

Protecting Drinking Water at the Source

Working With the USDA Forest Service



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Source Water Protection

What does source water protection involve, and why is it important? The American Water Works Association (AWWA), with assistance from the Forest Service, has put together this brochure to provide a concise overview and suggest ways that utilities can partner with the USDA Forest Service to protect an invaluable natural asset.

Working With the USDA Forest Service on Source Water Protection

A new era of source water protection is emerging. Utilities increasingly recognize that protecting sources of drinking water and securing sustainable supplies for the future are necessary as part of the multibarrier approach to deliver quality water service. These efforts also form lasting partnerships and build goodwill with customers and other stakeholders. Only a small fraction of utilities has direct control over their watersheds, and for the rest, finding ways to work collaboratively to implement source water protections is essential.

AWWA has published a number of pieces on ways to work with the agricultural community through the US Department of Agriculture's (USDA's) Natural Resources Conservation Service, but NRCS is not the only USDA agency with a stake in source water protection. Millions of people get their drinking water from a supply that ultimately originates on Forest Service (an agency of the U.S. Department of Agriculture) lands, opening the opportunity to find innovative and collaborative solutions to address source water needs.

Why should the water sector work with the Forest Service?

The Forest Service, a division of the USDA, manages 193 million acres of land across the country, with the goal of sustaining the health, diversity, and productivity of our nation's forests and grasslands to meet the needs of present and future generations. National Forest System (NFS) lands supply drinking water for close to 20 percent of the US population, and the agency's current [Strategic Plan](#) lays out the provision of *abundant and clean water* to the American public as a core strategic objective between 2015 and 2020.

The Forest Service and municipal/private utilities across the country serve the same local communities and have a shared interest in protecting and managing source watersheds for the array of benefits they yield. Throughout the National Forest System, 53 forests and grassland units have established land management

plan components around source water protection, with at least seven units having developed formal cooperative agreements with local municipalities. The Forest Service's [Forests to Faucets](#) program highlights this connection by using GIS data to display the forested landscapes that are most important to surface drinking water, and the extent to which these forests are threatened by development, insects and disease, and wildland fire.

As of spring 2020, agency project reporting has identified a watershed restoration backlog of approximately \$350 million to \$675 million in planned but unfunded activities. These projects range from forest health treatments to road maintenance, road-stream crossing upgrades, meadow/wetland/riparian restoration, streambank stabilization, and other activities intended to improve water quality and moderate water quantity.

Partnering with the Forest Service to plan and implement ecosystem-based

management can help water utilities ensure water quality and quantity for their customers. It can also help support the protection of headwaters, which is important because of the linkages between the forest cover/ forest health, stream health, and water treatment costs and long-term reliability of the drinking water source. Investing in management activities that support natural infrastructure can be a low-cost alternative or complement to maintaining, updating, or replacing utilities' expensive filtration, storage, and delivery infrastructure. As such, partnering with the Forest Service can help utilities reduce costs, increase revenues, increase resiliency to climate change over the long term, and avoid regulatory actions.

Why is forest-based management important to water utilities?

Healthy forests are a critical component of the network of built and natural infrastructure that supports clean and abundant water supply, safe recreation, flood protection, and more. The accompanying table provides examples of forest-based activities and the benefits they can deliver to water utilities and other end users of water.

OPPORTUNITY AREA	EXAMPLE INTERVENTIONS	EXAMPLE BENEFITS
Recreation and transportation infrastructure	<ul style="list-style-type: none"> • Road/trail management • Deferred maintenance on facilities • Visitor use planning • Road–stream crossing, aquatic organism passage 	<ul style="list-style-type: none"> • Lower bacteria/nutrient treatments • Reduce energy and water use • Reduce sedimentation from dispersed recreation • Reduce traffic/safety costs • Improve resilience to flood events
Wetland and stream restoration	<ul style="list-style-type: none"> • Road–stream crossing, aquatic organism passage • Riparian planting • In-channel habitat • Non-native invasive species removal • Grazing improvements 	<ul style="list-style-type: none"> • Reduce water temperature • Improve water storage and flow • Compensate for development impacts • Reduce turbidity • Reduce bacteria/nutrient treatments • Reduce risk of flood and impact of flooding to existing infrastructure • Improve habitat and recreation values
Forest health and climate resilience	<ul style="list-style-type: none"> • Insect and disease treatments • Reforestation • Wildland/urban interface readiness • Land protection • Improved forest management 	<ul style="list-style-type: none"> • Maintain snowpack for recreation and water storage • Recover from stand-replacing disturbance • Reduce risk of fire and impact of fire for existing infrastructure • Protect habitat and recreation values • Improve carbon storage • Reduce wildfire risk
Legacy impacts	<ul style="list-style-type: none"> • Abandoned mine reclamation • Acid drainage treatment • Dam removal/improvement 	<ul style="list-style-type: none"> • Reduce heavy-metal leaching • Stabilize soil and improve water storage • Improve aquatic ecosystem • Reduce cyanobacterial bloom risks



What Forest Service programs support source water protection?

Utilities can leverage the following Forest Service offerings to support their source water protection goals. Most of these offerings can be accessed through the agency's State & Private Forestry arm, which provides technical and financial assistance to state and private landowners and leverages the capacity of diverse partners to enhance cross-boundary land management.

- **Water Source Protection Program.** Through this program, the Forest Service can use matched partner funding to implement water source protection plans on NFS lands. Congress has authorized up to \$10 million annually, but it has not appropriated funding as of mid-2020.
- **Forest Legacy Program.** This State & Private Forestry program funds easements or fee-simple protection of private working forests. Projects are selected through a national competitive process.
- **Landscape Scale Restoration Program.** Collaborative, cross-boundary restoration projects on priority forest landscapes are funded by this program. Projects are selected through a competitive process.
- **Forest Stewardship Program.** Funds are awarded to state forestry agencies to work with private landowners to maintain healthy working forests and watersheds.
- **Stewardship Contracting.** Retained receipts from stewardship contracting sales can go toward restoration work in the watershed, either on or off forest land.
- **Urban and Community Forestry Program.** This program delivers resources for open-space protection, urban canopy replanting, and outreach to metropolitan residents.
- **Land and Resource Management Planning.** The 2012 National Forest System Land Management Planning rule states that plans must provide for social, economic, and ecological sustainability and include guidelines to maintain or restore water quality, water resources, and source water protection areas.

How has the Forest Service worked with utilities in the past?

Forest Service partnerships with utilities have taken a variety of forms, such as the following:

- **Direct Cost-Share Partnership (Denver, Colo.).** From 2010 to 2016, Denver Water matched the Forest Service's commitment of \$16.5 million through increases in standard water rates to municipal users. In 2017, the partners signed another five-year agreement to include treatments on private lands and engage the Colorado State Forest Service and NRCS.
- **Municipal Funding (Flagstaff, Ariz.).** In 2012, Flagstaff passed a municipal bond measure, with 74 percent approval, committing \$10 million for treatments to reduce severe wildfire and subsequent flooding risk. The project will fund 14,000 acres of thinning and prescribed burning/biomass removal across the Coconino National Forest, Navajo Nation, Arizona State Trust, and city parcels.
- **Collaborative Funding (Santa Fe, N.M.).** Santa Fe worked with the Forest Service to develop a Municipal Watershed Management Plan to protect source water through cross-boundary forest management. The Nature Conservancy teamed up with the city council of Santa Fe to create a water fund that helps the Forest Service and partners pay for planning, implementation, communication, and monitoring.
- **Pure Water Partners Program (Eugene, Ore.).** The Willamette National Forest, Eugene Water & Electric Board, and other partners are working together to protect Eugene's drinking water supply by providing incentives to private landowners to protect and restore riparian buffers. The Forest Service uses the Wyden Amendment to direct funds from stewardship contracting to high-priority private lands.
- **Landscape Scale Restoration (LSR) Grant Collaboration.** Two LSR awards helped launch the [Southeast Partnership for Forests and Water](#), which brings together the forestry and water communities to enhance communication and collaboration. Statewide meetings are organized to identify priorities of mutual interest. State- and watershed-level coordinators have been hired to accelerate implementation of shared goals.
- **Corporate Partnerships.** Coca Cola contributed \$1.1 million for watershed restoration on NFS land through the National Forest Foundation.

- **Consumer-Funded Partnerships.** The Ski Conservation Fund funds projects that improve forest health and outdoor experience with voluntary surcharges at ski areas adjacent to NFS lands.
- **State-Based Laws and Funding Mechanisms.** As an example of this funding, California Assembly Bill No. 2480 addresses the importance of source watersheds as integral components of water infrastructure. In the Pacific Northwest, the state-funded Oregon Water Enhancement Board provides grants for collaborative restoration projects—some of which occur on NFS land.

What is innovative finance for source water protection?

To address large-scale funding needs across National Forest System lands, the Forest Service is looking beyond traditional public and philanthropic funding sources to support work on the ground. The agency is piloting new models to finance forest-based management activities that leverage private capital, use public funds in new ways, and bring together diverse cost-sharing partners. The Forest Service Conservation Finance Program is piloting work in this area, including the following:

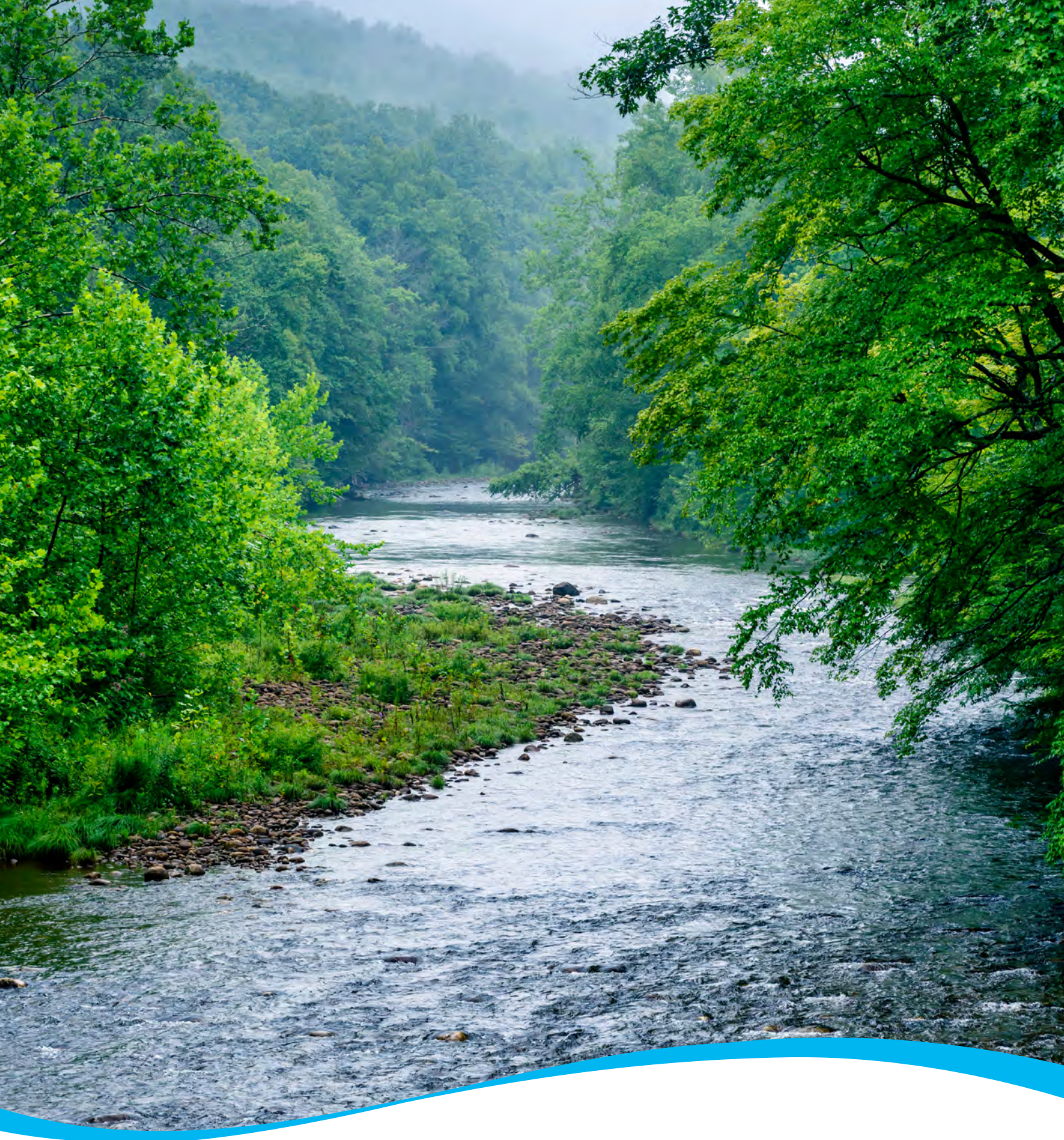
- **Forest Resilience Bond.** Developed by the Forest Service partner [Blue Forest Conservation](#), the Forest Resilience Bond raises upfront private capital to finance treatments focused on improving watershed health and mitigating fire risk on NFS lands, and uses a collaborative framework that brings together stakeholders who benefit from restoration to share the cost of reimbursing investors over time.
- **Innovative Finance Utility Partnerships.** [Encourage Capital](#), [World Resources Institute](#), the [US Endowment for Forestry & Communities](#), and the Forest Service are partnering to explore innovative approaches such as green bonds, environmental impact bonds, loan structures, carbon transactions, joint benefits, and joint powers authorities to accelerate investments in built and natural infrastructure.
- **USEPA State Revolving Funds.** The US Environmental Protection Agency has expressed interest in expanding its existing Clean Water and Drinking Water State Revolving Fund loans to municipalities, tribal entities, and local utilities to include proactive source water protection activities and natural infrastructure solutions on NFS lands, provided there are secure repayment streams. The 2014 [Water Infrastructure and Innovation Act](#) (WIFIA) expands financing options available to co-finance state-administrated source water protection loans.

How can water utilities engage with the Forest Service?

The Forest Service staff positions listed below are a good starting point to learn more about how to engage with the agency. Individuals will need to be identified on the basis of location and interest. For help getting connected, contact Nathalie Woolworth at the National Partnership Office (nathalie.woolworth@usda.gov), Adam Carpenter at AWWA (acarpenter@awwa.org), or your state forestry office.

- **Regional State & Private Forestry Director** (www.fs.fed.us/spf)—to learn about funding programs that support the stewardship and protection of state and private forests.
- **Regional Renewable Resources or Natural Resources Director** (www.fs.fed.us/managing-land/national-forests-grasslands)—to engage with regional program areas around hydrology, watershed improvement, fisheries, and soil resource management that directly support national forest and grassland units.
- **Regional Research Station Director** (www.fs.fed.us/research)—to identify opportunities to share data and research on the role of forests in delivering drinking water.
- **National Partnership Office**—to explore innovative finance partnerships through initiatives such as the Innovative Finance for National Forests program (www.ifnfggrants.org).





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