

**Oregon Explorers: Students Learning About Oregon's Natural Resources
Online, in the Field and in the Classroom**

Published in The Oregon Science Teacher 48:4 (March 2007): 18-21

Janine Salwasser
Natural Resources Digital Library
Program Director
OSU Libraries
Oregon State University
Corvallis, OR 97331-4501
janine.salwasser@oregonstate.edu

Jim Proctor, Professor and Director
Environmental Studies Program
Lewis & Clark College
0615 SW Palatine Hill Road
Portland OR 97219
503.768.7707
jproctor@lclark.edu

Introduction

Oregon Explorers are a select group of young Oregonians who learn about Oregon's natural resources and watersheds, and contribute to their sustainable use. Although this idea is still incubating, the resources available to these students and their teachers are available now, especially if they are fortunate enough to live in Douglas County where the online, field and classroom resources have been integrated for activities within the Alder-Jordan Creek watershed.

Available Online Resources



This spring, the **Oregon Explorer** (www.oregonexplorer.info) will be a new information resource for students and teachers to learn online about Oregon's natural resources and environment. Developed through a partnership with the Oregon State University Libraries, Institute for Natural Resources and Oregon Watershed Enhancement Board, this natural resources digital library brings together stories, data, imagery, and tools for making maps and generating reports for places throughout Oregon. It started with the development of digital libraries at the local level: Willamette Basin, North Coast, and Umpqua Basin. With each of these Explorer prototypes, a diversity of available digital content was integrated with an expanding set of digital library technologies.

The **Willamette Basin Explorer** was developed first (www.willamettexplorer.info) to help inform decisions about land and water use. With the Willamette Basin Explorer a student can select a county, watershed, or the entire basin to find out the relative distribution of habitat conservation and restoration opportunities. In the next example, you can see why "Tier 2 oak and prairie" is so important in Benton County — 3058 acres of this habitat type represents a small percentage of the county, but a relatively large contribution to the entire Willamette Basin (14.3%). This table was produced using the statistics reporting tool from the Willamette Basin Explorer. Benton County will be the first county in the state to develop a multi-species habitat conservation plan—for the listed plant and animal prairie species occurring here.

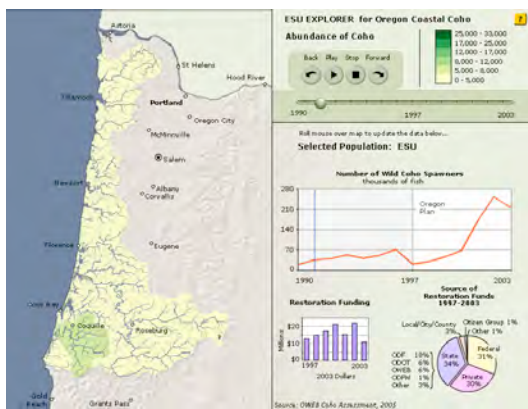
AREA (ACRES) BY CONS. AND REST. OPP. FOR BENTON COUNTY

County	Cons. and Rest. Opp.	Area (acres)	% of the County Area (acres)	% of the Basin's Total Amount of this Type of Cons. and Rest. Opp.
BENTON	Tier 1 floodplain forest	6414	2.0	11.3
	Tier 1 forest riparian protection zones	4878	1.5	1.0
	Tier 1 oak	3494	1.1	6.3
	Tier 1 prairie (wet and dry)	5079	1.6	13.4
	Tier 1 upland forest	4402	1.4	0.6
	Tier 1 wetlands	5889	1.9	6.9
	Tier 2 forests	13249	4.2	18.6
	Tier 2 oak and prairie	3058	1.0	14.3
	Tier 2 riparian protection zones	18081	5.7	2.4
	Tier 2 wetlands protection zones	3111	1.0	5.0
	Willamette River restored channels	3720	1.2	4.3
	Total		71376	22.6
Total		71376		

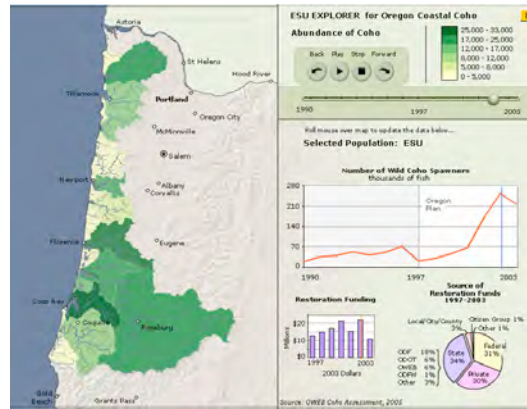
Source: Willamette Basin Explorer (<http://willametteexplorer.info>)

Or they can learn about a variety of natural resource issues, ranging from floodplain restoration to future water availability under different land use scenarios. The information is largely drawn from the Willamette Basin Planning Atlas produced by a consortium of scientists to evaluate alternative futures for the Willamette Basin.

The **North Coast Explorer** was developed next (www.northcoastexplorer.info) to help make information about coastal watersheds and salmon more accessible. Interactive maps are accessible through the feature story about the Coastal Coho Assessment. In the example below, the Coho Assessment Viewer allows students to view data on a number of important risk factors potential limiting Coho Salmon' recovery in Oregon's North Coast. Students will see how populations of Coho Salmon vary over space and time.



1991 Coho Abundance



2003 Coho Abundance

The **Umpqua Basin Explorer** (www.umpquaexplorer.info) was the most recent local site developed, and where the partnership between OSU Libraries and the Alder Creek Children' Forest was initiated. The Umpqua Basin Explorer is designed to provide background and information about a number of topics relevant to decision-making about natural resources in the Umpqua Basin. These topics include fish, habitat, water quality, restoration, and Native American tribes of the Umpqua Basin.

The screenshot shows the 'Umpqua Basin EXPLORER' website. The header features the title 'Umpqua Basin EXPLORER' and 'Natural Resources Digital Library' next to a map of Oregon. A navigation menu on the left lists categories like 'Learn about a Topic' (with sub-items: Fish, Habitat, Water Quality, Restoration, Native American Tribes of the Umpqua Basin), 'Learn about a Watershed', 'Issues and Actions', 'Feature Stories', 'Maps', 'Find Local Statistics', 'Statistics and Data', 'Photos and Videos', 'Reports and Publications', and 'Expertise and Contacts'. A search bar is at the bottom left. The main content area is titled 'HABITAT' and includes a breadcrumb trail: 'Home -> Learn about Topics -> Habitat'. The text defines habitat and lists types: Estuary, Riparian Areas, Bottomland Forest, Upland Forest, and Wetland. A link is provided for habitat restoration information.

This site also provides access to the mapping and reporting tools that were developed for the other Explorer sites, with information that is specific to the Umpqua Basin.

Linking Field and Classroom

Within the Umpqua Basin, another learning resource is being developed for Alder Creek Children’s Forest (ACCF; see www.aldercreek.org) located in the Alder Creek-Jordan Creek catchment west of Canyonville in southern Douglas County. The mission of ACCF, a charitable nonprofit organization, is to serve two of Oregon’s greatest treasures: our youth and our natural resources. ACCF offers a place, partnerships, and programs designed for young citizens to learn to work together to create healthy, sustainable forests, watersheds, and communities.

ACCF organizes and supports field-based science learning opportunities on its 78-acre site and in other locations on the 2450-acre catchment. These opportunities include mapping natural and cultural history, conducting terrestrial and aquatic inventory, hands-on training in forest ecology and management, and other activities. All of these field activities can be documented and spatially referenced using latitude and longitude coordinates, for instance as obtained via GPS (global positioning system) devices. Once checked for accuracy, these activities can then be shared with others via envisioned upload capabilities of the Umpqua Basin Explorer interface. Ultimately, student field science experts could compare their findings with those of other Oregon Explorers sites with uploaded data and documents, creating opportunities to build a network of student natural resource expertise throughout regions of the state served by Oregon Explorer.



Alder Creek Children's Forest – Field Day

The Oregon Explorers model links field and classroom activities. Classroom preparation prior to fieldwork is in three areas: (a) topical background (e.g., forest ecology), (b) site background, and (c) technical background (e.g., GPS usage and topographic map interpretation). Following this preparation, students spend time in the field, minimally a half a day every two weeks, to gain familiarity and proficiency. One potential way to afford this field time involves designing field and follow-up activities to convey educational benefits in multiple subjects, for instance science, math, and social studies. Finally, classroom analysis and checking of data, revision of documentation text, and other work precedes upload of information to Oregon Explorer.

In 2004, ACCF developed in conjunction with the Bureau of Land Management an online interactive mapping interface for the Alder-Jordan watershed. Additionally, an environmental consultant applied the same GIS (geographic information systems) technologies underlying Oregon Explorer and other interactive mapping interfaces to conduct a comprehensive background assessment of the watershed and its potential to restore anadromous fish runs. Envisioned near-future work involves transferring these data and documents to Umpqua Basin Explorer for student and community use, and eventual transfer of student-generated information to share with others across the State.

Supporting Teachers in Using Oregon Explorer: online, in the field, and in the classroom.

Teachers interested in the Oregon Explorer online resources only need a computer with access to the Internet, preferably a high speed connection. The mapping and reporting tools are available for use in areas throughout the State without any additional software requirements. The Oregon Explorers Initiative is a proposal (*summarized below*) that integrates the online resources, with the field and classroom opportunities:

Oregon Explorers are select teams of one teacher and 8-12 middle or high school students, who meet approximately one afternoon per week in a special course that allows field activities while conveying credit for multiple school subjects. Students receive recognition plus the opportunity to receive post-secondary scholarships. Teachers receive professional development units, plus stipends and materials budgets. Team activities include:

- **Online exploration and analysis.** Teams will select a specific watershed covered by Oregon Explorer and apply online information to set primary research questions in consultation with landholders and management agencies.
- **Field exploration and data collection.** Teams will conduct in-depth field research excursions in conjunction with local expert volunteers, and gather georeferenced data for input to the Oregon Explorer, following priority data needs.
- **Field management and restoration.** In consultation with field experts, landholders, and management agencies, teams will formulate, conduct, and evaluate practical management and restoration projects.
- **Training and classroom enrichment.** Training for students, teachers, and adult volunteers is essential to the Oregon Explorers program. Some team members will receive advanced training in GIS to support data management and uploading to the Oregon Explorer. Classroom preparation and follow-up to field and computer activities will provide additional tie-ins to Oregon educational standards.
- **School and community presentations.** Student teams will be a valuable resource to their schools and neighboring communities, who will benefit from learning about their activities by means of presentations, publications, and discussions.

We intend to pilot this initiative in the Douglas county area, and in other areas where there is interest by teachers and a place to take students to learn in the field, much like what has been demonstrated in the Alder Creek Children's Forest. We are interested in extending learning opportunities in other habitats, such as wetlands and prairies. Teachers interested in becoming a partner to this initiative will be offered basic training in field and computer skills. We are also looking for letters of support as we submit proposals for funding the Oregon Explorers Initiative. For more information, please contact the authors.