

# Weir Science

BY NIALL DUNNE

*“... she bid me take life easy,  
as the grass grows on the weirs...”*

These lines from Yeats’s poem “Down by the Salley Gardens” resonated in my mind when I recently visited the new weir system in the Holly Collection at Washington Park Arboretum. A series of small, connected, step-wise pools planted with native wetland species, the weir is designed to slow the movement of water through the site—but

its elegance and beauty would also make any passerby pause a moment to enjoy the scene.

The weir was created in the spring of 2013 by seniors in the University of Washington’s (UW) School of Environmental and Forest Sciences as a capstone project for their major in Environmental Science and Resource Management. The students were guided in their



The new weir system in the Holly Collection at the Arboretum.

efforts by Kern Ewing, Jim Fridley, Lindsey Hamilton, Warren Gold and other UW faculty in the University's Restoration Ecology Network (UW-REN), as well as by UW Botanic Gardens staff members David Zuckerman and Ryan Garrison.

The weir is located at the section of the Holly Collection adjacent to the corner of Boyer Avenue East and Lake Washington Boulevard. The site is a tough one, "hydrologically" speaking. It's on a relatively steep slope; the soils are heavy; and the site receives a lot of runoff and subsurface water, which drains from the surrounding residential neighborhood. The hollies are planted on high berms to protect their roots from waterlogging. Vegetated swales in between the berms are designed to collect water running down from the berms and help it infiltrate the soil and subsoil—however, one particular swale was not doing the job it was meant to do.

"This swale, running parallel to Boyer Avenue, was vegetated with turf that was storing water, resulting in saturated soil conditions," says Justin Bettis, the student coordinator for the project. "Since a saturated turf is difficult to maintain and not very useful, my classmates and



**ABOVE:** The students excavating soil from one of the weir system's step pools in spring 2013. (Photo courtesy Justin Bettis)

**BELOW** (Left to right) UWBG gardener Ryan Garrison, with UW-REN capstone project students Isabel Uriarte, Taylor Biaggi, Tamlyn Sapp, Justin Bettis, William Durig and William Balmforth. (Photo courtesy Justin Bettis)





The step pool system ready for planting. (Photo courtesy Justin Bettis)

I figured we could restore the site into a wetland pool system, vegetated instead with Pacific Northwest native species.”

The students dug out the pools, using the excavated soil and logs to construct ridges around the pools for water retention. They then planted the outer rim of each pool with a mixture of water-loving natives, including *Scirpus microcarpus* (small-fruited bulrush), *Carex amplifolia* (bigleaf sedge), *Carex obnupta* (slough sedge) and *Athyrium filix-femina* (lady fern).

“The system takes advantage of the site’s natural hydrologic situation to improve storm water management and provide habitat,” says Justin. “The step pools maximize the site’s potential to hold water and drastically increase infiltration. We hope the pools will store enough water to keep the path below, which occasionally floods, dry through the winter. The site also was engineered and vegetated to provide cover and

food for wildlife, such as amphibians. Even while working on the site, we’ve seen quite a few waterfowl setting up shop in the pools.”

Capstone projects like this and the restoration work at Yesler Swamp (see page 18) are a win-win, improving our local environment while providing young scientists with valuable team-based field experience.

“The capstone team was amazing to work with!” says Justin. “The Arboretum staff was extremely helpful and supportive throughout the entire process. We’re all proud to have designed and implemented a landscape feature that not only enhances the beauty and functionality of the site in the Arboretum but also provides important wildlife habitat. We look forward to seeing the long-term progress of our project.”

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