The Nature Conservancy
Protecting nature. Preserving life.™

conservation that works in oregon

The Nature Conservancy

in Oregon is implementing a comprehensive program to better understand the types and distributions of groundwater-dependent ecosystems in the Pacific Northwest, the links between groundwater and biodiversity, and to develop actions that will protect groundwater-dependent ecosystems and species.

Fast Facts

- Groundwater can be essential to six types of ecosystems: rivers, springs, lakes, wetlands, caves, and deep-rooted plants called phreatophytes.
- There are more than 31,000 mapped springs in Oregon; however, most experts agree that this number is under-estimated.
- In Oregon, nearly 1,650 species of conservation concern are dependent on groundwater for some part of their life cycle. This includes salmon and other fish species, mollusks, dragonflies, mosses, and amphibians.
- In Oregon, 40 percent of the drinking water for urban centers comes from groundwater; in rural areas, it's over 90 percent.

Picture at top:
Fen in the Fremont-Winema National Forest. The Conservancy is working with the Forest Service to improve the management of fens such as this one.

Pacific Northwest

Groundwater and Biodiversity

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Groundwater

Groundwater is a vital source of water that sustains both ecosystems and human communities worldwide. Wetlands, rivers, and lakes often receive inflow from groundwater; it provides late-summer flow for many rivers, and creates cool-water upwellings critical for aquatic species during the summer heat.

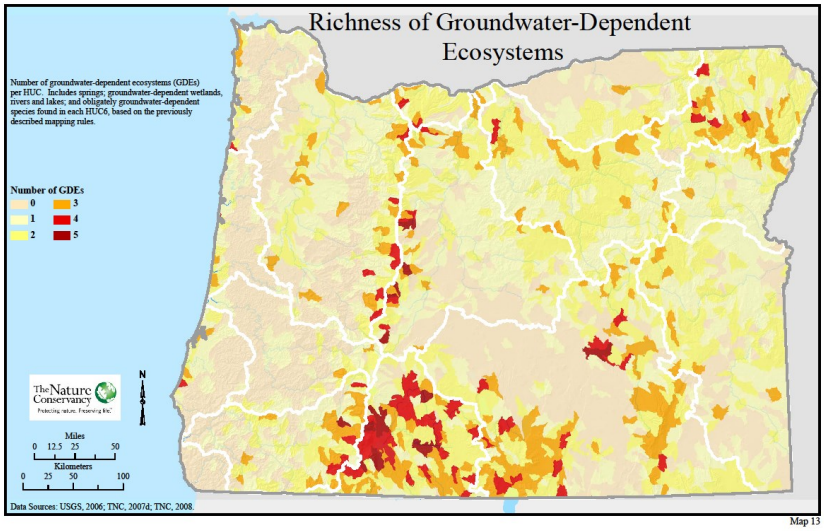
Fens—wetlands fed by groundwater—support many rare and threatened species and can be a source of water in an otherwise dry landscape. Groundwater is also the only water source for springs and subterranean ecosystems, which harbor a distinctive and poorly understood fauna.

Groundwater-dependent ecosystems contribute to human well-being through things like water storage and purification. However, there are many pressures on groundwater, including pumping for irrigation, municipal, and industrial uses. Groundwater also can be contaminated by pesticides, nutrients from wastewater or agricultural run-off, and industrial chemicals. And pressures are only increasing, especially with declines in surface water availability and quality.

Despite the importance of groundwater to aquatic biodiversity, there is little information describing the types and distributions of groundwater-dependent ecosystems across the Pacific Northwest.

The Nature Conservancy in Oregon is working to conserve groundwater-dependent ecosystems. We have mapped the locations of these ecosystems across the state and identified the activities that threaten them. We are now developing and testing approaches that will protect groundwater for biodiversity conservation while at the same time meeting human needs.

The Nature Conservancy, 821 SE 14th Avenue, Portland, OR 97214
Phone: 503 802-8100 Fax: 503 802-8199 E-mail: oregon@tnc.org Web: nature.org/oregon



Map showing the density of GDEs across the state of Oregon, organized by HUC6 sub-watershed

The McKenzie River in Oregon's Cascade Range is supported by a substantial groundwater component
© Leslie Bach/TNC

Conservation in action

Over the last five years, the Conservancy has developed a multi-tiered approach to protecting groundwater-dependent ecosystems. First, we created a Methods Guide to assist land and water resource managers in identifying key ecosystems and species that are groundwater-dependent, understanding how groundwater processes affect the ecosystems they manage, and describing the groundwater requirements of these ecosystems and species.

Second, we completed a state-wide assessment of Oregon groundwater-dependent ecosystems, including a report, an atlas, and detailed methods and data tables. This assessment includes numerous maps of the distributions of groundwater-dependent ecosystems and threats to their groundwater quality and quantity. The same analysis was also done for Washington and northern California.

As a result of these analyses, we are designing and testing on-the-ground strategies to protect and restore groundwater-dependent ecosystems and species. For example, our Oregon staff is working with the US Forest Service to inventory these ecosystems on national forests across the country, and to develop criteria and tools for guaranteeing adequate groundwater allocations to them.

Project support

The Northwest Conservation Fund has provided major financial support for this work. Additional support has come from Portland General Electric and PacifiCorp's Salmon Habitat Fund and the Laird Norton Foundation. Many agencies and Conservancy programs have provided technical input, including the US Geological Survey, US Forest Service, Bureau of Land Management, Natural Resources Conservation Service, Oregon Department of Environmental Quality, and scientists from numerous academic institutions and Conservancy chapters.

For more information

Allison Aldous, aaldous@tnc.org OR Leslie Bach, lbach@tnc.org
The Nature Conservancy in Oregon, 821 SE 14th Ave., Portland, Oregon, 97214
Phone: 503-802-8100

All products, including the spatial assessment for Oregon, and associated atlas, detailed methods and data, can be downloaded from the following web site: https://www.conservationgateway.org.