use period appears to be during the October juvenile chum fishery. The current level of use appears to have no long-term adverse effect on the ecological resources of the site. At this time, there appears to be no reason to install additional visitor support infrastructure at Hatchery Natural Area, especially since public restroom and parking facilities are available at the WDFW hatchery just upstream. Monitoring for changes in numbers of visitors and types of use will alert land managers to changes to this situation.

The current sign program supports appropriate site use. A general rules sign posted at the access point off of the Auburn-Black Diamond Road provides the legal notice the sheriff requires in order to cite visitors using the property in inappropriate ways. The three environmental education signs educate visitors about the Big Soos Creek ecosystem, salmon and appropriate use of the land. A “pack-it-in, pack-it-home” signage strategy might help reduce litter.

Revenue Generating Opportunities

There are no obvious revenue generating opportunities at the site at this time.

Part 7. Management Goals, Objectives and Recommendations

The objectives and recommendations that follow are derived from the analysis in the previous section. Office of Rural Resource Programs staff will revise the recommendations for the Hatchery Natural Area when new information from site monitoring programs and other initiatives indicate a need for a change in management strategies.

Goals for Ecological Lands

King County Department of Natural Resource and Parks goals for all ecological lands are to:

- conserve and enhance the site’s ecological value, and
- support appropriate public use that does not harm ecological resources.

The objectives and recommendations that follow are designed to support these goals when practicable at the Hatchery Natural Area.

Objective: Understand implications of management actions

➢ *Recommendation: Fill in data gaps*

The Science, Monitoring and Data Management section should complete an ecological assessment to gain a more thorough understanding of the ecological characteristics of the area. This should include species use. (Schedule: 2005 or 2006)

➢ *Recommendation: Coordinate site enhancement opportunities*

King County NRL LAWS, FHRS, and WRIA 9 staff should coordinate to ensure that any recommendations for Hatchery Natural Area presented in the Middle Green River Blueprint, the Flood Hazard Reduction Plan, and the WRIA 9 Habitat Plan are coordinated and maximize the ecological potential for the site. (Schedule: 2004-2008).

➢ *Recommendation: Confirm presence or absence of revetment*

King County FHRS staff should confirm the presence or absence of a revetment on portions of the Green River mainstem riverbank upstream of the Soos Creek confluence. (Schedule: 2004)

Objective: Establish native vegetation

➢ *Recommendation: Eliminate noxious weeds that are required to be removed or are easily controllable*

Park staff should remove the tansy ragwort, common tansy and St. Johnswort on site using Integrated Pest Management strategies. (Schedule: 2x a year 2003-2007)

➢ *Recommendation: Maintain and Monitor Revegetation Projects*

King County Park staff and other crews as contracted should cut blackberries three to five times a year at the 2000 planting site. These blackberries have been cut three to five times a year in 2000, 2001, and 2002. Staff should implement this practice (or other control methods as monitoring data suggest) until the blackberries and other invasive species are controlled in the former blackberry area planted in 2000. (Schedule: 2003-2006)

King County Park staff should monitor and remove weed fabric and rodent protection from around the trees when it appears that the trees will prosper without these protection mechanisms. Original estimates were that the fabric would need to remain at least 5 years. (Schedule: annually)

King County Park staff should check the trees planted in landscape fabric and, if the fabric is girdling the trees, take necessary corrective action. (Schedule: annually)

King County Park staff should monitor the 2001 plants four times a year through December 31, 2004. This is a requirement of the Washington State Urban Forestry Grant used to fund material for the project. Three of the monitoring events during a given year are quick visual assessments. The fourth, usually conducted in August or September, involves individual tree counts and notes on survival and health. The goal is 80 percent survival, although the County is not legally required to achieve this standard. (Schedule: 4 x a year in 2003 and 2004)

➢ *Recommendation: Continue enhancement efforts*

King County staff and other parties as contracted should create a ‘fire line’ to control the spread of Japanese knotweed in the northeast corner of the site. (Schedule: 2004)

King County and SCAR should implement their planned invasive species control and native plant installation project. (Schedule: 2004)

Objective: Allow current level of passive recreation opportunities such as fishing, nature observation, and walking

➢ *Recommendation: Monitor public access*

Park staff should note changes in visitor numbers, types of recreational activities, and noticeable visitor impacts on the ecological values of the site. For example, impacts might include trampling of native vegetation, increased litter, and increased bank erosion. This information should be reported annually to King County Natural Resource Lands Management staff responsible for updating site management guidelines. (Schedule: monthly)

Objective: Protect the site from inappropriate public uses

➢ *Recommendation: Implement Preserve and Protect Measures*

Park staff should maintain the rules sign and the three interpretive signs on site. (Schedule: as needed)

Park staff should consider installing "Pack-it-in, Pack-it-home" signs on this property if litter activity increases. (Schedule: as needed)

Park staff should recommend, install, and maintain any necessary additional capital improvements to protect the site from inappropriate public uses. This could include bollards, signs, concrete blocks, and boundary markers. (Schedule: as needed)

➢ *Recommendation: Control Litter/Dumping, Vandalism and Encroachment Activities*

Park staff should monitor the site monthly for vandalism, encroachment, dumping, and other trash and respond as necessary to maintain a clean and safe property. (Schedule: monthly)

Objective: Implement site management guidelines recommendations

➢ *Recommendation: Site Maintenance Plan Creation*

Park Resource staff should coordinate with the Green River Basin Steward to prepare a site maintenance plan (a work plan) to include the litter/dumping, inspection, restoration monitoring and maintenance, and invasive control tasks identified in the recommendations. NRL staff should coordinate with Park Resource staff on this effort. (Schedule: annually).

➢ *Recommendation: Coordinate Implementation*

NRL staff should coordinate with the various programs responsible for implementing these recommendations to facilitate their timely accomplishment. (Schedule: ongoing).

NRL staff should coordinate with the Green River Basin Steward and Park Resource staff to revise the site management guidelines. (Schedule: as needed or 2008).

Table 4. Hatchery Natural Area Recommendations: budget, schedule and staff matrix

Recommendations	Cost	schedule	Park Resource Staff	GR Basin Steward	WEAT	FHRS	SCAR	NRL staff
Priority One								
create site maintenance plan		annually	x	x				x
inspect site/litter removal/visitation monitoring/other preserve and protect actions		monthly	x					
monitor 2000 planting 4x a year		2003 and 2004	x					
evaluate removing weed fabric around 2000 trees		annually	x					
remove tansy ragwort, common tansy and St. Johnswort 2x a year		2003-2007	x					
cut blackberries 3-5 x a year at 1999 planting site		2003 thru 2006	x					
update site management guidelines		as needed or 2008	x	x				x
coordinate smg recommendation implementation		ongoing						x
Priority Two								
complete ecological assessment		2005 or 2006			x			
establish 'fire line' to control spread of Japanese knotweed		2004	x	x				
Implement invasive control/native plant installation project		2004	x	x			x	
coordinate site enhancement opportunities		2004-2008		x		x		

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