

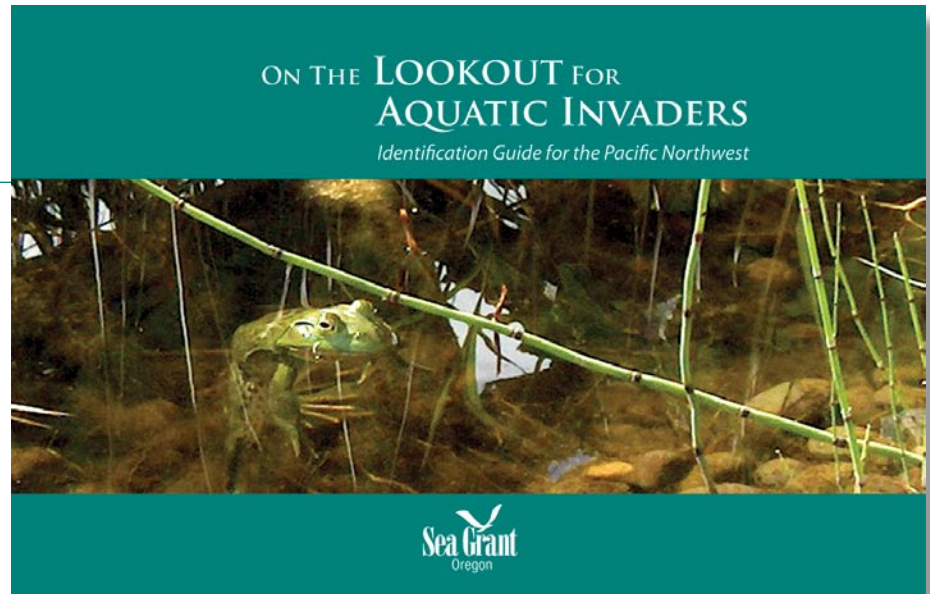
Invasives education: Putting Oregonians on the lookout

Grownups aren't the only ones using the field guide. Teacher Jennifer England uses it in her fourth-grade classroom.

What are those bright green plants?" Teri Grimm asked herself while fly fishing in central Oregon's popular East Lake. She collected a sample of the unusual plant and took it to Sam Chan, Oregon Sea Grant Extension's specialist in aquatic invasive species. Chan confirmed that Grimm had found an invader: Eurasian Watermilfoil, an aquarium plant that can crowd out native vegetation, block irrigation channels, and impede boat navigation when it finds its way into lakes and streams.

At the time, Chan was completing a field guide intended for people just like her. *On the Lookout for Aquatic Invaders: An Identification Guide for the Pacific Northwest* is a compact, spiral-bound field guide, sized to fit in a backpack, that displays basic information, full-color photos, and key identification characteristics of many aquatic invaders already established or likely to become established in the Pacific Northwest. Aimed at watershed councils, resource managers, and community groups, it's become a Sea Grant best seller since its publication in 2008.

"I own several copies and have given some to my friends," said Grimm, who has ordered copies of the guide for members of the Central Oregon Flyfishers, a club that promotes the preservation and conservation of central Oregon's watersheds. "I keep one in my car.



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It is not highly technical, and a layperson can use it to identify some plants."

Invasive species can spread when they hitch a ride on humans—stuck to their clothing or wedged in their boot treads—and in pumps and water used for fire suppression. So Amy Rusk, a hydrologist for the Umpqua National Forest, plans to brief U.S. Forest Service fire crews on aquatic invasive species at the start of each fire season. Several crew leaders already have their own copies of the Sea Grant field guide, so they can learn to keep themselves free of pests and reduce the spread between National Forests.

"The guide is user friendly," said Rusk. "It's not too over-scientific for the fire crews who may not have a background in biology."

Rusk herself discovered a brown, slimy gunk growing in a stream, while she was investigating designated fish habitats. She was familiar with the field guide photos of the invasive algae *Didymo*, also known as rock snot, and remembered the description of the texture as "damp wool."

Rusk had actually discovered a *Didymo* look-alike native to Oregon, *Cymbella mexicana*, and confirmed with help from the guide that *Didymo* had slightly different characteristics. Look-alike identification is an initial step to correctly finding invasive spe-

cies, and now Rusk can help the fire crews recognize native look-alikes.

Grownups aren't the only ones using the field guide. Teacher Jennifer England uses it in her fourth-grade classroom. In 2008 England contacted OSU to help her dispose of live, nonnative crayfish that her students had bonded with during a science project. "What can we do with them?" England remembers asking. "The kids can't take them home."

Sea Grant's Chan and his assistant Tania Siemens not only found a new home for the crayfish pets, they also enlisted England's class in an ambitious project to develop invasive species "tool kits" for K-12 classroom use as part of Oregon Sea Grant's WISE (Watershed and Invasive Species Education) program. They encouraged England's students to research Oregon invasive species and design their own public-information projects, using the crayfish disposal dilemma as their inspiration.

The students went on to create "wanted" posters featuring crayfish and nutria, in addition to comic books, poetry, and even board games with names like "Invasopoly" and "Habitat."

The field guide helped teach students why invasive species are a problem. Bailey Nelson, a student in England's 2008 fourth-grade class, recalls learning that nonnative crayfish can erode stream banks, host parasites, and displace native species.

"Our class used the guide as a take-off point," said England. "It was our primary source of information to design posters and games. The guide came in extremely handy; it helped students synthesize what is important and not just copy it."

The class was invited to showcase its projects at The Oregon Garden, where a group of students and 10 of their parents staffed an information booth and used the guide as the basis for their first public-outreach experience.

"The guide helped people who were seeing this information for the first time," said Gregory Murphy, another of England's students.

"If people didn't understand what we were displaying about invasive species, we would say: 'If you need more information, look in the guide,' so they got a better picture of it," Nelson added.

The students' six-week dedication to aquatic invasive species helped the class develop research and public presentation skills, England said. "It blossomed into more than I expected."



Students in Jennifer England's fourth-grade class work on an invasive species public-information project.

England's classroom is one of several in Oregon and elsewhere that have been serving as testing grounds for Chan's AIS Toolkit project and WISE program. The videos, books, and games students have put together are being assembled by Chan's team for display on the Web so that other teachers and their students can download them and use them to generate their own projects to learn—and teach—about invasive species in their communities.

For more information about Oregon Sea Grant's marine invasive species efforts, and links to some of the student-created AIS Toolkit projects, visit <http://seagrants.oregonstate.edu/themes/invasives/>