



# Small Habitat Restoration Program

Building effective projects that enhance aquatic ecosystems

Annual Report 2011

## Summary of 2011 Accomplishments

In 2011 the Small Habitat Restoration Program (SHRP) constructed and maintained 30 projects to restore streams, wetlands and their buffers. Twenty nine private property owners allowed the use of their property in exchange for several years of phased project construction and maintenance. Their contribution allows SHRP to build projects with limited resources (grants and public dollars) that will help conserve water quality and enhance habitat for fish, wildlife and future generations.

### Program highlights include:

- 24 active restoration projects
- 6 maintained and monitored projects
- 3.9 miles of streambank restored
- 3.5 acres of wetland habitat restored
- 28.7 acres of riparian buffer restored
- 31,029 native shrubs and trees planted



*Cottage Lake Creek*

## Spotlight:

### Cottage Lake Creek Enhancements

#### Project History

The Cottage Lake Creek Enhancement Project is an example of a successful “reach-based” restoration approach. Reach-based restoration is possible when a group of citizens value the benefits of native habitat and desire to steward their property. In 2006, SHRP received the first in a series of King Conservation District Grants that focused on riparian restoration along Cottage Lake Creek. Basin Steward outreach identified six landowners who elected to participate in the Small Habitat Restoration Program. In 2011, two more landowners were added. Ecologist Laura Hartema worked with the landowners to develop and implement long-term restoration plans for their properties. In 2011, outreach letters were sent out and a community meeting was held which resulted in eight more interested landowners. Projects on these new properties will begin in 2012, which will include control of invasive species, planting and mulching.

#### Conservation Significance

Cottage Lake Creek is one of the highest quality salmonid-bearing tributaries in the Big Bear Creek system and is part of the greater Sammamish/Lake Washington-Cedar River drainage. Habitat includes forested wetlands and riparian corridor, as well as extensive, relatively undisturbed wetland complexes in the upper and middle reaches. Although much of the watershed is now suburban residential, Bear Creek and Cottage Lake Creek support Chinook, sockeye, coho, and kokanee salmon, steelhead and cutthroat trout, as well as the largest remaining freshwater mussel population known in King County.



King County

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## 2011 Active SHRP Projects



## 2011 SHRP Project Summary Table

WRIA	Active Habitat Restoration Projects (2011 Construction Projects)	Wetland Restored Acres	Streambank Restoration Lineal Feet	Riparian Buffer Restoration Square Feet	Native Trees and Shrubs Planted
WRIA 7: Snoqualmie-Skykomish	Lein Patterson Creek Buffer Planting	0	1400	14,000	0
	Changing Seasons Farm Snoqualmie River Buffer Planting	0	125	29,000	460
	Andrews Tuck Creek Buffer Planting	0	1600	16,000	1,055
	Herbco Snoqualmie River Buffer Restoration	0	150	3,750	150
	Lee, Crittenden, and Aldarra, Patterson Creek Buffer Plantings	0	800	30,000	923
	Gordon Patterson Creek Buffer Plantings	0	2000	30,000	600
<b>Total WRIA 7</b>	<b>6</b>	<b>0</b>	<b>6075</b>	<b>122,750</b>	<b>3188</b>
WRIA 8: Lake Washington-Cedar River	Craig Bear Creek Buffer Enhancement	0	310	9,000	298
	Cottage Lake Creek Enhancements	0	1070	38,600	2,216
	Lien Bear Creek Buffer Enhancement	0	1300	14,700	2,882
	Bassetti Cottage Lake Creek Riparian Planting	0.9	400	10,000	765
	Cemetery Pond Wetland Enhancement	2.6	0	0	1200
	Middle Issaquah Creek at Ahlstrom	0	2200	239,580	2,351
<b>Total WRIA 8</b>	<b>6</b>	<b>3.5</b>	<b>5280</b>	<b>311,880</b>	<b>9712</b>
WRIA 9: Green River	Magnusson Buffer Enhancement	0	1100	56,000	7,270
	Brewer Phase 2 Newaukum Riparian Planting	0	700	5,250	465
	Fallen Phase 2 Newaukum Riparian Planting	0	2000	30,000	536
	Lopez Phase 2 Newaukum Riparian Planting	0	220	3,500	200
	Rosatto Newaukum Riparian Planting	0	2000	30,000	300
	Westby East Newaukum Riparian Planting	0	480	21,780	933
<b>Total WRIA 9</b>	<b>6</b>	<b>0</b>	<b>6500</b>	<b>146,530</b>	<b>9,704</b>
WRIA 10 White River	VanWieringen Boise Creek	0	825	11,800	495
<b>Total WRIA 10</b>	<b>1</b>	<b>0</b>	<b>825</b>	<b>11,800</b>	<b>495</b>
WRIA 15: Vashon-Maury Island	Singer Judd Creek Pond Enhancement	0	500	130,680	5,030
	Raabs Lagoon Estuary Enhancement	0	60	65,340	2,000
	Douglas Judd Creek Enhancement	0	854	383,040	0
	Maury Island Marine Park	0	400	80,000	900
<b>Total WRIA 15</b>	<b>4</b>	<b>0</b>	<b>1814</b>	<b>659,060</b>	<b>7,930</b>
<b>Totals</b>	<b>23 projects</b>	<b>3.5 acres</b>	<b>20,494 Lineal Feet</b>	<b>1,252,020 Square Feet</b>	<b>31,029 plants</b>
			<b>3.88 miles</b>	<b>28.74 acres</b>	



## WRIA 7: Snoqualmie-Skykomish Watershed

In 2011 SHRP staff worked with one property owner on a new habitat restoration project, completed the second phase of five projects, and continued monitoring and maintenance on one previously constructed project.

### WRIA 7: New Restoration Projects



*Lien Patterson Creek buffer planting*

#### Lien Patterson Creek Buffer Planting (Private Property)

Blackberry was cleared on 700 linear feet of both banks of Patterson Creek near the confluence with the Snoqualmie River. The buffer width ranges from

10 to 25 feet and resulted in a planted area of approximately 14,000 square feet. Weed barrier fabric was installed and the site will be planted with natives.

### WRIA 7: Continuing Restoration Projects

#### Changing Seasons Farm Snoqualmie River Buffer Planting (Private Property)

Landscape fabric was removed and blackberry was grubbed on the existing 24,000 square foot left bank buffer planting. An additional 125 feet of stream (5,000 square feet) was planted downstream after clearing blackberry and placing landscape fabric. The new riparian buffer will be planted with 460 trees, shrubs and groundcover.

#### Andrews Tuck Creek Buffer Planting (Private Property)

Blackberry was cleared and 800 linear feet of landscape fabric was installed upstream of the existing planting on both banks. A new 16,000 square foot, 15-25 foot wide riparian buffer with 1,055 plants was established.

#### Herbco Snoqualmie River Buffer Restoration (Private Property)



*Herbco Snoqualmie River buffer planting*

Landscape fabric was removed and 150 willows were added to an existing 150 linear foot planting on the left bank of the Snoqualmie River.

Blackberry, Japanese knotweed and bindweed were removed from the 3,750 square foot buffer planting.

#### Lee, Crittendon, and Aldarra, Patterson Creek Buffer Plantings (Private Property)

The projects were replanted with 923 plants to replace willow and cottonwood which were removed by beaver. These three projects create a combined riparian buffer of 400 linear feet in length. It is 50 to 100 feet wide on both sides of the creek for a total buffer area of approximately 30,000 square feet.

#### Gordon Patterson Creek Buffer Plantings (Private Property)

About 600 native trees and shrubs were added to a 15-foot wide, 2,000 linear foot buffer on both banks of Patterson Creek. This project will restore 30,000 square feet (0.7 acres) of riparian buffer.

### WRIA 7: Monitoring and Maintenance

#### Quigley Park Snoqualmie Riparian Planting (Public Property)



## WRIA 8: Lake Washington-Cedar River Watershed

In 2011 SHRP staff worked with three private property owners on new habitat restoration projects, completed the second phase of five continuing projects, and continued monitoring and maintenance on another three previously constructed projects within WRIA 8.

### WRIA 8: New Restoration Projects

#### Craig Bear Creek Buffer Enhancement (Private Property)

The Craig project is an example of how a successful project can lead to more projects in a stream reach. The Craig's were originally contacted to control a large stand of knotweed along the creek that spanned several properties. After seeing the success of the planting and knotweed treatment on a neighbor's property, the Craig's wanted an SHRP Project on their property. WCC crews installed 208 trees and 90 shrubs along 310 feet of streambank encompassing 9,000 square feet.



*Cottage Lake Creek enhancements*

#### Branson and Parr Cottage Lake Creek Enhancement SHRP (Cedar River Basin, Private Property)

In fall 2011, two private properties were prepared for a spring 2012 planting. Invasive Himalayan blackberry and other non-natives

were removed from the left bank stream buffer. Planting plans were developed for two properties and scheduled for construction in February 2012: Branson (7,350 square feet, 210 linear feet) 362 plants, mulch, and Parr (6,000 square feet, 200 linear feet) 275 plants, mulch.

## WRIA 8: Continuing Restoration Projects

#### Lien Bear Creek Buffer Enhancement (Private Property)

SHRP is working with the owners of Wood-N-Brook Farm to enhance both banks along a 650-foot reach of Bear Creek. WCC crews cleared 9,400 square feet of blackberry and other invasive species, treated 5,300 square feet of knotweed, and planted 1,342 trees, 690 shrubs, 850 live stakes and spread 30 cubic yards of mulch.



*Lien Bear Creek - view corridor planting*

#### Bassetti Cottage Lake Creek Riparian Planting SHRP (Private Property)

Working with the property owners of Bassetti Crooked Arbor Nursery, SHRP designed and installed a planting that enhances



*Weeding at Bassetti*

both the functional and aesthetic value of the stream buffer. In addition to maintaining the existing planting, SHRP expanded the buffer by harvesting and installing 765 willow livestakes along 400 feet of streambank and expanding the buffer by an additional 10,000 square feet. The complete project enhanced 37,000 of square feet of riparian buffer vegetation along 3,500 linear feet of stream and enhanced 0.9 acres of wetland.





*Cemetery Pond planting*

### Cemetery Pond Wetland Enhancement SHRP (Private Property)

In 2011, SHRP expanded this project to include additional properties. WCC crews and volunteers planted 500 live takes,

and 700 trees on 2.6 acres of wetland buffer. Maintenance of the previous plantings included removal of over 2 cubic yards of poison hemlock and 5 cubic yards of blackberry. The WCC also installed 10 cubic yards of mulch and watered a portion of the site.



*Willow staking at Ahlstrom*

### Middle Issaquah Creek at Ahlstrom (Public Property)

This 10-acre King County property was enhanced by removing invasive species and planting natives. WCC crews planted 1265 livestakes, 1,031 trees and 55 shrubs

along 1,100 linear feet (5.5 acres) of streambank along both sides of Issaquah Creek.



### Cottage Lake Creek Enhancements SHRP (Private Property)

Starting in 2008, invasive weed control and planting projects were initiated on five contiguous private properties and a community owned parcel. Additional grant monies and SHRP funding provided expanded planting, mulching, maintenance and watering. In 2011, two more property owners observed the progress of the adjacent neighbors' restoration projects and inquired about the SHRP program. Planting designs were completed for the two projects and planting was scheduled for 2012. A total of eight adjacent private properties have been linked in a restored, vegetated corridor that stretches almost a quarter of a mile.



*Cottage Lake, Gleason - before*



*Cottage Lake, Gleason - after*

### Combined project accomplishments to date include:

- Established 1,070 linear feet of vegetated corridor along eight adjacent properties along the left bank of Cottage Lake Creek;
- Installed 2,216 plants within 38,600 square feet/0.90 acre;
- Removed invasive plants including Himalayan blackberries, Robert's geranium, bittersweet nightshade, jewelweed, creeping buttercup, yellow-flag iris, field bindweed, purple loosestrife, and yellow archangel;
- Installed 80 feet of split-rail fence to protect the buffer; and
- Washington Waterfowl volunteers installed six wood duck boxes.



## WRIA 8: Monitoring and Maintenance

### Monitoring and maintenance continued at three project sites.

- Issaquah Tributary 0178 Buffer Enhancement-Schnittker Property (King County and Private Ownership)
- Issaquah Tributary 0203 Riparian Planting (Public Property)
- Middle Issaquah Creek at Ellis (Public Property)

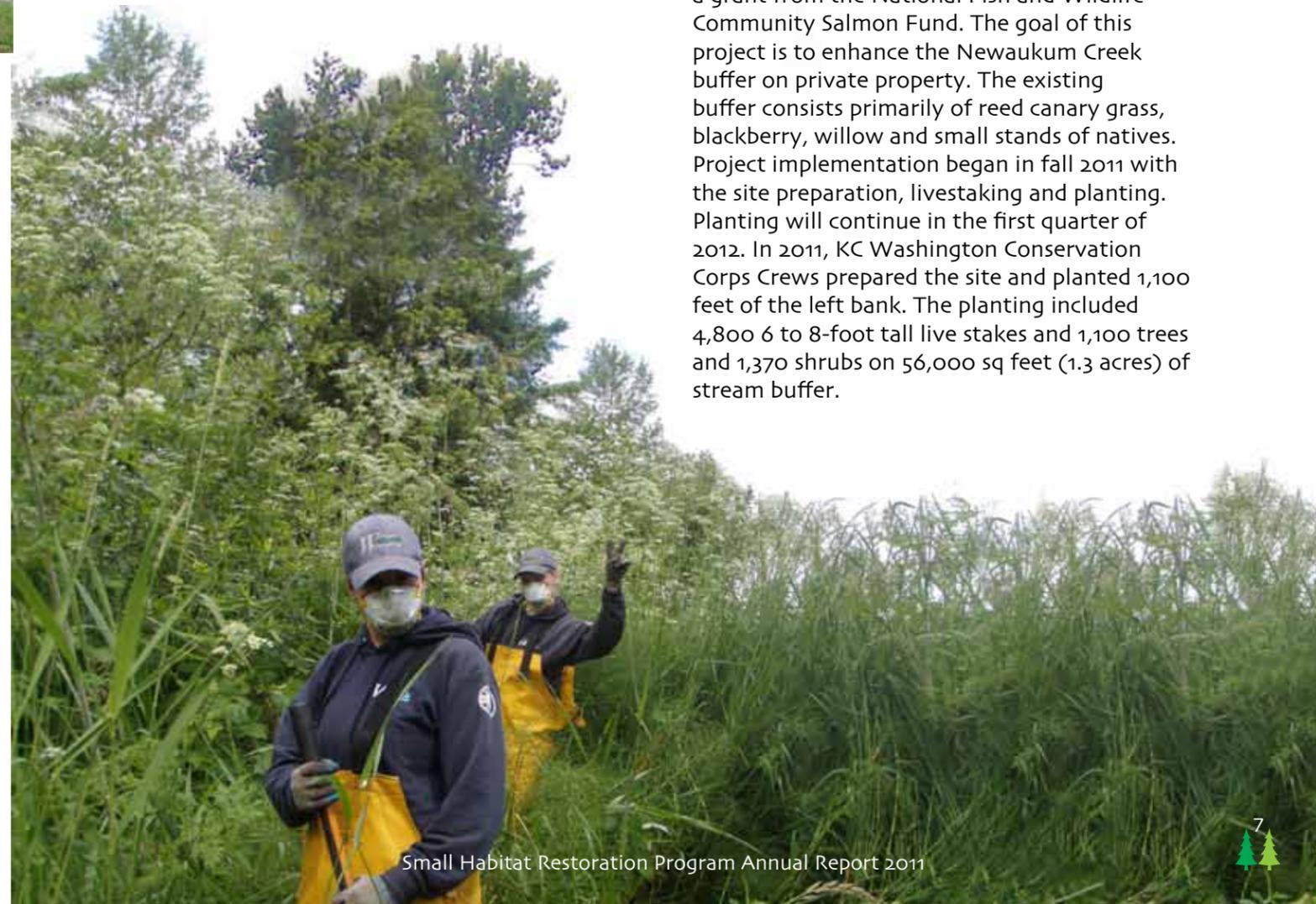
## WRIA 9: Green/Duwamish River Watershed

In 2011 SHRP staff worked with one private property owner on a new habitat restoration project, completed the second phase of five continuing projects, and continued monitoring and maintenance on one previously constructed project within WRIA 9.

## WRIA 9: New Restoration Projects

### Magnusson Buffer Enhancement (Private Property)

The Magnusson Property, Newaukum Buffer Enhancement is being funded by SHRP and a grant from the National Fish and Wildlife Community Salmon Fund. The goal of this project is to enhance the Newaukum Creek buffer on private property. The existing buffer consists primarily of reed canary grass, blackberry, willow and small stands of natives. Project implementation began in fall 2011 with the site preparation, livestaking and planting. Planting will continue in the first quarter of 2012. In 2011, KC Washington Conservation Corps Crews prepared the site and planted 1,100 feet of the left bank. The planting included 4,800 6 to 8-foot tall live stakes and 1,100 trees and 1,370 shrubs on 56,000 sq feet (1.3 acres) of stream buffer.





## WRIA 9: Continuing Restoration Projects



Rosatto Newaukum Creek enhancement

### Rosatto Newaukum Creek Enhancement (Private Property)

This project occurs along 1,000 feet of Newaukum Creek. Buffers were enhanced on both sides of the creek. reed canarygrass, poison hemlock and blackberry are

being controlled and the buffer was planted in multiple phases with willow stakes, trees and shrubs to help stabilize the banks of the creek and establish a native buffer. The total buffer established is about 30,000 square feet or 0.7 acres. The latest planting phase consisted of 175 large trees and 125 shrubs. Invasive maintenance is ongoing.



Lopez buffer enhancement - phase 2

### Lopez Phase 2 Newaukum Buffer Enhancement (Private Property)

This is a habitat enhancement project along 220 feet of the right bank of Newaukum Creek. Trees and shrubs were planted along the creek to

establish a native buffer of 3,500 square feet. In 2011, 125 potted plants and 75 willow and dogwood stakes were installed and mulched. Invasive maintenance is ongoing.

### Fallen Phase 2 Newaukum Buffer Enhancement (Private Property)

This is a habitat enhancement project along both banks of 1,000 feet of the north and south forks of Newaukum Creek. Native trees, shrubs and willow stakes were installed to help stabilize the banks of the creek and establish a more robust and diverse native buffer. The total vegetated buffer area established is approximately 30,000 square feet (0.69 acres). A 50-foot livestock fence was also built to supplement existing fencing and to exclude goats. In 2011, 135 potted trees, 300 shrubs and 101 willow stakes were installed. Invasive maintenance is ongoing.

### Brewer Phase 2 Newaukum Buffer Enhancement (Private Property)

This is a habitat enhancement project along 350 feet of Newaukum Creek. Native trees and shrubs were planted to help stabilize

both banks of the creek and establish a native buffer. Fencing was built to keep out beaver and livestock. The total vegetated buffer area established is approximately 5,250 square feet or 0.12 acres. In 2011, 195 potted trees, 170 shrubs and 100 willow stakes were installed. Also 100 feet of fence was built. Invasive maintenance is ongoing.



Brewer buffer enhancement - phase 2



## WRIA 10: White River Watershed

In 2011 SHRP staff completed the second phase of one continuing project within WRIA 10.

## WRIA 10: Continuing Restoration Projects

### VanWieringen Boise Creek SHRP (Private Property).

This project was constructed in phases, removing invasive Himalayan blackberry and planting native vegetation along Boise Creek. In 2011, 7,800 square feet of a previously planted area along 650 feet of the right bank was fenced to exclude elk. And an additional 112 trees, 78 shrubs, and 200 dogwood stakes were installed. The buffer was expanded by 4,000 square feet and 105 trees were planted in the expanded area along 175 feet of the left bank. Planting of lower banks to reduce erosion and provide cover for salmonids is planned for the future.



VanWieringen: fenced plantings, March 2011



VanWieringen: fenced plantings, July 2011

### Westby East Newaukum Creek Enhancement (Private Property)

This is a habitat enhancement project along 240 feet of Newaukum Creek. Reed canarygrass and blackberry were controlled and

phased planting has been occurring since 2007. This year focused on the east side of the creek. A barbed wire fence was installed to exclude cattle. The total vegetated buffer established is approximately 21,780 square feet or 0.5 acres. Vole protection was installed on the conifers. In 2011, 295 potted trees, 225 shrubs, 413 willow stakes, and 331 feet of fence was installed. Invasive maintenance is ongoing.



Westby Creek enhancement

## WRIA 9: Monitoring and Maintenance

### Litowitz Newaukum Conifer Underplanting (Private Property)





## WRIA 15: Vashon/ Maury Island

In 2011, SHRP staff constructed four new project and monitored and maintained one, additional, previously constructed project.

### WRIA 15: New Restoration Projects



*Singer Judd Creek Pond fencing*



*Singer Judd Creek Pond buffer*

Construction activities consisted of sealing a failing culvert that served as Singer Pond's outlet and creating a new outlet and stream channel connecting the south end of Singer Pond to Judd Creek. Spawning gravel, cobble and eight pieces of LWD were placed in the new channel. The pond and the new channel were planted with 500 potted trees, 830 shrubs, 1000 willow stakes and 2700 emergent vegetation plugs. The plants were mulched and a goose excluder fence was installed around the emergent vegetation. Total stream length of Judd Creek enhanced is 500 linear feet. Total area of buffer restored is 130,680 square feet.

#### **Singer Judd Creek Pond Enhancement (Private Property)**

The goal of this project is to improve fish and wildlife habitat and water quality in the Judd Creek basin. The improvements consist of constructing a 300-foot long channel to connect a nearby pond to Judd Creek and planting native species in adjacent riparian areas. The project area encompasses 7 acres of stream, wetland and upland habitats.

#### **Raabs Lagoon Estuary Enhancement (Public Property)**

The goal of this project is to improve fish and wildlife habitat in the Raabs Lagoon Natural Area. Nearshore, estuary and riparian improvements consist of extensive invasive plant removal followed by planting 1,050 native trees and 1,950 shrubs. A volunteer event was also hosted supporting 33 volunteers. The total project area enhanced is 1.5 acres. Approximately 422 feet of near shore/lagoon habitat and 60 feet of riparian stream habitat were enhanced.

#### **Douglas Judd Creek Enhancement (Public Property)**

This project primarily removed invasive English ivy, Japanese knotweed and holly and the parcel was scoped for future planting and enhancement opportunities. The total parcel is 9 acres and connects 854 feet of Judd Creek.



*Raabs Lagoon estuary planting*



*Raabs Lagoon high bluff planting - 1*



*Raabs Lagoon high bluff planting - 2*



*Douglas Judd Creek enhancement*



*Maury Island Marine Park*

#### **Maury Island Marine Park (Public Property)**

This habitat improvement project removed extensive invasive plants. Volunteers planted 900 trees and shrubs along 400 feet of shoreline in an

effort to restore degraded Puget Sound nearshore habitat.

### WRIA 15: Monitoring and Maintenance Palmer Judd Creek Riparian Planting (Vashon/ Maury Island Land Trust)





## Our Mission

The mission of SHRP is to build small low-cost habitat restoration projects to enhance and restore streams and wetlands and their buffers. The SHRP Program works closely with the Water and Land Resource Division's Basin Steward Program to identify projects and restoration priorities within King County's watershed resource inventory areas (WRIA's). This ensures that SHRP projects fit into the broader plans for watershed restoration and build on the successes of other restoration and stewardship efforts. Surface Water Management funds are leveraged with grants, community volunteer labor, and partnerships between landowners, local, state, and federal agencies.

**SHRP staff work** with local property owners and public agencies to design, permit, and construct habitat enhancement and restoration projects. Washington Conservation Corps (WCC) crews, as well as volunteers, provide skilled construction labor.

Projects include stabilizing eroding streambanks, planting native vegetation, installing livestock fences, restoring fish access to upstream habitat, controlling invasive weeds and providing technical assistance to landowners and agencies. Individual project costs typically range from \$5,000 to \$40,000 per year. Projects are constructed on public or private property as long as they provide benefits to the public at large. Since 1995 SHRP has completed over 300 projects in the White, Green, Cedar-Sammamish-Lake Washington and Snoqualmie River basins, Vashon Maury Island and along Puget Sound.

The SHRP website (<http://www.kingcounty.gov/environment/animalsAndPlants/restoration-projects/small-habitat-restoration-program.aspx>) includes an on-line project application, project database and maps, archived annual reports, and technical assistance guidelines for designing, planting, and maintaining habitat restoration projects.



**King County**

Department of  
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**Capital Projects Section**

**<http://dnr.metrokc.gov/wlr/cposa/shrp/>**

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