



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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PNWWATER 138

Yard Water Use:

Ecoregions are More Important than State Boundaries

Normally, when the Pacific Northwest Regional Water Resources Team has looked at water survey results in the region, differences between states have received a lot of attention. However, there are often substantial differences within individual states. For instance, people in drier eastern Washington often see issues differently and consequently take different actions to address water issues than residents of wetter, western Washington. Consequently, when looking at water use in yards in Washington, Oregon, and Idaho we decided to split the three states based on annual precipitation. Consequently, we came up with two ecoregions – the wet and the dry areas (Figure 1). Ecoregion I, known as the wet ecoregion, consists of all counties west of the Cascade crest in Washington and Oregon. Approximately 7,500,000 people live in this ecoregion that contains the two largest metro areas (Seattle and Portland) in the Pacific Northwest. Ecoregion II, known as the dry ecoregion, consists of all of Idaho and the counties east of the Cascade crest in Oregon and Washington. Almost 3,000,000 people live in this ecoregion that contains the Boise and Spokane metro areas.

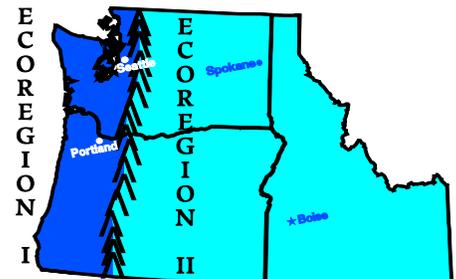


Figure 1. Two PNW ecoregions based on annual precipitation.

The data presented in this update was collected from the 2007 regional survey on water resource issues in the Pacific Northwest. Over 1,000 surveys were completed in this Dillman-based mail survey.

Almost 99 percent of people living in the dry ecoregion (Ecoregion II) reported that they water at least some portion of their yard in the summer (Table 1). Conversely, only 74 percent of the wet ecoregion (Ecoregion I) use supplemental water in their yards during the summer. Residents of the dry ecoregion were more likely to water lawns (92 vs. 49 percent), gardens (68 vs. 48 percent), and their landscaping (62 vs. 40 percent) than people living in the wet ecoregion.

Table 1. The effect of state of ecoregion on the tendency of Pacific Northwest residents to water a portion of their yard in the summer.

Action	Wet Ecoregion	Dry Ecoregion
	----- % -----	
Water yard in the summer	74	99
Water lawns	49	92
Water gardens	48	68
Water landscaping	40	62



When asked about outdoor water conservation practices that have been instituted in the last five years (since 2002), 63 percent of the residents of the wet ecoregion reported that they now do less summer lawn watering (Table 2). Less than 40 percent of the dry ecoregion residents have taken similar options. Obviously, supplemental water is necessary to have a green lawn all summer long in the drier region, while, cutting back on watering in the wetter ecoregion may not result in dry, brown lawns.



Pacific Northwest Regional Water Quality Coordination Project Partners

Land Grant Universities

Alaska

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<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

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University Publications:

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Washington State University
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 Contact Bob Simmons:

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University Publications:

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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.

Table 2. The effect of state of ecoregion on the tendency of Pacific Northwest residents to use conservation practices in their yard in the summer.

Conservation action	Wet Ecoregion	Dry Ecoregion
	----- % -----	
Less lawn watering	63	39
Early morning or evening watering	66	84
Drip irrigation – shrubs	19	41
Timers on sprinklers	23	60

Even though residents of the drier ecoregion were less likely to reduce summer lawn watering, they were more likely to implement other water conserving BMPs (best management practices) to conserve water use in lawn watering. For instance 84 percent of drier region residents confined their lawn watering to the early morning or evening hours (Table 2). This conservation practice was more widely used in ecosystem II than I (84 vs. 66 percent). Residents of the drier ecoregion were also more likely to use the water conservation practices of drip irrigation for shrubs (41 vs. 19 percent), and using timers on sprinkler systems (60 vs. 23 percent). Based on the survey data, even though residents of the drier ecosystem are more likely to water their lawns during the summer, they have adapted conservation practices to address water quantity issues in their region through individual actions in their yard. Basically, in the last five years water conservation practices have been implemented in the drier ecoregion on a one yard at a time scale.

Survey data from Alaska was excluded in this analysis primarily due to the small number of surveys returned. If Alaska were included the PNW would actually have three distinct ecoregions. The southeastern west panhandle region would be part of the wet ecoregion (Ecoregion I). The main part of Alaska would be the third ecoregion characterized by low precipitation with cold temperatures. Summer watering in the new Ecoregion III would probably not be widespread due to low summer temperatures.

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.

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