



Applying knowledge to improve water quality

Pacific Northwest

Regional Water Program

A Partnership of USDA CSREES
& Land Grant Colleges and Universities

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Using Rain Gardens:

Reining in the Rain

The face of the landscape in western Washington and Oregon is rapidly changing. As the region's population has grown, our forested landscapes have changed to developed landscapes that have increased the amount of impervious surfaces, such as rooftops, driveways, roads, landscaped areas, and parking areas, as well as compromised fish and wildlife habitat. Impervious surfaces increase the amount of water running off the land, which ends up delivering pollutants such as oils, pesticides, pet wastes, sediment, and heavy metals to our waterways. Other impacts from increased storm water runoff include: flooding, erosion and stream scouring, siltation of streambeds, reduced recharge of groundwater, and insufficient stream-flow during late summer and early fall. Increased stormwater runoff is one of the primary causes of water quality and aquatic habitat degradation in this region.

One way homeowners, businesses, and others can help is to install rain gardens. Rain gardens are beautiful landscape features that manage stormwater onsite and have been identified as one of the easiest, most effective low-impact development techniques. They are shallow depressions designed to capture, absorb, and filter stormwater runoff from roofs, driveways, or other impervious areas in the landscape. Rain gardens incorporate compost and free-draining soil mixes as well as appropriate plants that work together to maximize stormwater absorption and treatment. Although individual rain gardens may seem like a small contribution, collectively, rain gardens can produce significant water quality benefits.



Rain gardens also provide many other benefits, such as:

- ◆ Providing habitat for wildlife, including birds and butterflies.
- ◆ Increasing the amount of groundwater recharge.
- ◆ Providing an attractive and creative alternative to traditional lawn landscapes that require less maintenance than lawns because they do not need to be mowed, fertilized, or watered once established.
- ◆ Increasing property values with creative landscaping designs.
- ◆ Reducing storm drain overload and flooding if adopted on a community or neighborhood scale.

WSU Extension is actively promoting the use of rain gardens, especially in the wet, western portion of the state. To facilitate the proper design and construction of rain gardens, WSU produced a regional-specific rain garden design and construction guidebook specifically for western Washington residents, "Rain Garden Handbook for Western Washington Homeowners: Designing Your Landscape to Protect our Streams, Lakes, Bays, and Wetlands." The guidebook was produced with guidance from several experts in local hydrology, rain garden design, and sustainable landscaping. The information contained in these publications is also appropriate for western Oregon. Hydrologic modeling was incorporated into the recommendations so that gardens could be properly sized based on local soils and rainfall conditions. The manual provides detailed instructions for the circumstances that residents would likely encounter. It can be downloaded at: http://pierce.wsu.edu/Water_Quality/LID/Raingarden_handbook.pdf.



Pacific Northwest Regional Water Quality Coordination Project Partners

Land Grant Universities

Alaska

Cooperative Extension Service
Contact Fred Sorensen:
907-786-6311

<http://www.uaf.edu/ces/water/index.html>

University Publications:

<http://www.alaska.edu/uaf/ces/publications/>

Idaho

University of Idaho
Cooperative Extension System
Contact Bob Mahler: 208-885-7025

<http://www.uidaho.edu/wq/wqhome.html>

University Publications:

<http://info.ag.uidaho.edu/Catalog/catalog.html>

Oregon

Oregon State University
Extension Service
Contact Mike Gamroth: 541-737-3316

<http://extension.oregonstate.edu/>

University Publications:

<http://extension.oregonstate.edu/catalog/>

Washington

Washington State University
WSU Extension

Contact Bob Simmons:
360-427-9670 ext. 690

<http://wawater.wsu.edu/>

University Publications:

<http://pubs.wsu.edu/>

Northwest Indian College
Contact: Michael Cochrane:
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<http://www.nwic.edu/>

Water Resource Research Institutes

Water and Environmental Research
Center (Alaska)

<http://www.uaf.edu/water/>

Idaho Water Resources
Research Institute

<http://www.boise.uidaho.edu/>

Institute for Water and
Watersheds (Oregon)

<http://water.oregonstate.edu/>

State of Washington
Water Research Center

<http://www.swwrc.wsu.edu/>

Environmental Protection Agency

EPA, Region 10

The Pacific Northwest

<http://www.epa.gov/r10earth/>

Office of Research and Development,
Corvallis Laboratory

<http://www.epa.gov/wed/>

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The Project

Land Grant Universities, Water Research Institutes, and EPA Region 10 have formed a partnership to provide research and education to communities about protecting or restoring the quality of water resources. This partnership is being supported in part by the USDA's Cooperative State Research, Education, and Extension System (CSREES).

Our Goal and Approach

The goal of this Project is to provide leadership for water resources research, education, and outreach to help people, industry, and governments to prevent and solve current and emerging water quality and quantity problems. The approach to achieving this goal is for the Partners to develop a coordinated water quality effort based on, and strengthening, individual state programs.

Our Strengths

The Project promotes regional collaboration by acknowledging existing programs and successful efforts; assisting program gaps; identifying potential issues for cross-agency and private sector collaboration; and developing a clearinghouse of expertise and programs. In addition, the Project establishes or enhances partnerships with federal, state, and local environmental and water resource management agencies, such as by placing a University Liaison within the offices of EPA Region 10.

Following publication of the handbook, WSU Extension offered a series of 10 rain garden design and installation workshops throughout the south Puget Sound area, reaching about 400 people. Workshop participants were invited to participate in the installation of four demonstration rain gardens established at area schools with the support of Stewardship Partners and the Nisqually River Education Project.

WSU's rain garden educator also participated in an hour-long special program on Seattle's main public radio station, KUOW, to further educate local residents about the benefits of rain gardens, and she assisted in a regional effort to create a beautifully illustrated educational poster (<http://www.goodnaturepublishing.com/raingarden.htm>) that local agencies from western Oregon and Washington can use to inspire local residents to build a rain garden.

Additional workshop series and rain garden installations are planned in several counties bordering Puget Sound in 2009. WSU is also exploring funding options for creating a "how-to" video to allow broader outreach.



National Water Quality Program Areas

The four land grant universities in the Pacific Northwest have aligned our water resource extension and research efforts with eight themes of the USDA's Cooperative State Research, Education, and Extension System.

1. Animal Waste Management
2. Drinking Water and Human Health
3. Environmental Restoration
4. Nutrient and Pesticide Management
5. Pollution Assessment and Prevention
6. Watershed Management
7. Water Conservation and Management
8. Water Policy and Economics

CSREES is the Cooperative States Research, Education, and Extension Service, a sub-agency of the United States Department of Agriculture, and is the federal partner in this water quality program.