COALITION OF OREGON LAND TRUSTS

Protecting Oregon's Drinking Water Sources

A Guide for Using Land Conservation to Secure Clean and Reliable Drinking Water

Written by Michelle Smith, Water Program Manager at the Coalition of Oregon Land Trusts

WHO THIS GUIDE IS FOR

Anyone interested in ensuring all Oregon residents have access to clean and adequate drinking water. The guide is particularly drafted to support:

- water providers
- local governments
- community members
- land trusts and other community partners

HOW TO USE THE GUIDE

The guide provides information on how to use land conservation to protect drinking water sources, including:

- background on how drinking water is sourced, managed, and regulated
- an explanation of the role of source water protection in securing clean drinking water
- an overview of land conservation tools
- an overview of funding sources
- a framework for implementing land protection projects
- case studies

About This Guide

This guide is a resource for communities, water providers, land trusts, and other conservation partners in how to use voluntary land conservation to secure community drinking water sources.

It is our hope that the information in this guide will accelerate the protection of drinking water sources by increasing understanding around the need and opportunity for source water protection and supporting innovative partnerships.

About the Coalition of Oregon Land Trusts (COLT)

The Coalition of Oregon Land Trusts (COLT) is a statewide coalition that works to serve and strengthen the land trust community of Oregon. Our coalition is comprised of more than 30 organizations that work with local communities to protect water quality and wildlife habitat, preserve open lands, maintain working farms, and retain social and economic values that make Oregon special.

Collectively, COLT's member land trusts have permanently conserved more than 450,000 acres of land.

COALITION OF OREGON LAND TRUSTS

© Coalition of Oregon Land Trusts, March 2022
Cover photo courtesy of Sam Beebe.
Design by Kelsey Kuhnhausen.

Ecola Creek. Photo by Sam Beebe, Ecotrust.

Table of Contents

Introduction.....4

Source Water Protection.....6

- What is Source Water Protection?
- The Benefits of Source Water Protection
- How Source Water Protection Works
- The Role of Regulations in Source Water Protection

Land Conservation and Source Water Protection.....14

- How Land Conservation Protects Drinking Water Sources
- Land Trusts and Source Water Protection
- Land Conservation Tools

Funding Land Conservation to Protect Drinking Water Sources.....27

All Together: A Framework for Conserving Land to Protect Drinking Water Sources.....39

Jumping In

This guide is organized to first introduce readers to source water protection and its role in securing clean water for Oregon's communities. With that foundation, the guide explains how land conservation protects drinking water sources and provides an overview of the different partnerships, tools, and funding sources that can be used to conserve land. Finally, the guide provides a framework for implementing land conservation projects to protect drinking water.

While the guide can be read in its entirety, each section is structured to stand alone as a quick reference on specific topics.

Clean water is a fundamental need for people, fish and wildlife, and the environment.

It is vital for thriving communities and economies. Despite the critical role of clean water, Oregon's waters are increasingly degraded. Oregon's most recent assessement of the health of Oregon's waters found that 37% of the waters that have been assessed are impaired.

Among the water challenges faced by Oregon is ensuring all residents have access to clean water for drinking and sanitation. While for some clean water may seem as easy as turning on the tap, a growing number of Oregon communities are facing challenges accessing clean, reliable, and affordable water. These challenges are only expected to become more complex as our built infrastructure ages, we continue to degrade our natural systems, climate change stresses water supplies, and the state's population grows.

Our systems for managing water are aging. A 2021 survey of drinking water providers in Oregon identified $4.3 billion in needed investments in drinking water infrastructure over the next 10 years and a long-term need of $7.6 billion over the next 20 years.[1] When combined with other water infrastructure, such as wastewater treatment, the long-term need climbs to $23 billion in the next 20 years. In addition, the quality of our water sources is being impaired from the conversion and degradation of natural lands, and more intense natural disturbances like fire and rain events.

Climate change—resulting in higher temperatures, increased drought, more weather extremes—will continue to amplify challenges to both built and natural infrastructure. Couple these challenges with population growth and it will only become more imperative that Oregon be purposeful in protecting its water resources.

A critical piece of addressing these challenges is ensuring we have a foundation of clean water sources and healthy watersheds. We all live in a watershed—where water that flows past us runs into the same river, lake, or stream. For most of us, the watershed we live in also provides the water we drink. And, the health of those watersheds determines the quality of our drinking water. **Clean drinking water starts with its source.**

When we protect our water sources, communities have safer and more affordable water. Communities are also more resilient to stressors like fire, drought, and floods. And, when we ensure clean water for communities, we also ensure clean water for fish and wildlife. The same clean water that sustains communities also supports healthy ecosystems.

One of the most effective ways to ensure we have clean water sources is to protect the health of our natural lands. Simply, where we have healthy natural lands, we have cleaner water. Natural lands—forests, wetlands, estuaries, grasslands—are the first filter for our water. These lands act as natural infrastructure, keeping our water sources clean by filtering water before it reaches the stream or aquifer, keeping water cool by shading our rivers, lakes and streams, protecting communities and reducing pollutants by moderating water flows, and stabilizing water supplies by capturing and storing precipitation.

[1] Oregon Department of Environmental Quality, Fact Sheet 2020/2022 Integrated Report, https://www.oregon.gov/deq/wq/Documents/IR2022FactSheet.pdf.

INTRODUCTION

Land conservation is a key tool for protecting the natural lands that support our water sources.

In Oregon, over 50% of the land area surrounding community drinking water sources is privately owned.[2] Without protection, these lands are at risk of conversion or degradation that can impact water quality. Voluntary land conservation provides a collaborative, market-based approach to safeguard these lands in their natural state, ensuring they remain intact and healthy into the future.

This guide is a resource for communities, water providers, land trusts, and other conservation partners in how to use voluntary land conservation to secure community drinking water sources.

It is our hope that the information in this guide will accelerate the protection of drinking water sources by increasing understanding around the need and opportunity for source water protection and supporting innovative partnerships.

[2]League of Oregon Cities, 2021 Water Infrastructure Survey (May 2021), https://www.orcities.org/application/files/3816/2196/3174/Infrastrucuture_Survey_Summary_Report_5-25-21.pdf.

[3] Emily Jane Davis, Jon Souder, and Jeff Behan, Community Drinking Water Systems in Oregon, Trees to Tap: How Forest Practices Affect Oregon's Municipal Water, Oregon State University Extension Service (2021).

Where We Get our Drinking Water in Oregon

Oregon's drinking water comes from two sources: surface water, including lakes, rivers and streams, and groundwater.

Approximately an equal number of Oregon residents rely on groundwater and surface water as their primary water source. However, about 3.5 million Oregonians rely on surface water for at least some portion of their water supply. This includes backup water sources which supply water when a primary source is unavailable, such as during droughts or when there are quality concerns with the primary source. The majority of Oregon's water systems relying on surface water are located west of the Cascades, with systems relying on groundwater generally located east of the Cascades.

The majority of residents receive water from community water systems that serve at lease 15 connections or 25 people year round. Over 75% of the population is served by large or very large community water providers serving over 10,000 people. Only about 20% of community water systems using surface water serve over 10,000 people.[3]

The Safe Drinking Water Act (SDWA) is the primary legal framework ensuring that water from our taps is safe to drink. At the federal level, EPA sets health-based standards for human and natural contaminants in tap water, known as National Primary Drinking Water Regulations. These standards set the regulatory floor that states implement. In Oregon, the Oregon Health Authority manages the Drinking Water Services program which administers and enforces drinking water quality standards for public water systems.

What is Source Water Protection?

Our drinking water all comes from a source—a lake, river, stream, or aquifer—and the best way to protect drinking water is to keep its source clean.

Source Water Protection refers to practices that protect and improve the quality of our drinking water sources. These practices are typically non-regulatory and include education, land management, voluntary land conservation, and restoration.

Source water protection is widely recognized as the foundation of safe drinking water. Where communities start with clean water sources they have higher quality tap water, lower treatment costs, increased community resilience, and more stable water supplies.

How Source Water Protection Works

Source water protection works by reducing the risk of contamination to our drinking water sources before they occur. It is inherently placed-based—each water source faces a unique set of challenges and threats—and will look different for each community. It is also entirely voluntary. There are no legal requirements for water providers to protect their water sources; therefore, it is up to communities, water providers, landowners, and partners to implement source water protection practices.

The first step in source water protection is to identify the community's water source, watershed, and source water area. The source water area is the land area that contributes to a drinking water supply. It is also typically the area where land uses present the greatest threat of contamination to the drinking water source. These areas are identified as part of state source water protection programs under the Safe Drinking Water Act. While source water protection within a larger watershed can have significant benefits, given the high potential for land uses within the source water area to impact drinking water quality, source water areas can be thought of as priority areas for protection.

The second step of source water protection is to understand the threats to a water source. Threats vary based on the size of the source water area, natural conditions, land uses, and types of land ownership. The size of the source water area impacts how susceptible a water source is to the introduction of contaminants—the smaller the source water area, the more acutely contamination or disturbances within the area will impact water quality. Oregon's source water areas vary dramatically in terms of size—ranging from a 2-square-mile source water area for the coastal town of Oceanside to a 1,147-square-mile area for Eugene, Oregon.

A variety of **natural conditions** also impact the quality of water sources. An area's terrain and geology, such as steep slopes, erosion prone landscapes, and mineral deposits (for example, arsenic or mercury) can directly introduce contaminants into water sources and can intensify the impact of human-introduced contaminants. For example, natural erosion from steep slopes causes sedimentation of water sources.

Clean Drinking Water Starts on the Land.

Land conservation is a key tool for protecting the natural lands that support our water sources.

Safe Drinking Water Act (SDWA) and Source Water Protection

While the SDWA does not impose regulatory standards or legal requirements for the for quality of drinking water beyond the water intake (where the community diverts its water from the water source), it does protect source water quality through planning and information gathering requirements and funding programs that support **voluntary source water protection activities.**

The SDWA requires states to establish **source water protection programs to develop information and resources to help water providers and communities understand and address threats to water sources.** Oregon Health Authority administers the source water protection program for groundwater sources and Oregon Department of Environmental Quality administers the source water protection program for surface water sources. As part of state source water protection programs, each state must develop a source water assessment for public water systems. Broadly, these assessments delineate the areas which contribute to community water supplies—source water areas—inventory known contaminants in the source area, and determine the threat to drinking water posed by each contaminant. The SDWA also requires states to inform the public of the assessment's findings. While the SDWA does not require either the state or water providers to implement measures to address threats identified in these assessments, the SDWA envisions the assessment data as supporting voluntary adoption of preventative measures to protect drinking water sources.

The SDWA incentivizes the voluntary adoption of source water protection measures through the Drinking Water State Revolving Fund. This program provides funding—in the form of low-interest loans and grants—to communities, water providers, and partners to implement projects that help water providers comply with SDWA regulatory requirements and public health goals. The Oregon Health Authority and Business Oregon jointly administers the Drinking Water State Revolving Fund. Oregon Department of Environmental Quality provides support reviewing projects that address surface drinking water sources.

Oregon's Source Water Assements are available here:
https://www.oregon.gov/deq/wq/programs/Pages/DWPAssessments.aspx

Steep slopes will also amplify the impact of land uses—timber harvests in these areas will typically result in increased stream sedimentation. In addition, climatic conditions, such as weather events and changing hydrologic cycles can also impact water quality. Importantly, climate change effects—higher summer temperatures, lower summer and fall precipitation, increased storm intensity—will generally amplify the impact of these natural conditions on community water supplies.

Land uses are a leading cause of source water contamination. Our land uses can either support the provision of clean, sufficient and resilient water supplies, or impair water quality. Land uses can change the hydrology of a watershed—degradation or conversion of natural landscapes alters the way water moves across landscapes—which can result in increased pollution of water sources. For example, reducing the amount of permeable surfaces or deforesting an area can decrease a landscape's ability to absorb water, which in turn can reduce the amount of stored water and increase runoff. In addition, land uses are also a direct source of pollutants. Land use contaminant sources include agriculture, forestry, urban development, roads, and recreation. Common pollutants from these sources include pesticides, oil and petroleum products, nutrients, and sediment.

The type of **land ownership** can either increase or decrease the risk of contamination from land uses. On privately owned lands, communities have very limited authority to restrict land uses to protect drinking water and are primarily reliant on voluntary action through education, outreach, and incentives. While in some cases these approaches may be effective, in others landowners may not be willing to adjust their land uses to protect water sources, leaving communities reactive and vulnerable to contamination.

Statewide, a little over half the land within surface water source areas is privately owned–22% managed as industrial timber land, 17% managed for agriculture, and 15% for private residential use. Around 45% is managed by federal agencies and Tribes–33% by the U.S. Forest Service, 10% by the Bureau of Land Management, and 2% by Tribes and other federal agencies. Just 1% of the land is owned by the state. Importantly, only 0.3% is owned by local governments.[4]

Within these statewide statistics, there are regional and local variations in the land ownership makeup—for example, regionally, the coast has a higher percentage of privately owned industrial forest lands, around 43%, and, locally, 100% of the community of Rockaway's source water area is privately owned industrial forest.

Based on the unique makeup of the threats to its source water area, communities can then employ a variety of source water protection practices to prevent and mitigate sources of contamination. Examples include:

- Educating the public about the importance of clean drinking water sources and how their use of land impacts water quality.
- Partnering with federal and state landowners to implement management practices to protect community water sources.
- Incentivizing private landowners to adopt management practices to protect community water sources.

[4] Oregon Department of Environmental Quality, Oregon Public Water Systems: Surface Water Resource Guide for Drinking Water Source Protection (February 2018), https://www.oregon.gov/deq/FilterDocs/SurfaceWaterResourceGuide.pdf.

Silver Creek. Photo by Sam Beebe, Ecotrust.

How Water Treatment Works

Except where the quality of drinking water sources is exceptionally high—generally where communities have protected their water sources—all drinking water is treated to remove contaminants before water reaches our tap. Contaminants are substances that make water unfit for human consumption. These can be manmade or natural—examples include microorganisms (for example, Giardia), pesticides and herbicides, and sediment.

Where source water is clean, drinking water treatment technologies should be able to produce water that meets Safe Drinking Water Act standards for public health. However, where the quality of water sources is degraded, the community's water treatment technology may be challenged to achieve public health standards. Depending on the treatment system and type and amount of the contaminant, costs to treat the water may be higher (due to the need for increased treatment) or the treatment system may require upgrades to address the contamination.

In some cases, communities may not be able to supply potable water from their existing source, requiring temporary water shutoffs or boil water notices. In more extreme circumstances, the community may need to develop a new water source.

A variety of treatment technologies are employed by water providers but the process commonly includes:

- **Coagulation:** Chemicals are added to the water which bind to suspended particles.
- **Sedimentation:** The suspended particles, being heavier than water, settles to the bottom of the water.
- **Filtration:** The water passes through a physical filter (sand, charcoal, or gravel) to remove the sediment and other fine particles.
- **Disinfection:** A disinfectant (for example, chlorine) is added to the filtered water to kill any bacteria or other living organisms.
- **Storage:** The clean water is stored until piped for community use.

- Adopting land use laws, such as zoning ordinances, that confine development within land areas with a connection to drinking water sources to uses that will not impair water quality.
- Restoration of natural landscapes.
- Conserving land to secure natural infrastructure that supports clean water sources.

The Benefits of Source Water Protection

Where water providers have clean source water, they can more **reliably provide safe drinking water**. The cleaner the water at the intake, the fewer contaminants communities must remove through treatment and the more likely treatment will result in potable water. And, by preventing the introduction of contaminants to water sources, **communities can even exceed minimum public health standards.**

Maintaining the highest quality source water also reduces the cost of treating water. **Research has demonstrated that protecting the quality of our water sources costs less—and has better public health outcomes—than treating water.** For example, protecing land around the City of Boston's reservoirs was estimated to save the community $200 million in treatment costs.[5] Source water protection also reduces the need for expensive equipment upgrades to address contamination.

For example, increased sedimentation in the community of Arch Cape's source water area required the community to invest $1 million to maintain a potable water supply. Finally, source water protection reduces costs associated with lost water supplies. For example, the community of Wheeler, Oregon, has spent over $1 million dollars to secure a replacement water source due to continued contamination of its drinking water source from land uses in its watershed.[6]

Source water protection also **increases community resilience** to unexpected changes in the quality of their water source. For example, communities with a high-quality water source are better able to handle temporary water quality degradation from land uses and natural events like fire or heavy precipitation events.

Finally, source water protection **leads to more reliable water supplies**. In addition to improving the likelihood that water providers can treat contaminants, it also protects the quantity of water. Natural landscapes help regulate and slow water flows, which allows water to be captured, filtered, and stored. For example, fog drip collected by tree canopies constitutes an important source of summer water supply for Oregon's coastal communities.

Depending on the tool used to protect the water source, source water protection can also deliver numerous co-benefits, such as creating healthier communities, habitat and ecosystem improvements, climate change mitigation, and increased resiliency. These benefits are discussed in further detail in the *Land Conservation and Source Water* section.

[5] Trust for Public Land, The Return on Investment in Parks and Open Space in Massachusetts (September 2013), http://cloud.tpl.org/pubs/benefits-ma-roi-report.pdf.

[6] Tony Schick & Rob Davis, Timber tax cuts cost Oregon town billions. Then clear-cuts polluted their water and drove up its price, Oregon Public Broadcasting and The Oregonian (Dec. 31, 2020), https://www.opb.org/article/2020/12/31/oregon-logging-clear-cuts-drinking-water/.

The Role of Regulations in Source Water Protection

Source water protection practices are principally voluntary; however, there are several regulatory frameworks that support the protection of community water sources. These regulatory frameworks set standards to protect surface waters from pollution or restrict activities that impact water quality. Where these standards regulate sources of drinking water, they can act as a backstop to prevent significant degradation of those waters.

The primary law addressing the quality of surface waters is the Clean Water Act ("CWA"). While the CWA does not directly regulate drinking water, it serves an important role in ensuring clean drinking water by regulating the discharge of pollutants into surface waters and requiring the protection and improvement of surface water quality. Many of these surface waters are the sources of our drinking water.

The CWA employs regulatory and non-regulatory tools to achieve its goal of protecting water quality and restoring degraded waters. Key to protecting drinking water sources are the CWA's requirements that states maintain the quality of its waters and funding incentives to address nonpoint sources of pollution.

Water quality standards are a primary mechanism the CWA uses to protect and improve the quality of surface waters. These standards set the water quality necessary to allow the state to meet its management objectives for the waterway. In general, all waters must be suitable for fishing and swimming, but states may also identify other uses, including for use as a drinking water source. Where states have set a designated use of drinking water, the CWA requires the state to ensure the quality of water supports that use.

To ensure states are meeting water quality standards, states must assess the overall condition of its waters every two years. If a water's pollution level exceeds water quality standards, the state lists the water as impaired—this list is commonly termed the 303(d) list after the regulatory provision requiring the designation. This listing requires states to develop plans to address pollution and improve the water's condition to meet water quality standards. The process of identifying and improving impaired waters can be an important tool in driving state action to improve drinking water sources that are polluted. You can find information about Oregon's assessment of the condition of its waters here: https://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx.

In addition to regulatory requirements, the CWA uses funding in the form of grants and loans to incentivize states to improve water quality. The Section 319 Grant program provides funding for states to develop and implement plans to reduce nonpoint source pollution.

Nonpoint Pollution

The Clean Water Act distinguishes between point sources and nonpoint sources of pollution. Examples of nonpoint sources are land runoff, precipitation, and drainage that carry pollutants such as chemicals from agricultural and forestry practices and urban runoff. These pollution sources are now the leading cause of water quality impairments in the country including of drinking water sources.

SOURCE WATER PROTECTION

Oregon's Nonpoint Source Program—administered by Department of Environmental Quality in coordination several other agencies, including the Oregon Department of Agriculture (pollutants from agricultural land uses) and the Oregon Department of Forestry (pollutants from forestry activities)—identifies and implements priority actions to address water quality impairments from land uses and other nonpoint pollution sources. Both public and private entities can access funding for projects that implement the state plan.

The CWA also establishes the Clean Water State Revolving Fund, a low-interest loan program that funds projects that address water pollution and help states achieve compliance with the CWA's regulatory requirements and goals. Both funding sources can help address the pollution of drinking water sources from nonpoint sources.

The Oregon Forest Practices Act, implemented by the Oregon Department of Forestry, regulates forest mangement, including commerical timber harvestt on non-federal forest lands.. While the Act does not regulate drinking water directly, it does impose stream buffers—or Riparian Management Areas—to protect waters that may be impacted by harvests. The size of these buffers varies based on the stream's type (delineated by whether the stream is habitat for salmon, steelhead, or bull trout (Type SSBT), a domestic water source (Type D), or both a domestic water source and fish barring (Type F)), size, and location within several geographic regions. For streams with only domestic water use, buffers are 70 feet for large streams, 50 feet for medium streams, and 20 feet for small streams. These buffers significantly increase where fish are also present.

Oregon's Forest Practice Act was recently strengthened as part of a collaborative effort between stakeholders, with new rules to take effect in 2023 and 2024. While these changes may ultimately help protect domestic water sources, the changes focused on addressing logging impacts to aquatic species. Importantly, the amendments increased stream buffers for fish bearing streams and their tributaries but did not specifically address buffers for streams that serve only as a domestic water supply.

The regulation of private forest practices is particularly important for community drinking water because the majority of forest lands within drinking water source areas are privately owned. Communities have very limited authority to restrict land uses on private lands to protect drinking water. As a result, unless landowners adopt voluntary measures to protect drinking water sources, these buffers often serve as the only protection for drinking water sources.

While the above regulatory frameworks each add an important layer of protection for community water sources, they are not a replacement for voluntary source water protection practices. Instead, they should be thought of as a complement to source water protection practices.

Regulatory approaches provide a baseline of protection while still allowing resource use. Voluntary conservation tools are an important complement to these regulatory minimums, allowing communities to prioritize water quality and minimimize pollution risk to the extent possible. Voluntary conservation also fills gaps to address threats that regulatory frameworks do not address. For example, the Forest Practices Act only restricts logging on the most high-hazard slopes, leaving significant room for voluntary conservation to address activities on steep slopes and landslide prone areas that regulation do not address.

This approach is also proactive, allowing communities to both prevent future contamination and empowering communities to improve the health of their watersheds. However, unlike regulations, source water protection relies on voluntary participation from landowners. Therefore, when voluntary measures are not feasible, regulations provide an important backstop to protect water quality. **Water sources are best protected when there are both strong regulatory standards and communities have the tools and resources to implement source water protection practices.**

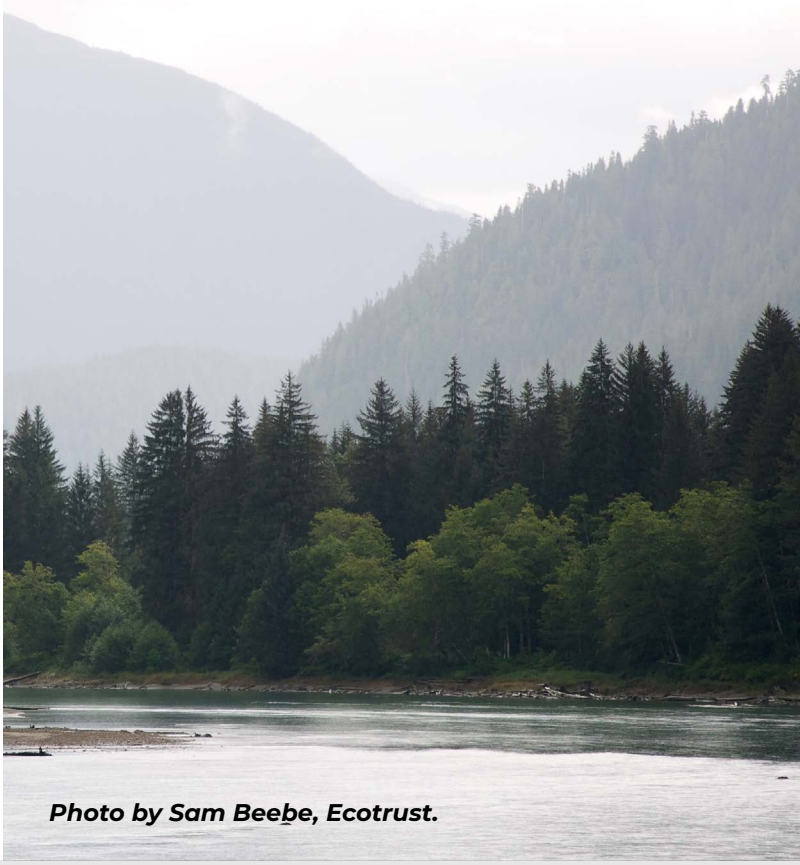


Photo by Sam Beebe, Ecotrust.

State Agency Roles in Protecting Drinking Water

Oregon Health Authority

- Implements and enforces Oregon's Drinking Water Quality Act.
- Leads the source water protection program for groundwater sources.
- Partners with Oregon Department of Environmental Quality in implementing source water protection program for surface water.
- Administers the Drinking Water State Revolving Fund in partnership with Business Oregon.

Oregon Department of Environmental Quality

- Implements the Clean Water Act.
- Leads the Source Water Protection Program.
- Administers the Clean Water State Revolving Fund.

Oregon Department of Forestry

- Implements and enforces the Oregon Forest Practices Act.
- Determines best management practices to address nonpoint pollution sources on state and private forest lands.

Oregon Department of Agriculture

- Implements a variety programs to address nonpoint source pollution from agricultural practices and is responsible for regulating runoff from agricultural and rural residential lands to protect water quality under the Agricultural Water Quality Management Act.

Oregon Water Resources Department

- Regulates the use and management of Oregon waters. The agency's work centers on regulating water rights, collecting data about the status of water resources, public education, and streamflow restoration.

Oregon Watershed Enhancement Board

- Provides grants to restore and maintain Oregon waters and natural areas.

Land Conservation and Source Water Protection

"The health of our water is the principal measure of how we live on the land"

—Luna Leapold

How Land Conservation Protects Drinking Water Sources

Land conservation can be one of the most impactful ways to protect source water. The land our water sources flow through determines the quality of our drinking water—where we have healthy natural lands, we have cleaner water. As a result, when we conserve these landscapes, we help protect the quality of our drinking water.

Land conservation refers to the preservation of land in its natural state and can be used to accomplish numerous goals and follows many different models. Goals of land conservation include maintaining open space, providing recreational opportunities, historical preservation, improving and securing habitat, providing clean air and water, and safeguarding natural working lands. Models include ownership by a public entity or nonprofit, conservation easements, deed restrictions, and management agreements.

For community drinking water goals, land conservation provides a mechanism for communities to ensure the management of land within their watersheds protects and improves the quality of their water sources. The quality of our water is tied to the health of our land. Our forests, wetlands, estuaries, and grasslands provide vital services that ensure we have clean and sufficient water. These natural functions act as **natural infrastructure**, keeping water clean by filtering water before it reaches the stream or aquifer, keeping water cool by shading our rivers, lakes and streams, protecting communities and reducing pollutants by moderating water flows, and stabilizing water supplies by capturing and storing precipitation.

When natural lands are purposefully used and managed, their natural ecosystem functions provide multiple benefits to communities, including cleaner water and air, reduced flooding, and more secure water supply. These services are called "natural infrastructure."

When natural lands are degraded through development or resource extraction, we weaken or altogether lose these natural functions, impairing the quality of water sources and making communities less resilient. While we can get some of the benefits of these natural systems by building infrastructure that mimics these functions, such as constructed wetlands or green roofs, our natural lands do a better job, providing greater benefit for less cost.

How Forests Protect Drinking Water

Forests serve as the sponge, storage, and first treatment for our drinking water by:

- **Keeping water clean.** Intact forests hold soils in place and slow the movement of water, reducing the amount of sediments and pollutants in streams.
- **Regulating flow.** Forests help regulate the absorption of water. Tree canopies capture water from fog and precipitation, and roots and soils store water and recharge groundwater.

[7] Caryn Ernst, Protecting the Source, Land Conservation and the Future of America's Drinking Water, The Trust for Public Land and the American Water Works Association (2004).

Further, unlike built infrastructure such as pipes and treatment plants that generally provide few co-benefits, natural infrastructure provides a suite of co-benefits including protecting habitat for fish and wildlife, mitigating and adapting to climate change, advancing equity, and preserving open space for communities.

Natural infrastructure solutions also typically cost less—saving communities capital and operational costs. For example, New York City estimates that it avoided between $6 to $8 billion in capital and operating costs to treat drinking water by conserving land within its watershed. And, a 2002 study conducted by the Trust for Public Land and the American Water Works Association found that "for every 10% increase in forest cover in the source area, treatment and chemical costs decreased approximately 20%, up to about 60% forest cover." The same report found that forest cover in the source area was tied to an approximately 55% of the variation in treatment costs.[7] If the significant co-benefits of land conservation were added, the cost benefits would be even greater.

Land conservation is a key tool to ensuring these natural systems continue to serve as natural infrastructure. **Where our natural lands are intact, land conservation can ensure they remain healthy into the future. Where natural systems have been degraded, land conservation makes it easier to restore landscapes and manage them to supply clean and abundant water.**

Because much of our remaining natural lands are privately owned, the conservation of these private lands provides important ecological and community benefits. **Privately owned lands comprise over 50% of Oregon's source water areas.**

These privately owned lands present a particular challenge for communities because communities have limited to no authority to restrict private land uses to protect water sources or to require conservation.

Voluntary land conservation—through collaboration with landowners—provides an important tool to ensure land is managed consistent with drinking water goals.

Water Outcomes

In contrast to regulatory approaches or investment in built infrastructure, when we conserve land to protect its natural infrastructure functions we help Oregon meet many of its other goals:

Protecting the environment. The same clean water that supports communities also improves habitat for fish and wildlife.

Climate resilience and mitigation. Lands managed to protect water sources also help mitigate and adapt to climate change by avoiding greenhouse gas emissions, sequestrating carbon, and moderating the impacts of climate change, such as more intense floods, fires, and droughts.

Recreation and open space. Conserving land for drinking water also protects open space by preventing conversion of natural lands.

Supporting local economies. Healthy natural lands can support jobs, generate income, and increase tax revenue.

Healthier and more equitable communities. Underserved communities are often the most vulnerable to losing access to water. Targeted investments in conserving land to protect drinking water sources can help secure drinking water for these communities. These same communities often face increased exposure to pollution and lack access to open space and recreational opportunities, all of which can be improved by land conservation.

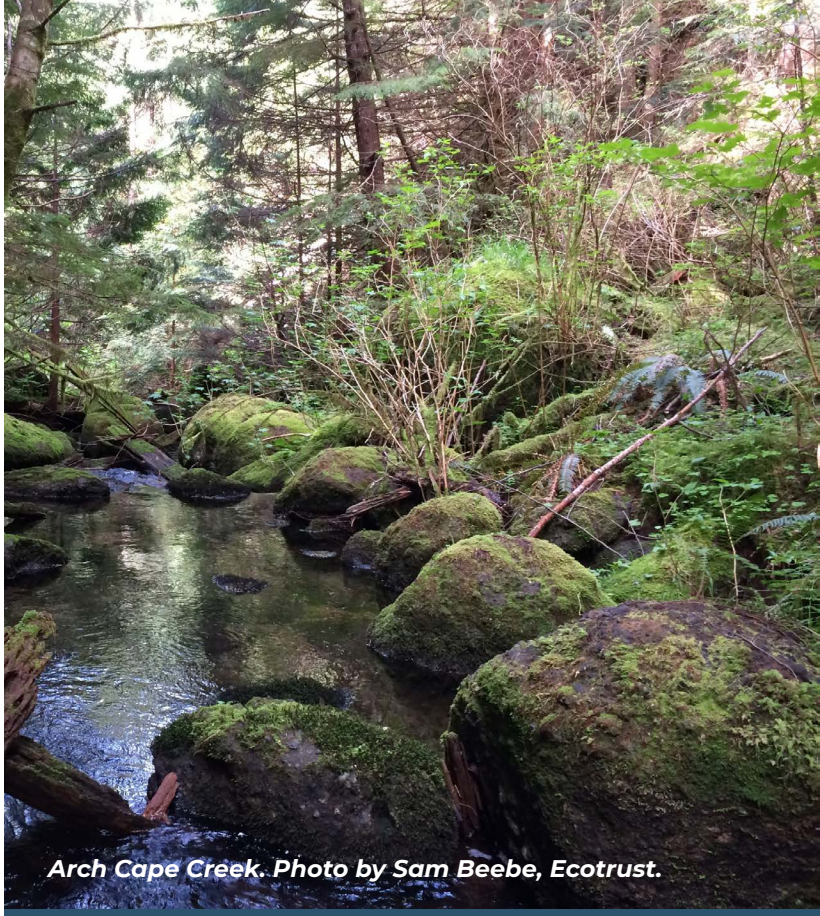
Land Trusts and Source Water Protection

Land trusts are nonprofit organizations that conserve lands and waters to support healthy communities and ecosystems. They typically focus on collaboration with landowners to secure long-term protections for privately owned property. However, land trusts also protect lands and waters by being a voice for conservation, partnering with communities, and facilitating transfers of property into public ownership. As of 2021, land trusts have permanently conserved 450,000 acres in Oregon and much of this work helps protect water quality.

As organizations with expertise in land conservation, land trusts are natural and valuable partners in protecting community water sources. The following are some of the roles land trusts can play in source water protection efforts:

OWNER

Land trusts can own land protected for drinking water. This can be an option when the property meets the land trust's conservation priorities, either where protection of source water quality is a primary purpose of the project or a co-benefit. Land trusts can also elect to own property where water providers or communities may want to invest in source water protection but do not have the capacity to own or manage land. Finally, land trusts may act as a temporary owner—termed bridge owner—to provide time for a community to raise the necessary funds to purchase property.



Arch Cape Creek. Photo by Sam Beebe, Ecotrust.

CASE STUDY

North Coast Land Conservancy *Rainforest Reserve*

The recently protected Rainforest Reserve is a 3,500-acre property on the northern Oregon coast, spanning from the Pacific Ocean up 3,000 feet to the summit of Onion Peak. The multiple purposes of the project include conserving rare ecosystems as habitat for plants and animals, restoring and protecting unique rainforest habitat, and providing landscape connectivity. In addition, the project strategically protects the headwaters of source water creeks that serve the local communities of Arch Cape and Cannon Beach.

The acquisition price of $11.8 million was funded by private philanthropy and grants from U.S. Fish and Wildlife Service, Oregon Watershed Enhancement Board, and the Pacific Northwest Resilient Landscapes Initiative.

HOLD CONSERVATION EASEMENTS

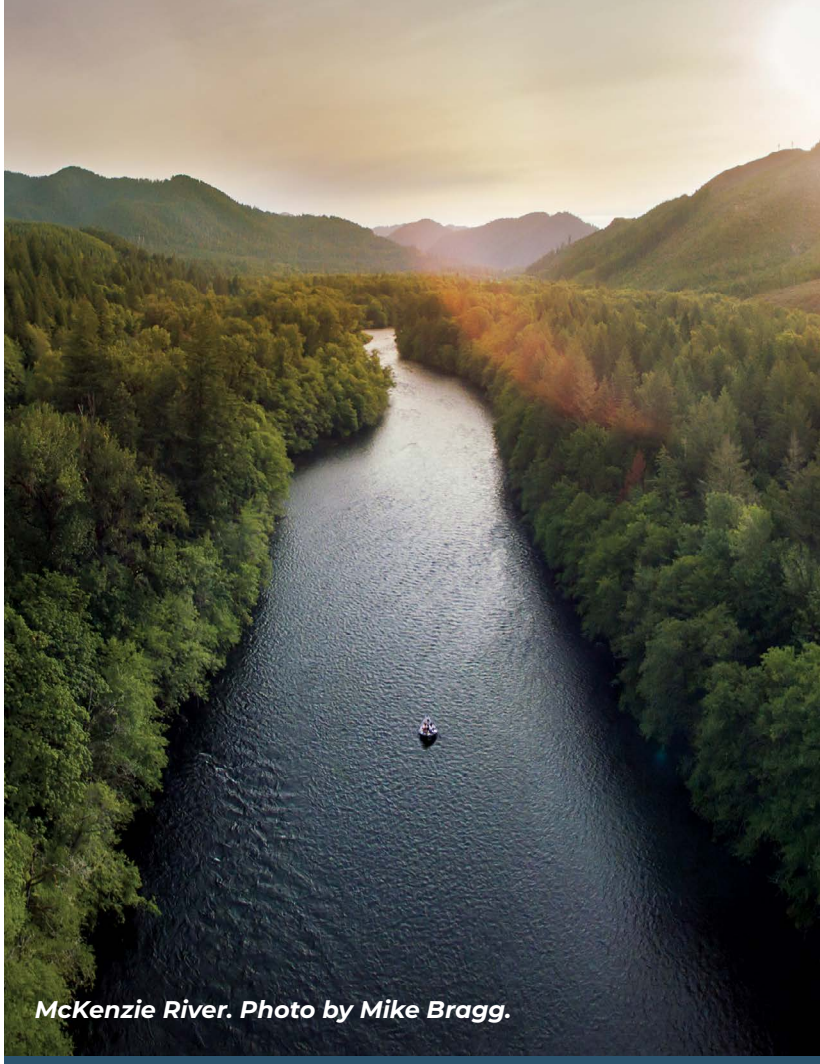
Land trusts can acquire and hold conservation easements to protect source water. Conservation easements are voluntary legal agreements, typically purchased for fair market value or donated, that protect the conservation values of land. Conservation easements can be used to ensure land uses on private property align with the protection of community water sources. Similarly, land trusts can hold conservation easements on public property. Public ownership does not guarantee that land will be managed to protect natural resources or public health. Conservation easements can provide a backstop to help ensure public land is managed consistent with the protection of community drinking water sources.

ACQUISITION AND REAL ESTATE EXPERTISE

A critical barrier to land conservation for communities is a lack of experience in executing land transactions. Land trusts bring expertise in land transactions, both in planning and execution, and can support communities by assisting with formulating an acquisition plan, explaining the acquisition process to staff, board members and the community, and providing technical support throughout the transaction.

CONSERVATION KNOWLEDGE

Land trusts can help communities understand the benefits of protecting natural lands, including the connection between healthy lands and clean waters. And, with expertise in communicating the conservation value of a property, land trusts can help communities tell their conservation story to funders, legislators, and other partners.



McKenzie River. Photo by Mike Bragg.

CASE STUDY

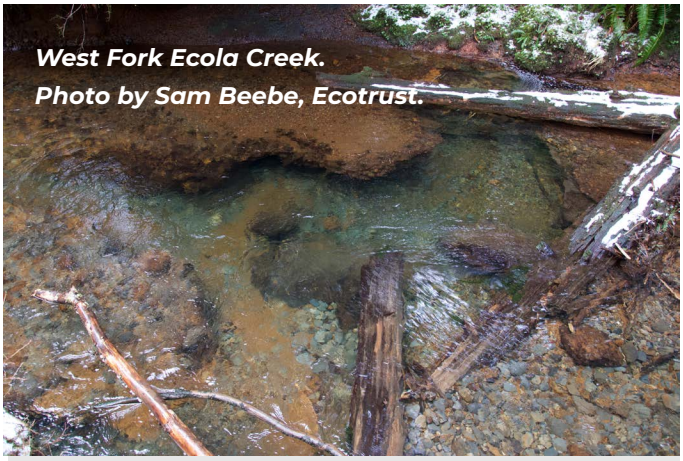
Pure Water Partners

The Pure Water Partners (PWP) Program is a collaboration of the Eugene Water and Electric Board and nonprofit and public partners with the goal of protecting drinking water quality and reducing treatment costs through the protection of its water source—the McKenzie River. The program works with landowners in the McKenzie River watershed to advance good stewardship practices and protect and restore land. The program is entirely voluntary and focuses on education and incentives.

The McKenzie River Trust is a member of the PWP Program and works with landowners that want to conserve their land. The McKenzie River Trust currently holds 15 conservation easements covering 612 acres in the McKenzie River watershed.

"We're all in this together. Even though we're organizations with different roles and motivations, this works. It's an opportunity to collaborate to support healthy landscapes and healthy communities—for now and the future."

– Katie Voelke, Executive Director, North Coast Land Conservancy



West Fork Ecola Creek. Photo by Sam Beebe, Ecotrust.

LAND TRUSTS

Land trusts typically serve specific geographic areas which may be local, statewide, or regional. However, some land trusts work nationally and even internationally.

You can find information about land trust partners at the Coalition of Oregon Land Trusts' website: https://oregonlandtrusts.org/about-us/coalition-members/.

CREDIBILITY AND CONNECTIONS

As established and trusted entities embedded in communities, land trust involvement can help garner and solidify support from community members, funders, agencies, and legislators. In addition, existing relationships with landowners helps position land trusts to learn about properties that are available for protection and to educate landowners about the role of private lands in protecting drinking water sources.

FINANCE AND FUNDRAISING

Land trusts bring fundraising expertise and can help communities design and implement capital campaigns. Land trusts have an understanding of the suite of funding options available to support land conservation projects. They also have experience crafting competitive grant applications and communicating conservation projects to funders, including agencies and private donors. Finally, land trusts can act as a fiscal sponsor for partners that do not have tax exempt status. The ability to claim a tax deduction is a common incentive for private philanthropy; however, some partners may not have tax-exempt status. As a fiscal sponsor, land trusts can accept donations and pass funding to a non-tax-exempt entity to support projects that meet the land trust's mission. This helps the community raise funds for a project, helps the land trust advance its conservation priorities, and gives private donors a financial incentive.

STEWARDSHIP EXPERTISE

As experts in land management, land trusts can help communities plan for the long-term stewardship of a property, including understanding how to calculate and fundraise for stewardship costs and develop and implement stewardship plans.

Ilwaco. Photo by Sam Beebe, Ecotrust.

CASE STUDY

Ilwaco, Washington

Ilwaco, Washington, sits on the mouth of the Columbia River in southwest Washington, and sources its drinking water from Indian Creek which flows through a forested 893-acre watershed. The property is zoned for timber use and was entirely managed for commercial harvest until the mid-1980s, when the community purchased 600 acres following a clear-cut. While the community acquired fee title to the property, the timber company retained the right to harvest timber on 178 acres.

The community's water treatment facilities have faced challenges in treating water from Indian Creek due to heavy sediment loads, particularly following logging activities in the watershed. To ensure a more resilient supply of clean water, the community is planning to purchase the remaining 293 acres and the timber rights for a cost of $1.53 million and $1.3 million respectively.

Current funding for the acquisition includes a $600,000 community forest grant and a $3.4 million Clean Water State Revolving Fund loan from the Washington Department of Ecology.

Land Trust partners have provided critical acquisition support for the community. The Trust for Public Land (TPL) has leveraged its expertise in land transactions, financing experience, and existing relationships with landowners, funders, and legislators to support the project. TPL's contributions have included supporting the negotiation of the acquisition, developing project financing, conservation planning, and legislative advocacy.

Columbia Land Trust was an early partner for the City and supported project visioning and planning, including support applying for grant funding.

"There is no way we at the city could have done this without the Trust for Public Land's help putting all the pieces of purchase together." Matt Lessnau, Ilwaco City Council.

Land Conservation Tools

Land conservation tools are legal mechanisms that protect land for environmental and community benefits. The following list highlights many of the common land conservation tools that can protect water sources. The right tool, or combination of tools, will depend on the unique circumstances of each project, including the property being protected, landowner goals, conservation priorities, funding, and capacity of the project partners.

CASE STUDY

Forest Grove, Oregon
Ownership

The City of Forest Grove owns 4,225 acres of forest land within its drinking watershed and manages the land to protect drinking water for its residents. In 1917, the City began purchasing land within the watershed to ensure the community had control over its drinking water source. Today, the city-owned forest covers almost 64% of the city's drinking water source area.

The City manages the forest with the primary purpose of providing high-quality water for the community. Consistent with and to advance that goal, the City sustainably harvests timber within the forest. For example, the City limits harvest within sensitive areas where timber harvest could degrade water quality, such as on steep slopes, riparian areas, late successional forests, and hard to access areas. Sustainable timber harvest generates around $500,000 per year to support water services for the community, including the City's new water treatment plant.

OWNERSHIP

Fee ownership gives the owner full control over the use and enjoyment of a property. This form of ownership provides the greatest control over the uses of the property to ensure they support clean drinking water. It also provides the most flexibility to manage the property for multiple co-benefits—for example, habitat, recreation, climate change, and to generate income from natural resources.

While fee ownership has significant benefits, it also presents challenges. Fee acquisitions typically come with the highest transaction costs and the greatest administrative and financial burdens for managing the property.

While only a few communities have protected all land within their watershed, acquisition of individual parcels within a source water area or the larger drinking watershed can still be valuable. Acquisition of individual parcels can address specific threats to a community water source—such as land managed as an industrial forest or land adjacent to a drinking water intake. In addition, communities can use the acquisition of smaller parcels as a long-term strategy towards protecting all or the majority of land within its drinking water source area.

Fee acquisition can follow different acquisition, ownership, and management models. The model that works best will depend on the individual circumstances of the transaction and property. Acquisition of properties may be opportunistic—the property is offered for sale or a landowner expresses interest in protecting their property—or targeted based on location, particular threats to drinking water, land ownership, or co-benefits. In some cases, particularly where a property is offered for sale publically, a partner with the capacity to quickly purchase a property—sometimes termed a bridge buyer—can provide the long-term holder time to raise acquisition funds.

Arch Cape. Photo by Sam Beebe, Ecotrust.

CASE STUDY

Arch Cape, Oregon
Ownership

The 250-person community of Arch Cape is located on the northern Oregon coast and sources its water from two small streams—Asbury Creek and Shark Creek—within a 1,249-acre source water area. The source water area is entirely privately owned, with 86.6% managed as private industrial forest. As with many coastal water systems, turbidity is a primary contaminant threat for the community and upstream logging in the watershed has already required the community to invest $1 million in its water treatment system to address increased sedimentation. Additional logging in the watershed would likely require continued infrastructure investments.

In 2016, Ecotrust Forest Management (EFM), acquired 5,000 acres of forestland including the community's drinking water sources. Of the total acquisition, EFM agreed to hold 3,500 acres for resale to North Coast Land Conservancy (NCLC)—acting as a bridge buyer to allow NCLC the opportunity to raise the necessary capital to purchase the property. Recognizing the key role of the remaining acres to the community's drinking water—representing 58% of the community's source water area—NCLC brought the possibility of purchasing the property to the water district. Beginning in 2017, the water district, with capacity support from NCLC and Sustainable Northwest, has pursued acquisition of the land within its source water area. The water district completed its purchase of the property in 2022 and now manages it as a community forest with oversight from a community advisory committee. The property is managed for the primary objective of securing clean drinking water for the community.

The water district funded administrative capacity to complete the acquisition with a $15,145 Clean Water Act Section 319(h) grant; $30,000 OWEB stakeholder grant; and a $30,000 Drinking Water State Protection Fund grant. Acquisition costs were funded through a $3.5 million U.S. Forest Service Forest Legacy grant; $250,000 award from Clatsop County; and $2 million legislative appropriation.

A creek in Elliot State Forest. Photo by Sam Beebe, Ecotrust.

Community Forests: An Emerging Conservation Strategy

Community forests provide a model of community ownership and management that helps ensure protected land is managed for community benefit in perpetuity. A community forest is a forest managed by a local government or community-based entity for the benefit of the community. While there is no single model of a community forest, often these forests are managed to balance economic, ecosystem, and community benefits. The protection drinking water fits within the range of values a community forest can be managed for. The process to establish and benefits of a community forest are described here: shorturl.at/erTZ6.

The U.S. Forest Service has a dedicated grant program to support the protection of land as community forests. This program funds the acquisition of private forests to protect public access, clean water, habitat, recreation, and timber production. Additional information on the programs guidelines can be found under *Funding Land Conservation to Protect Drinking Water Sources.*

The appropriate ownership model will depend on the financial and administrative capacity of partners to both purchase and steward the property long term. It will also vary depending on whether ownership would meet the partner's priorities. Finally, certain funding sources may require funded projects be owned by certain types of entities. Depending on all these factors, the appropriate long-term owner may be a land trust or other nonprofit, municipality, water provider, or state, federal or tribal entity.

Finally, the long-term management of a property can follow different models. This can include the values the property is managed to protect and who has input in how the property is managed. For example, natural lands may be managed as working lands while still protecting drinking water quality for communities. Community Forests provide a new model for owning and managing property.

CONSERVATION EASEMENT

Conservation easements are voluntary legal agreements between a landowner and a public or nonprofit entity to protect a property's conservation values in perpetuity. Conservation easements work by restricting an owner's right to make certain uses of the property that would impair the protected values. For example, to protect open space values, a conservation easement may prohibit a landowner from subdividing their property or limit the construction of new buildings.

Functionally, the landowner deeds certain of its property rights to the entity acquiring the easement. These rights can either be purchased for market value or donated. Those rights are then recorded and enforceable against all future landowners. The landowner retains all rights to use and enjoy the property that are not expressly limited in the conservation easement.

Oregon law defines the purposes that a conservation easement can be created for and the entities that can acquire a conservation easement—termed a "holder." Conservation easements can

protect the natural, scenic, open space or recreational values of a property, preserve the historical or cultural values of the property, protect natural working lands, and maintain and enhance air and water quality. Entities that can hold conservation easement are tribes, the state, counties, cities, metropolitan service districts, soil and water conservation districts, park or recreation districts, and nonprofits with the purpose of protecting real property for conservation values. Water providers that are subdivisions of a municipality may hold conservation easements.

Conservation easements offer several benefits to landowners. Where conservation easements are donated, property owners can receive a tax benefit. In other cases, conservation easements may be purchased. Typically, the price of a conservation easement is the difference in the value of the property without and with the use restrictions. In addition to financial benefits, conservation easements allow landowners to retain the benefits of owning property while still securing the property's conservation values.

Similarly, conservation easements are often the preferred tool for the entity protecting the property. Conservation easements provide the benefit of securing the conservation values of a property with less cost than purchasing the property outright. They also require less management and administrative time and costs than associated with owning property.

However, similar to the challenges associated with fee acquisitions, conservation easement acquisitions are complex real estate transactions that require expertise and capacity to complete. In addition, while the easement holder is typically not responsible for active management of the property, holders are required to monitor the property to ensure compliance with the conservation easement terms. Therefore, long-term enforcement of conservation easements still requires both funding and administrative capacity.

Onion Peak Forest. Photo by Sam Beebe, Ecotrust.

CASE STUDY

Port Orford, Oregon
Conservation Easement, Bridge Buyer

The small community of Port Orford sits on the southern Oregon coast and sources its water from Hubbard Creek, a small perennial stream. The source water area comprises 2,845 acres and includes properties managed for industrial timber production. In 2003, the City acquired a conservation easement over 140 acres within the watershed. Since then the community has continued to increase the amount of protected land within its source water area and watershed.

Most recently, the City partnered with the Conservation Fund to protect 160 acres in the Hubbard Creek watershed. The 160 acres was managed as a timber investment property and was listed for sale. The Conservation Fund, acting as a bridge buyer, acquired the property in 2021 and will hold it while the City puts together funding to purchase the property.

CASE STUDY

Rhododendron, Oregon
Deed Restrictions

Rhododendron is a small 2,000-person community located in northwest Oregon near the base of Mt. Hood. The Rhododendron Water Association, a nonprofit water provider, supplies water to around 1,000 residents. The community's drinking water source area is 2.80 square miles and includes nine miles of Henry Creek—the community's water source. While the majority of the community's source water area is owned by the U.S. Forest Service, two private parcels—combined totaling about 300 acres—are managed as industrial timber lands. Due to natural conditions, turbidity—the measure of sediment in water—is a primary concern for the community. Any logging in the watershed is anticipated to increase turbidity, potentially resulting in the loss of the water source for the community..

The community has been actively engaged in securing protections for the privately owned land as a means to protect against land uses that would harm its water supply. While the community was unable to protect the land through fee acquisition or a conservation easement, the community did secure a management agreement with one of the private property owners. The management agreement restricts the landowner's right to harvest or remove timber from a 150-foot distance on either side of the creek. The agreement is recorded with the property's deed making it enforceable against subsequent property owners.

Rhododendron received a Drinking Water Source Protection Fund grant to support its negotiations with the private landowners and a $100,000 Drinking Water Source Protection Fund emergency loan to fund the acquisition of the management agreement.

RECORDED MANAGEMENT AGREEMENTS (DEED RESTRICTIONS)

Management agreements are contractual agreements that restrict the use of property. For example, a property owner may agree not to develop a portion of their property near a water intake. When the management agreement is recorded in a property deed, they can act to restrict both the current and subsequent owners of the property. However, while these agreements can be structured to provide long-term protection for conservation values, they are not as secure as a conservation easement. Unlike conservation easements, which by law are protected in perpetuity, recorded management agreements may be extinguished by a court in certain circumstances, such as when circumstances change the need for the restrictions. This lack of permanency also means the costs to acquire the management agreement may not be eligible for some funding sources.

As a tradeoff to being less secure, management agreements are frequently less expensive to acquire than conservation easements and easier to administer. In addition, they may be a good tool in circumstances where there is no partner that wishes to own or manage property or where a landowner is not amenable to encumbering the property with a conservation easement or selling the property.

LAND EXCHANGES

Land exchanges or land swaps refer to the trade of one property for another property—generally a high-value conservation property is traded for a property that has fewer conservation values or that is difficult to manage.

Land exchanges can facilitate the acquisition of strategic properties by overcoming cost barriers. Because of this, land exchanges can be particularly useful in large acreage transactions. In some cases, a land exchange may also be more appealing to private property owners.

Photo by Sam Beebe, Ecotrust.

CASE STUDY

Astoria, Oregon
Land Exchanges

The City of Astoria's drinking watershed, the Bear Creek Watershed, was historically owned and managed by a private timber company as industrial forest. In 1912, the City purchased an initial 500 acres of forest land within its watershed. Realizing the importance of controlling the land uses within its drinking watershed, the City and the timber company subsequently agreed to a property exchange in which the City would trade forest land for property logged by the timber company. Through these land exchanges and other smaller purchases, the City had acquired title to its entire drinking watershed by the 1950s.

The City now owns and manages its 3,500-acre drinking watershed with the primary purpose of protecting its water supply. Consistent with that primary purpose, the City manages the property for timber production that both supports healthy restoration of the forest and generates income. The City has also generated income from selling carbon credits on the property—where the City agrees to maintain a certain level of timber inventory for a period of years. The City sold carbon credits in 2015 and 2020, generating a net revenue of just over $2.6 million.

For example, landowners that manage property for its timber value may not be interested in losing the property's income but may be willing to trade for another income-producing property.

While land exchanges can occur between private parties, in the context of source water protection, the exchange will typically involve a government entity—local, state, or federal—trading land in public ownership for private property. Land exchanges are typically complex real estate transactions and, in exchanges involving public property, will need to follow prescribed legal processes—including public comment periods—and meet applicable criteria regarding the purpose and benefit of the transfer.

In Oregon, the relevant local government oversees land exchanges involving municipally owned property and the Department of State Lands oversees land exchanges involving state-owned property. Additional information about the state process can be found here: https://www.oregon.gov/dsl/land/Pages/Sales.aspx.

Land exchanges involving federal land are overseen by the federal agency that manages the land. Each agency has their own process and criteria for land exchanges but typically, the property exchanged must be in the same state, of equal value, and the land owner must be a citizen. Most land exchanges will also require congressional approval and environmental review. For exchanges involving U.S. Forest Service, the first point

Bull Run. Photo by Sam Beebe, Ecotrust.

of contact is the District Ranger. You can find a list of district rangers for each national forest here: https://www.fs.usda.gov/organization/Pacific%20Northwest%20Region%20%28R6%29.

For the Bureau of Land Management, the first point of contact is the Field Manager. You can find contact information here: https://www.blm.gov/office/oregonwashington-state-office. The Bureau of Land Management Handbook on Land Exchanges provides detailed information on the land exchange process and regulatory requirements: https://www.blm.gov/sites/blm.gov/files/h2200-1.pdf.

RIGHTS OF FIRST REFUSAL OR OPTIONS

A key challenge in conserving land for public benefit is overcoming barriers to participating in real estate markets. Public and non-profit entities often lack the financial and administrative capacity to act within often competitive and short buying windows. In addition, there is no requirement that a private seller of land within a community's source water area inform the local water provider or municpality when selling a property. As such, communities must be proactive to learn when properties are offered for sale. The following contractual rights can better position communities to learn about a proposed sale and negotiate a purchase, and provide time to raise necessary acquisition funds.

Rights of First Refusal are contractual agreements which give the holder of the right a first opportunity to purchase a property if the owner offers the property for sale. Under these agreements, the holder of the right has no authority to force the property owner to sell the property, it only puts the holder first in line to purchase the property when it is offered for sale. The holder of the right must meet the terms of the sale set by the owner—such as price and closing timeline. To be enforceable, the right of first refusal must be purchased. If the holder does not exercise their rights, any money paid is typically lost.

Option Agreements are contractual agreements that give the option holder the right to purchase a property under predetermined terms. Distinct from rights of first refusals, option agreements do not depend on the property owner offering the property for sale—an option binds the owner of the property to sell if the option holder decides to purchase the property (called "exercising the option"). Generally, option contracts set a time period within which the holder of the option must exercise its right to purchase and the terms of purchase, such as price and due diligence requirements. As with a right of first refusal, to be enforceable the option holder must purchase the option rights. While the holder is not obligated to purchase the property, they will lose any money paid for the option even if they do not elect to exercise the option.

Legal Library

The Coalition of Oregon Land Trust maintains an online library of legal documents related to land conservation transactions: https://oregonlandtrusts.org/legal-document-library/.

Funding Land Conservation to Protect Drinking Water Sources

Land conservation to protect drinking water sources delivers a diversity of benefits that uniquely positions projects to access a variety of different types of funding sources. These funding sources include water infrastructure loans, grant funding to support clean water and land conservation, revenue models, and private philanthropy.

While the ability to leverage a variety of different types of funding sources provides opportunities for projects, these funding sources were typically either established to facilitate land conservation or to address clean water for communities, not both. **Land conservation to protect drinking water challenges traditional funding silos and requires us to recognize and value the human benefits of protecting nature.**

For example, land conservation funding most often supports projects with primary benefits related to fish and wildlife habitat, open space, or preventing development and resource extraction. To qualify for funding under these programs it is often necessary to elevate the project's environmental co-benefits. While several water infrastructure loan and grant programs now fund natural infrastructure projects (such as land conservation for drinking water), eligibility criteria are often still tied to traditional built infrastructure projects, making it challenging for land conservation projects to qualify for funding.

Oregon does not have a funding source targeted at assisting communities in protecting their drinking water sources. As a result, communities and partners will need to think strategically and creatively about positioning projects to access existing funding sources. Following are a variety of funding sources that can be used to finance land conservation projects to secure drinking water sources.

State Revolving Funds

Oregon administers two low-interest loan programs that fund investments in water projects—the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF). These loan programs (collectively termed "SRFs") are capitalized by funding from the Environmental Protection Agency and a minimum 20% state match. Loan repayments and interest revolve back into the fund, allowing states to invest in new projects. Oregon's SRFs are administered by Oregon Department of Environmental Quality, Oregon Health Authority, and Business Oregon. Land conservation to protect drinking water sources qualifies for funding under both programs.

CLEAN WATER STATE REVOLVING FUND

The CWSRF is authorized under the Clean Water Act and provides low-interest loans for projects that help states achieve the Act's goals—to prevent, reduce, and eliminate pollution in the nation's waters in order to restore and maintain the quality of those waters. As a result, while the CWSRF can fund a wide variety of projects—ranging from built infrastructure, such as sewage treatment plants, to land acquisitions and restoration—all projects must address a point or nonpoint source pollution problem. Oregon Department of Environmental Quality adminsters the program.

Consistent with federal regulations, states may customize its CWSRF program, including project prioritization, eligible entities, and loan terms.

Eligible Land Conservation Projects

- Acquisition of fee title and conservation easements that address nonpoint source pollution—pollutants from diffuse sources, such as land uses, precipitation, and drainage (for example, chemicals from agricultural and forestry practices, urban runoff, and sediment from improperly managed forests).

- The Sponsorship Option is an innovative financing tool with the goal of increasing implementation of projects that address nonpoint source pollution. The program works by allowing and incentivizing public entities to integrate a nonpoint source project (for example, land restoration or conservation) when they are borrowing for a built infrastructure project (for example, water treatment plants). The nonpoint source project can but is not required to be related to the sponsporing project. The nonpoint source project can be managed by a separate entity and does not have to occur within the same geographic area or even at the same time (as long as it occurs within a "reasonable time").

  The public entity submits two applications—one for each project—and, if approved, will borrow funding for both projects. The public entity will be responsible for repayment of both loans. If a different entity is implementing the nonpoint source project, a separate agreement between the public entity and nonpoint source project partner will govern how the public entity passes through funding for the nonpoint source project and repayment terms.

  The Sponsorship Option increases implementation of nonpoint source projects by decreasing the cost of projects and increasing the types of entities that can benefit from CWSRF loans. As an incentive to the public entity, the state lowers the interest rate for the combined loans, reducing the total repayment cost for both projects. Further, because the public entity is the borrower, the partner implementing the nonpoint source project does not need to meet CWSRF borrower eligibility.

CASE STUDY

Dallas, Oregon
CWSRF Loan

The City of Dallas received a $1.7 million CWSRF loan to purchase 405 acres around the community's reservoir. The City's source water assessment identified portions of the purchase area as being prone to landslides and the acquisition helps the City better manage this area to protect community drinking water. This was the first project in Oregon to use CWSRF for a land acquisition.

Eligible Entities

- Public entities, tribal governments, cities, counties, state agencies, intergovernmental agencies, sanitary districts, soil and water conservation districts, and other special districts.
- To be eligible, the borrower must be authorized to manage a pollution control activity (an activity that addresses pollution to a water body, such as sewage treatment). Because the provision of drinking water is not considered a water pollution control activity, water providers must have separate authority to serve a pollution control function to access CWSRF loans.
- The borrower must also meet the program's financial eligibility. CWSRF program staff can provide an initial assessment of eligibility for interested borrowers.
- In Oregon, nonprofits are not eligible for CWSRF loans but can access funding through the Sponsorship Option.

Sponsorship Option: Hypothetical Example[8]

A municipal utility planned to take a $47 million CWSRF loan to construct a new water treatment plant. Under a traditional CWSRF loan, the entity would receive a 2.14% interest rate, resulting in a total project price of $50 million over a 20-year term. However, as part of the project, the utility elected to add a loan to fund a local partner's $2 million restoration project (nonpoint source project). As a benefit to using the Sponsorship Option, the utility's interest rate on its 20-year loan was lowered to 1.6%, saving the utility over $2 million dollars on interest payments on the water treatment plant and just over $100,000 for the restoration project.

Application Process

- Applications are accepted throughout the year. DEQ formally reviews applications in April, August, and December, when it releases its Intended Use Plan (IUP). The IUP identifies a ranked list of all projects eligible for funding. This list is then subject to public notice and comment. While the state does not commit to funding all the projects listed on the IUP, currently, the CWSRF has sufficient monies to fund all eligible projects. The applicant must still meet all other loan criteria, such as financial eligibility.

Other Details

- Loan amounts are not capped by regulation but are dependent on the amount of funding in the CWSRF.
- CWSRF loans receive below-market rates, in Oregon rates are typically between 1% and 2.5%.
- The borrower has two years after the loan is approved to take disbursement of the loan.
- CWSRF repayment terms cannot exceed 30 years.
- Repayment can come from any revenue source and does not need to be tied to the project. Projects have successfully financed repayment by generating income from the natural resources on the project—for example, from timber harvests, recreation fees, and carbon or other pollution credits.
- Oregon offers principal forgiveness of the greater of $500,000 or 50% of a loan. Principal forgiveness is available to help low-income communities access loans or for projects that address water or energy efficiency, stormwater runoff, or are environmentally innovative. Projects that use the Sponsorship Option cannot receive principal forgiveness.
- State funded portions of CWSRF loans qualify as non-federal match.
- Information about the CWSRF including application instructions, detailed information about eligibility, and the IUP is available here: https://www.oregon.gov/deq/wq/cwsrf/Pages/default.aspx.

DRINKING WATER STATE REVOLVING FUND

The DWSRF provides loans and grants for projects that improve drinking water systems—both built infrastructure and source water protection. The program is authorized under the Safe Drinking Water Act to help communities achieve the Act's public health objectives. The Oregon Health Authority and Business Oregon jointly administer the program. The Oregon Department of Environmental Quality reviews source water protection projects that address surface water sources.

[8] Figures taken from Oregon Department of Quality, Sponsorship Option Loans, available at https://www.oregon.gov/deq/FilterDocs/SponsorshipOptFS.pdf.

FUNDING

The DWSRF authorizes states to use 10% of funding for projects that implment source water assessments. This set aside program is termed the Drinking Water Source Protection Fund (DWSPF). DWSPF provides loans up to $100,000 and grants up to $50,000. DWSRF are considered federal funds and are not eligible for non-federal match.

Eligible Projects

- Communities and partners can use DWSPF to fund a wide variety of projects that reduce drinking water risks within source water areas.
- Eligible projects fall into four categories: (1) adding information to the delineation of potential contaminant sources identified in a source water assessment, (2) projects to evaluate potential contaminant threats, (3) planning to address potential commitment threats, and (4) implementation of source water protection projects that reduce contaminant risks within source water areas.
- Land acquisition costs—including both fee and conservation easement purchases—are eligible for funding through the loan program. DWSPF's loan cap of $100,000 may reduce its efficacy as a source of land acquisition funding.
- The grant program cannot be used to fund land acquisition costs but may be used for planning costs such as evaluating the feasibility of land for purchase, funding for developing acquisition projects, developing conservation easements, setting up an ecosystem services project, and establishing management plans for conservation easements.

Eligible Entities

- Private and public water systems serving 25 year-round residents or having at least 15 connections (termed community water system).
- Nonprofit water systems serving at least 25 people over six months (termed nonprofit non-community water system).
- Water systems must have a source water assessment.
- Limit of one grant or loan every two years.

Application Process

- Applications in the form of a Letter of Interest are accepted late January through late March.
- The Oregon Health Authority (for groundwater projects) and Oregon Department of Environmental Quality (for surface water projects) review and rank projects based on several criteria including the severity of risks posed by the area targeted for protection, the presence of confirmed contaminants, and the risk reduction potential of the project. A complete ranking matrix is available in the state's DWSPF guide.
- Following the award determination, Business Oregon works with the loan borrower or grant recipient to prepare the funding agreement—typically within one to three months. Funds must be expended within two years of the funding contract.
- Eligible projects that do not receive funding may remain on the funding list for two years.
- Funding requests to address an emergency are accepted throughout the year. Emergencies are defined as an unexpected water quality threat that presents the risk of a loss of potable drinking water and a threat to public health. The emergency must have occurred within 180 days of the emergency application.

Other Details

- Loan interest rates usually range from 1% to 4%.
- Loan terms may vary from 20 to 30 years.
- Loans are eligible for principal forgiveness.
- Grant funds must be used within two years.
- State-funded portions of DWSPF loans and grants may qualify as non-federal match.
- Information about DWSPF including instructions for drafting the letter of interest and the DWSPF guide is available here: https://www.oregon.gov/oha/PH/HealthyEnvironments/DrinkingWater/SRF/Pages/spf.aspx.
- A list of eligible projects for the current year is available here: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/SRF/Pages/ppl.aspx

Grant Programs

DRINKING WATER PROVIDERS PARTNERSHIP

The Drinking Water Providers Partnership is a collaborative partnership between U.S. Forest Service, Geos Institute, Department of Environmental Quality, Washington Department of Health, Environmental Protection Agency, Bureau of Land Management, WildEarth Guardians, and The Freshwater Trust. The DWPP supports watershed restoration projects in Oregon and Washington at the nexus of drinking water and aquatic habitat protection.
The DWPP recognizes the importance of partnerships and prioritizes projects that foster partnerships between drinking water providers, land owners, and conservation partners.

The DWPP matches grant applicants to funding from three federal agencies—Environmental Protection Agency, U.S. Forest Service, and Bureau of Land Management—and two state agencies—Oregon Health Authority and Washington Department of Ecology.

Eligible Projects

- Types of eligible projects include feasibility review, planning, design, outreach and education, monitoring, administrative costs associated with land purchases within source water areas, and the development of management plans associated with land acquisition and conservation easements.
- Projects must benefit both the quality of drinking water for a public water system and aquatic habitat.
- Eligible projects must have a nexus with federal lands and must be within a source watershed in Oregon and Washington.
- The cost to purchase land acquisitions and conservation easements are not eligible for funding.

Eligible Entities

- Tribal, local, state and federal government entities, educational institutions, public water systems, non-profit organizations, watershed councils, landowners, and soil and water conservation districts.
- While the primary applicant does not need to be a water provider, the application should clearly state how the project supports a local drinking water system. The DWPP encourages applicants to submit a letter of support from a partner water provider.

Application process

- The DWPP issues a call for proposals in late fall.
- Applications are due in early January and award announcements are made in February.
- Projects must be completed within 18 months of funding.

Other Details

- DWPP does not set a fixed grant amount but typically leverages around $400,000 to $600,000 and awards grants between $10,000 and $50,000.
- A 25% match is strongly preferred and may be required depending on the funding source.
- Information about eligibility criteria, project selection, and the funding application is available here: https://geosinstitute.org/initiatives/dwpp/.

NONPOINT SOURCE IMPLEMENTATION 319(H) GRANTS

Section 319(h) funding is authorized under the CWA to incentivize states to address nonpoint sources of pollution through the implementation of the state's Nonpoint Source Management Program plans. Projects that address the pollution of drinking water sources from nonpoint sources can be eligible for funding when they are identified in state plans.

Eligible Projects

- The Oregon Department of Environmental Quality issues a yearly request for proposals identifying the management activities eligible for funding. These priority activities are based on the state's Nonpoint Source Management Plan and individual Watershed Based Plans—plans for watersheds that identify causes and sources of pollutants and management strategies to address them.
- The request for proposal identifies specific priority watersheds and pollutants, eligible project areas, and the specific nonpoint pollution problems that eligible projects must address.

Eligible Entitles

- Nonprofit and public entities including cities and counties, nonprofits, state agencies, state universities, Tribes, water suppliers, special districts, watershed councils, and regional planning commissions.

Application Process

- Oregon Department of Environmental Quality issues a request for proposals in March with applications due April 30.
- Recommended projects are announced in June and projects may typically begin work in the fall.

Other Details

- Non-federal funding must account for 40% of the project's cost.
- Awards are typically under $30,000.
- Additional program information is available at: https://www.oregon.gov/deq/wq/programs/Pages/Nonpoint-319-Grants.aspx.

SUPPLEMENTAL ENVIRONMENTAL PROGRAM

The Supplemental Environmental Program (SEP) is not a traditional grant program but instead sets up a mechanism for a person or an entity assessed a civil penalty for violating an environmental law to reduce the amount of penalty owed by funding a project with environmental or public health benefits. Violators can reduce their penalties up to 80% by funding a SEP. Eligible projects include those that prevent or reduce pollution, protect public health, or restore or protect the environment. Participation is optional for the violator and must be approved by the Oregon Department of Environmental Quality.

Public entities—including public water systems—can submit project ideas to the Oregon Department of Environmental Quality which then publishes a list of potential projects and project partners. You can find additional information about the program and sign up for information here: http://www.oregon.gov/deq/Pages/publicnotice.aspx.

COASTAL ZONE MANAGMENT HABITAT PROTECTION AND RESTORATION GRANTS

The Coastal Zone Management Habitat Protection and Restoration Grant program funds projects that increase resilience through landscape-scale habitat restoration and conservation of ecologically significant coastal ecosystems and that promote resilence for underserved communities and coastal communities vulnerable to climtae change. Examples of ecologically significant ecosystems are wetlands, headlands, and natural shorelines. The program is authorized under the Coastal Zone Management Act (CZMA) and managed by the National Ocean and Atmospheric Administration (NOAA). The CZMA's goal is to preserve and protect the nation's coastal resources. The program is funded through the Bipartisan Infrastructure Law, which is expected to provide $207 million to the program over 5 years.

Eligible Projects

- Land acquisition—both fee title and conservation easements—habitat restoration, and habitat restration planning and design.
- Project priorities include advancing restoration and conservation goals, increasing climate reslience, and advancing equity and inclusion principles.
- Projects must be within the coastal zone. You can determine if the project is within the coastal zone here: https://www.coastalatlas.net/czfinder/.
- Once protected, properties must be owned by a non-federal public entity—which includes federally recognized Tribes—protected in perpetuity, and provide for public access.

Eligible Entities

- State and delegated governmental entities, including Tribal governments, are eligible to receive funding and hold property acquired through the program.

Application Process

- NOAA selects projects in a competitive two-phase funding competition. In the first phase, states solicit project proposals from the public and rank projects for funding. In the second phase, states submit projects to NOAA for consideration with other state projects.

Other Details

- Funds may not be used for long-term stewardship of the property.
- Projects must be completed within 3 years.
- Non-governmental entities can play a key role in identifying priority properties for acquisition and the long-term stewardship of protected properties.
- Additional program information is available here: https://www.fisheries.noaa.gov/grant/coastal-habitat-restoration-and-resilience-grants-underserved-communities.

COMMUNITY FOREST AND OPEN SPACE CONSERVATION PROGRAM

The Community Forest Program supports the acquisition of private forests to protect public access, clean water, habitat, recreation, and timber production. The U.S. Forest Service administers the program at the federal level and the Oregon Department of Forestry administers the program at the state level.

Eligible Projects

- Fee title acquisition of private forests—conservation easements and other partial property interests are not eligible.
- Properties must be a minimum of five acres in size with 75% forest cover and at risk of conversion to non-forest uses.
- Projects must provide community benefit, defined to include economic benefits from forest management, clean water, wildlife habitat, education, and recreation access. The program prioritizes acquisitions

East Moraine. Photo by David Jensen.

CASE STUDY

Wallowa Lake
Forest Legacy Grant

In 2020, a partnership of Wallowa County, Wallowa Land Trust, Wallowa Resources, and Oregon Parks and Recreation Department conserved 1,791 acres of Wallow Lake's East Moraine. The acquisition prevents development and secures the land for environmental and community benefits, including to support native plants and animals, cultural resources, non-motorized recreation, and sustainable forestry and rangeland uses. Conservation of the East Moraine also helps protects the quality of Wallowa Lake, which provides drinking water to the town of Joseph, Oregon.

Funding for the $6 million acquisition came from a $3.5 million Forest Legacy grant, as well as grants from Oregon Parks and Recreation Department, the Nez Perce Tribe, and individuals.

that demonstrate the benefits of sustainable forestry managed for communities and the environment.

Eligible Entities

- Local and tribal governments.
- Nonprofits with a purpose of preserving land for recreation, education, habitat or ecosystem benefits, open space, or historic preservation.

Application Process

- The U.S. Forest Service issues a request for proposals in the fall, with applications due in January.
- Applications by nonprofit and local governments are submitted to the State Forester.
- Tribal governments submit their application the United States Forester.
- The U.S. Forest Service ranks projects as part of a nationally competitive process based on several criteria including the community benefits, community engagement, integration into a larger landscape conservation project, amount of cost match available, and likelihood of conversion if not protected.

Other Details

- Individual grant applications are capped at $600,000.
- Allowable costs include purchase price, appraisal costs, land survey, closing costs, and development of the community forest plan.
- A 50% match of non-federal funding is required.
- Projects must develop a community forest plan directing the long-term

management of the property and must allow for public access.
- Additional information about program requirements, application and timing can be found at: https://www.fs.usda.gov/managing-land/private-land/community-forest/program.

FOREST LEGACY GRANTS

The Forest Legacy program funds projects that protect private forest lands at risk of conversion and development. The goal of the program is to retain working forests that also protect other community values like open space, recreation, habitat, and water quality. The program is administered at a state level by the Oregon Department of Forestry and at the federal level by the U.S. Forest Service.

Eligible Projects

- Fee or conservation easement acquisitions.
- Protection must prevent conversion of private forests to other non-forest uses and should contribute to regional, landscape, or watershed-scale projects that are strategically linked to other protected lands.
- Values of protected forests may include the provision of clean water, economic opportunities, and the protection or enhancement of habitat.
- If the property is acquired in fee, the property must be encumbered with a conservation easement or other deed restriction that secures permanent protection.
- Oregon has designated areas where funding will be considered: https://www.oregon.gov/ODF/Documents/WorkingForests/OregonForestlegacyAreas.pdf.

Eligible Entities

- State or local government entities.

Application Process

- The Oregon Department of Forestry issues a call for applications typically due in June two years prior to the anticipated funding day (e.g., funding applications for fiscal year 2023 were due in June 2021).
- The Oregon Department of Forestry reviews applications and invites eligible projects to submit formal applications.
- The Oregon Department of Forestry reviews applications and invites eligible projects to prepare formal applications for review by a national review board.
- States may submit up to three projects. The total request per state must not exceed $20 million.

Other Details

- Requires 25% of project costs come from a non-federal source.
- Once protected through the program, properties are managed to protect its forest resources and other conservation values.
- Total available funding amounts are set through the yearly congressional budget process.
- Acquisitions should be completed within the initial two-year project term.
- Additional information about program requirements, application, and timing can be found at: https://www.oregon.gov/odf/aboutodf/Pages/grantsincentives.aspx.

OREGON WATERSHED ENHANCEMENT BOARD'S LAND ACQUISITION GRANT

Oregon's land acquisition program funds land conservation, either fee or conservation easement purchases, with the purpose of protecting and restoring watersheds and habitat for native fish and wildlife. The Oregon Watershed Enhancement Board (OWEB) administers the program. While protection of community drinking water sources is not an eligible purpose of the program, source water protection projects will often have outcomes that support OWEB's conservation priorities, allowing source water protection projects to access funding through this program.

Eligible Projects

- Acquisition of fee title or conservation easement.
- Projects must restore and maintain watershed health or habitat for native fish and wildlife.
- For each watershed basin, OWEB has identified priority habitats, priority species, and conservation principles (such as, protecting large landscapes, securing transition areas, and improving connectivity) that it uses to assess projects.
- Fee land acquired through the program must be secured with a conservation easement held by OWEB.

Eligible Entities

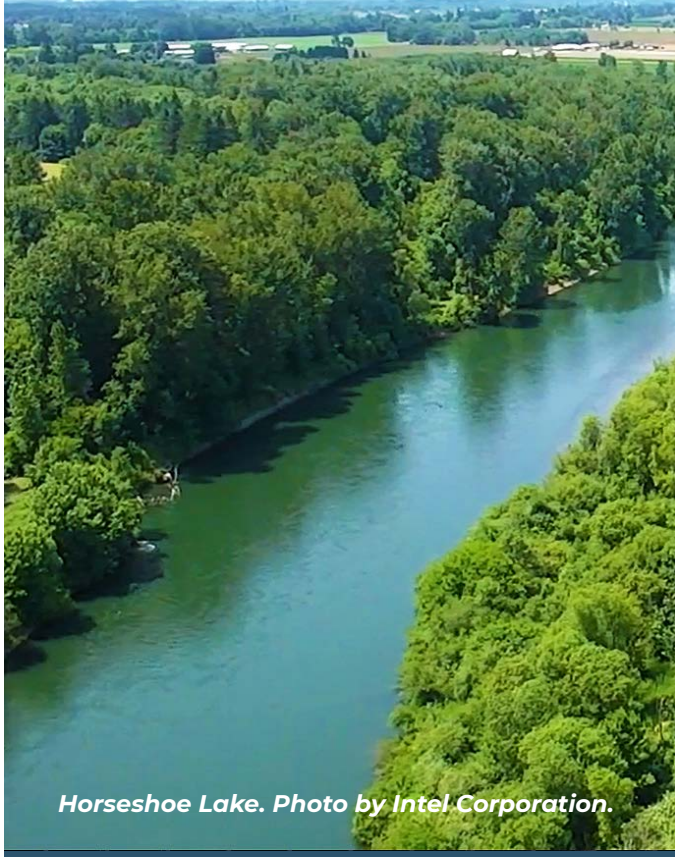
- Local, state and federal agencies, Tribes, nonprofit land conservation entities, and nonprofits or state higher education institutions.

Application Process

- Applications are reviewed by OWEB in the fall.

Other Details

- Grants require a 25% match of non-state funding or equivalent services of value.
- Additional information on the application process, eligibility, and acquisition priorities is available here: https://www.oregon.gov/oweb/grants/Acquisitions/Pages/land-acquisitions.aspx.



Horseshoe Lake. Photo by Intel Corporation.

CASE STUDY

Horseshoe Lake Project

A partnership between Greenbelt Land Trust and Intel Corporation—Oregon's largest employer—resulted in the restoration of natural infrastructure along the Willamette River. In 2017, Intel launched an ambitious initiative to restore 100% of its global water use by 2025. To meet its goal, Intel has partnered with groups like Greenbelt Land Trust to collaborate on projects that benefit local watersheds.

When completed, the Horseshoe Lake project will reconnect floodplains along the Willamette River and result in the restoration of 41 million gallons within the Willamette System by reconnecting the flow exchange between the Willamette River and Horseshoe Lake. The Willamette River sustains 70% of all Oregonians.

Rate surcharges

Adding fees to customer bills provides a pathway to raise revenue for voluntary land protection. These fees can be tied to specific projects or can be standing fees that support ongoing source water protection work. Water providers can structure fees as either mandatory or voluntary.

The Eugene Water and Electric Board (EWEB) assesses customers a flat fee that funds source water protection efforts in the watershed. EWEB recently added an additional temporary $3 flat monthly fee for residential customers—increasing based on meter size for commercial customers—that funds wildfire-related watershed recovery and restoration.

The City of Ashland includes a fee of $3.0/month—increasing based on meter size—on water bills to support the Ashland Forest Resiliency stewardship project, which protects the integrity of the community's watershed through restoration.

Salt Lake City imposes a $1 surcharge on every water bill and uses the funding to acquire land in its watershed. To date, the city has purchased over 1,000 acres for protection. The fund also supports restoration and management activities on U.S. Forest Service land within the City's watershed.

Revenue Models

A variety of utility and municipal revenue models can support land conservation projects. These include rate surcharges, property tax assessments, bonds, and non-resident fees. Communities have also generated revenue from natural resources on conserved properties, such as timber harvests or carbon credits (case studies on Forest Grove and Astoria provide examples of this revenue model).

Philanthropy

Donations from private individuals, foundations, and corporations can also support drinking water source protection efforts. While raising funds through private philanthropy can be difficult, there is a growing awareness in the philanthropic community of the importance of land conservation and an interest in projects that have community benefits. Because raising funds from private donors is often outside the experience of water providers and municipalities, land trusts and other conservation groups can be important partners in supporting these types of funding efforts.

Castle Rock. Photo by Sam Beebe, Ecotrust.

Funding Matrix

Program	Purpose	Source Water Protection as Co-benefit	Public Entities	Tribal Government Entities	NGO	Land Acquisition	Funding Cap
Clean Water State Revolving Fund	Prevention, reduction or elimination of pollution to water sources		X	X	X (through sponsorship option)	X	No set cap
Drinking Water Source Protection Fund Loan	Implementation source water protection activities		X	X		X	$100,000
Drinking water Source Protection Fund Grant	Implementation source water protection activities		X				$50,000
Section 319(h) Grant	Implementation of nonpoint source management activities in watershed plans	X	X	X	X		Total available per year is typically $300,000; most projects receive under $30,000
Drinking Water Providers Partnership	Watershed restoration that benefits drinking water and aquatic species		X	X	X		Typically between $10,000- $50,000
Forest Legacy	Protection of private forest lands that are at risk of conversion	X	X			X	Not to exceed $20 million per state/year
Community Forest	Protection of private forests for public access, habitat, water, recreation, and timber production	X	X	X	X	X	$400,000
Coastal zone managment portection and restoration grants	Protection of priority coastal and estuarine resources within coastal zones.	X	X	X		X	Up to $6 million
OWEB Land Acquisition Program	Protecting and restoring watersheds and habitat for native fish and wildlife	X	X	X	X	X	No set cap; largest awards have exceeded $2 million

All Together: A Framework for Conserving Land to Protect Drinking Water Sources

While the best strategy to protect each water source will vary, the following steps can lay the foundation for successful land conservation projects that help secure clean drinking water.

FIND THE COMMUNITY'S WATER SOURCE

The first step in protecting drinking water sources is to identify the community's water source and the land areas that impact its quality—its watershed and the source water area. A watershed is a land area where all water that drains off it runs into the same river, lake, or stream. The source water area—the area delineated by the state for each public water system—is a smaller portion of the watershed where the land area directly contributes to a community's water source.

- The EPA's How's My Waterway can be a helpful tool in learning more about your watershed: https://mywaterway.epa.gov/community/97210/overview.

PRIORITIZE LANDSCAPES FOR PROTECTION

Prioritizing lands within a watershed for protection can help focus conservation efforts on areas which pose the greatest threat to source water.

The community's source water area—which includes the area where land uses can have the greatest impact on the quality of drinking water sources—can be thought of as a priority area for protection. Prioritizing these areas can also make projects eligible for funding sources that limit eligibility to source water protection activities within a source water area—for example, Drinking Water State Revolving Fund loans and grants and Drinking Water Providers Partnership grants. Other factors that can help prioritize lands for protection include the type of land ownership, existing land uses, geography, or proximity to a drinking water intake or reservoir.

The following resources can assist in prioritizing land for protection:

- **Community Source Water Assessment.** The community's source water assessment is an excellent resource to help prioritize lands for protection. The assessment provides information on the threats to water sources, land ownership, and land uses. You can find community source water assessments are available here: https://www.oregon.gov/deq/wq/programs/Pages/DWPAssessments.aspx.
- **Drinking water protection plan.** A drinking water protection plan is a community developed plan that identifies strategies and management practices to address threats to drinking water sources. The development of the plan is voluntary but once completed can help communities translate its source water assessment into actionable projects—providing a blueprint for source water protection. Where communities have a drinking water protection plan, the plan can be a valuable resource for identifying priority landscapes for protection.

Photo by Sam Beebe, Ecotrust.

Communities without a drinking water protection plan may consider developing a plan that can help guide its source water protection activities.

  - Oregon Department of Environmental Quality provides both technical and funding support to help communities develop its drinking water protection plan. Information about drinking water protection plans is available here: https://www.oregon.gov/deq/FilterDocs/DWPCertReq.pdf
  - Examples of drinking water protection plans are available here: https://www.oregon.gov/deq/wq/programs/Pages/DWP-Source.aspx.

- **US Forest Service's National Forest to Faucet 2.0.** The U.S. Forest Service's National Forest to Faucet 2.0 provides watershed-scale data on the importance of forested watersheds for drinking water and threats to drinking water, including threats from development, wildfire, and climate change: https://usfs.maps.arcgis.com/apps/MapSeries/index
- **Ecotrust's Drinking Water Data for Coastal Communities.** Ecotrust, a regional nonprofit, developed an interactive mapping tool of drinking water data for coastal communities that layers demographic and timber harvest data on community source water information. The mapping tool is a valuable resource for communities and partners in understanding and planning for threats: https://ecotrust.org/drinking-water-data-for-oregon-coast-communities/.

Using Source Water Assessments

Oregon Department of Environmental Quality has developed source water assessments for every public water system in the state.

These assessments provide valuable information for communities in understanding their drinking water sources, including:

- The location of their source water area—the land areas in a watershed that contribute to a community drinking water supply and where source water is most susceptible to impacts from land use.
- Types of land ownership within the source area.
- Land uses within the source area.
- Threats to drinking water sources.

Source water assessments are available here: https://www.deq.state.or.us/wq/dwp/swrpts.asp.

Oregon Department of Environmental Quality also maintains a variety of mapping tools and GIS data here: https://www.oregon.gov/deq/wq/programs/Pages/DWP-Maps.aspx.

EARLY COMMUNICATION WITH LANDOWNERS

Building relationships with landowners is an important first step to position the community and partners to successfully protect land. All voluntary land conservation requires collaboration with the landowner and conservation outcomes are typically improved when strong partnerships exist. Strong landowner partnerships provide an opportunity to increase the landowner's understanding of the impacts of land management on water sources and the benefits of conservation. They also help lay the foundation for conservation projects that can achieve both the landowner goals and conservation goals of the community and nonprofit partners.

Both the state and counties maintain property ownership information:

- ORMaps and the county assessor's office maintains property ownership information in Oregon. Oregon maps is available here: https://ormap.net/gis/index.html.
- County assessor office information is available here: https://www.oregon.gov/dor/programs/property/pages/county-contact.aspx.

Business Oregon—Oregon's economic development agency—hosts roundtables for communities to learn about funding resources for infrastructure projects. These "One Stop" infrastructure financing meetings bring together agency partners and communities to develop creative funding packages to support water infrastructure projects, including land conservation. More information about "One Stops" is available here: https://www.orinfrastructure.org/assets/docs/IFA/One-Stop.pdf.

DEVELOP FUNDING PLAN

Funding can be one of the most challenging parts of conserving land. Among the aspects of a conservation project that can require funding are administrative costs to complete transactions, acquisition costs to purchase the property interest, and costs for the long-term stewardship and monitoring of the property.

Given the cost and complexity of many land conservation projects, most projects will need to bundle funding from a variety of different sources. The following are some of the factors to consider when developing a funding plan.

- **Unique funding sources.** Consider nontraditional funding sources. Land conservation projects to protect drinking water sources are uniquely positioned to access both infrastructure and conservation dollars.
- **Co-benefits.** Factor in the many co-benefits of the project that can make the project eligible for different funding sources, for example, disaster resilience, climate mitigation, and habitat restoration.
- **Consistency.** Ensure that funding requirements are consistent with the goal of drinking water protection and the long-term management plan for the property. For example, Community Forest grants require funded projects to allow for public access—depending on the property, public access may be inconsistent with the protection of drinking water.
- **Match requirements.** Account for matching fund requirements. Some funders require a percentage of project costs come from another funding source as match. For example, federal grants often require a percentage of project costs be funded through non-federal sources.
- **Timing.** Plan for different funding timelines. Funding sources have different timelines for applications, awards and to complete the funded project, and it is important to verify that these timelines will work together.

- **Tap into partners.** Partners can be valuable resources in putting together funding packages for projects. Nonprofit partners bring expertise in developing capital campaigns—including identifying and applying for grants and developing communications strategies that explain a project's conservation values and build political, agency, and community support. Municipal partners and water providers have expertise in infrastructure financing and are eligible for funding sources that nonprofits cannot access. State agencies bring expertise in grant and loan programs and can help partners strategize about how to package different funding sources.

BUILD PARTNERSHIPS AND ADVOCATES

Strong partnerships lead to better conservation and community outcomes, and play a particularly important role in conserving land to protect drinking water. Water providers focused on the provision of clean drinking water typically do not have expertise in either conserving or managing land and frequently have both financial and administrative capacity constraints that limit their ability to protect land. Conversely, conservation partners with expertise in land conservation typically do not have expertise in the challenges faced by water providers—such as water supply challenges, infrastructure needs, and regulatory requirements. These capacity gaps are one of the most frequently cited hurdles in the protection of drinking water sources.

Partnerships between water providers, state and federal agencies, communities, municipalities, land trusts, and other nonprofit partners can fill these capacity and expertise gaps and facilitate successful source water protection projects. However, while there is a clear need for and benefit from these types of partnerships, they often involve entities that have not traditionally collaborated. As a result, it is important to reach out early to potential partners to develop relationships and identify shared interests and the expertise each partner brings to the collaboration.

COMMUNITY ENGAGEMENT

Community buy-in is a critical component of successful source water protection projects. Communities often lack information about the connection between water sources and their drinking water. Community outreach can help build advocates for source water protection by connecting communities to their water sources and explaining the need to be proactive in protecting them. It can also help build support by elected officials that is often essential for raising funds for acquisition costs.

Several grant funding resources exist to support community engagement, including the Drinking Water Providers Partnership and Drinking Water Protection Grants (through source water protection planning), both described above in Funding. In addition, the Oregon Watershed Enhancement Board administers Stakeholder Engagement Grants that can support community engagement around efforts to restore and protect water quality. More information is available here: https://www.oregon.gov/oweb/grants/Pages/stakeholder.aspx.

Partnerships to Explore

Water providers understand the local drinking water system and bring expertise in the community's water supply and quality challenges that can help prioritize lands for protection. They can also be key funding partners. Water providers are often eligible for infrastructure financing that nonprofit partners cannot access. Where there is community capacity, they may also be able to leverage ratepayer funding to support projects. Finally, water providers can act as the long-term holder and manager of conserved property. You can find information about the public water system in your area, including contact information here: https://yourwater.oregon.gov/wssearch.php.

Sewage treatment providers collect and treat wastewater from homes, businesses, and industries before the wastewater is discharged into our waterways. The majority of homes in the state are served by a centralized sewage treatment system—in the remaining cases, homes are served by an onsite system, typically a septic system. While some utilities combine both water and sewage functions, in other cases the sewage treatment provider is a separate entity.

Sewage treatment providers can be important funding partners for source water protection projects. They are eligible for Clean Water State Revolving Fund loans, which limit borrower eligibility to entities that serve a "pollution control" function. Water providers that do not have authority to serve a sewage treatment function are typically not eligible borrowers.

Sewage treatment providers—and other eligible borrowers—can also support source water protection projects through the Clean Water State Revolving Fund's sponsorship program, which allows a borrower to pair a built infrastructure project with a nonpoint source project, such as a land conservation project. This option reduces the interest rate for both projects, saving the borrower money, while increasing access to loan funds for land restoration and protection.

There is also a growing awareness among sewage treatment providers of the connection between natural lands and clean water and, in some cases, there may be overlap between projects that have drinking water benefits and water treatment benefits.

Local governments have a shared interest in protecting drinking water sources and can be valuable partners in building support for projects with the community and funders. They may also serve as an independent funding source by providing grants that can support land acquisitions. Finally, local governments can be good partners to hold conserved property.

Water Providers can be organized in a variety of ways—as units of municipal or tribal government, special districts, or non-profit or for-profit entities. Budgets and staffing of water providers vary dramatically and are largely tied to the number of people served by the provider. Water providers with large customer bases—termed ratepayers—generally have more funding and staff. In contrast, water providers with fewer ratepayers often have small staffs, or sometimes all volunteer staffs, and little funding.

Soil and Water Conservation Districts work with land owners to protect soil health and water quality—work that has a clear overlap with the protection of community drinking water. In addition to bringing technical expertise around the link between land uses and water quality, these entities can be helpful funding partners. They are often eligible for infrastructure funding, including for both Clean Water and Drinking State Revolving Fund loans and grants, and have independent authority to provide grants and loans to support projects that advance their mission. A map of Soil and Water Conservation District service areas is available here: http://geo.maps.arcgis.com/apps/Viewer/index.

Watershed councils bring expertise in the restoration and enhancement of waters and lands. A list of watershed councils is available here: https://www.oregonwatersheds.org/who-we-are/oregon-watershed-councils/.

Community organizations can help build support for projects and bring expertise in the challenges the community faces in securing clean and affordable drinking water. Early engagement with community organizations can also support the development of projects that address inequities in water access and help identify projects that will advance other equity outcomes such as access to open space.

Land trusts and other conservation partners bring expertise in protecting land, including experience acquiring and managing land, practice in securing funding for land protection projects, an understanding of and ability to communicate about natural systems, and existing relationships with private landowners, community members, state agencies, and legislators. You can find your local land trusts here: https://oregonlandtrusts.org/resources/find-a-land-trust/.

Tribes can play multiple roles in source water protection projects. In some cases, Tribes may play a role as a government entity or as water providers. Tribes may also play a role as a land owner. In other cases, protection of the property may fit within a Tribe's conservation priorities.

State agencies have a wealth of expertise that can support the protection of drinking water sources. The Oregon Department of Environmental Quality's Source Water Protection program can facilitate partnerships, help communities and partners with source water protection planning and implementation, and identify potential funding resources. The Oregon Health Authority brings expertise for protecting groundwater as a drinking water source and Business Oregon is a resource for project financing. The Oregon Department of Forestry is a resource for technical assistance from stewardship foresters and information about Forest Legacy Grants. Learn more here: https://www.fs.usda.gov/detail/r6communityforests/?cid=stelprdb5300582.

Federal agencies own and manage around 40% of Oregon's source water areas—with the majority, 33%, being owned by the U.S. Forest Service and 10% by the Bureau of Land Management. Partnerships with these agencies can help direct the management of federal lands to protect and restore drinking water sources. Federal agencies may also act as grant funders and as potential long-term holders of conserved properties.

COALITION OF OREGON LAND TRUSTS

This guide is produced by the Coalition of Oregon Land Trusts with the goal of increasing awareness around the need and opportunity for source water protection and supporting innovative partnerships.

We hope that land trusts will consider source water when creating strategic conservation plans and municipalities see this as an invitation for creating pro-active partnerships and that together we can increase support for this pathway to water security and forest health.

oregonlandtrusts.org

© Coalition of Oregon Land Trusts 2022
Cover photo courtesy by Sam Beebe.

Updated June 2023.