

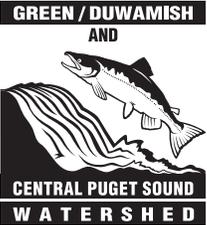


RE-GREEN THE GREEN:

Riparian Revegetation Strategy for the Green/Duwamish and Central Puget Sound Watershed (WRIA 9)



October 14, 2016



WRIA 9 Riparian Revegetation Work Group

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Written for the WRIA 9 Watershed Ecosystem Forum

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Cover photos:

left: Middle Green River Aerial Image, Ned Ahrens

top right: Lower Green River, eGov photo archives

middle right: Duwamish Planting Party, eGov photo archives

bottom right: Big Spring Creek, August 8, 2012, Elissa Ostergaard

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Executive Summary

Over the last 150 years, the amount of streamside, or riparian, forest cover has been dramatically decreased along the Green/Duwamish River and Central Puget Sound Watershed (WRIA 9) due to human activity and land use. The lack of tall native trees along the banks of the river and its tributaries results in unhealthy and sometimes lethal water temperatures for Chinook and other salmon. In fact, in recent years the Muckleshoot Indian Tribe observed a number of migrating adult Chinook salmon in the Green River die from heat-related diseases and stress. The lack of trees along the Green River results in fewer insects that feed birds, salmon, and other wildlife; and a lack of supply of wood to fall into the river to create a complex of deep and shallow, slow and fast water habitats where fish can hide from predators, feed, take refuge from high flows, and rest.

Shade-producing tree canopies along WRIA 9 riparian areas are needed in order to improve conditions for salmon and to meet water temperature standards. These efforts will help meet the directives of the Endangered Species Act, the Clean Water Act, and Native American fishing rights reserved by federal treaty (the 1974 “Boldt Decision”). There is an urgent need to restore a broad swath of tall trees and other native riparian vegetation on all land use types, urban and rural, along the entire length of the Green River and its tributaries (Figure 1). As part of programmatic action Watershed Wide 5 (WW5), the 2005 Salmon Habitat Plan called for planting trees throughout the basin. However, it did not provide guidance regarding how to prioritize or implement the program. This strategy is intended to guide the scope and priorities for riparian revegetation in the Green/Duwamish River and Central Puget Sound watershed (WRIA 9) for the next 10 years. This will assist the WRIA 9 partners in raising and allocating adequate funding and resources to accelerate the effort.

The goals of this strategy include:

1. Improve water temperature by restoring effective tree shade, especially along the Green River and the Soos and Newaukum Creek drainages; and
2. Improve habitat for threatened Chinook and steelhead.

Secondary benefits of riparian tree planting include:

- Increase climate resiliency;
- Improved public health, equity, and social justice by focusing on adding trees to riparian corridors in urbanized areas and low income ethnically diverse communities;
- Improved public safety; and
- Reduced stormwater runoff volumes and pollution.

Geographic locations with the highest priority for riparian revegetation include areas where water temperature Total Maximum Daily Load (TMDL) clean-up plans have been prepared to address exceedances of state water temperature standards; areas upstream of locations exceeding water temperature standards, which contribute to thermal loading; and the banks of rivers and streams mapped as a high shade priority based on their solar sun angle or aspect. Geographic priorities for revegetation, in order of the most to least important, are: the mainstem Middle Green River and Lower Green River; Soos and Newaukum Creeks and their tributaries; the Duwamish River; tributaries to the

Middle Green River, Lower Green River and the Duwamish; the Upper Green River; and finally, the marine nearshore, and nearshore drainages.

Tall trees along a 165-foot wide swath next to the channel will have the most temperature, habitat and other water quality benefits, especially when the shaded reach is continuous for at least 0.6 miles (1 kilometer). Significant barriers exist to planting trees along levees due to U.S. Army Corps of Engineers and King County Flood Control District rules and practices. Therefore, setbacks and broad planting benches are encouraged in areas affected by levees.

Approximately 86 percent of channels in Agricultural Production Districts and 92 percent of Farmland Preservation Program properties in WRIA 9 are devoid of trees, and are located in areas where temperature TMDL plans are in place or are being developed. Planting buffers on farms is challenging because of agricultural productivity needs and competing King County goals, but numerous options or incentives to offset the impacts of riparian buffers on agricultural landowners exist. In some areas, creative solutions need to be developed to balance recreational needs such as trails for water access and views with the need for dense and wide vegetated buffers.

Key elements of the “Re-Green the Green” strategy include:

- A target of 2,384 acres of newly planted riparian area by 2025 at an estimated cost of \$28.3 million. This estimate includes planning, site preparation, planting, maintenance and monitoring, but does not include the cost of purchasing lands for future protection. For the next two years of implementation in 2017-2018, just over \$1 million is needed each year.
- WRIA 9 assumes that the \$250,000 annual small grant round to award funds from the Cooperative Watershed Management grant program to practitioners that was started in 2015 will continue through 2025, accounting for a total of \$2.5 million of the estimated cost noted above. However, because current funding for riparian revegetation is inadequate, WRIA 9 will seek supplemental funding for riparian revegetation, including from the Washington Department of Ecology, U.S. Army Corps of Engineers through the Green/Duwamish Ecosystem Restoration Program, and donations from corporations or others to leverage the WRIA’s investments.
- Progress will be tracked by having those planting trees in WRIA 9 enter locations and specific activities related to site preparation and planting onto an interactive web map at <http://gismaps.kingcounty.gov/TreePlantingViewer/>.
- Research is needed to determine the most cost-effective methods for revegetation, water temperatures in the Duwamish, the relative contributions of small tributaries to high temperatures, riparian needs in the Upper Green sub-watershed, and adaptations for climate change.
- Education of public and private streamside landowners and enforcement of existing regulations that protect riparian areas are needed to retain trees in areas that are already forested.