



WATERSHED SERVICES:

The important link between forests and water

About 66 percent of the Nation's scarce freshwater resources originate on forest land.

Over 70 percent of private nonindustrial forest landowners indicate that nature protection and aesthetics are among their reasons for forest ownership.

Forest ecosystems play a critical role in delivering clean water to the public.

Forests are a source of drinking water for over 180 million people in the United States. Forests and street trees provide a number of ecosystem services that are essential to water quality and overall watershed health. Most importantly, forests protect and enhance our water supplies.

- Forests absorb rainfall and snow melt, helping to minimize floods.
- Forests slow storm runoff, reducing soil erosion and improving water infiltration rates and recharge to aquifers.
- Streamside forests filter pollutants, such as sediments, fertilizers, and pesticides, from agricultural and urban runoff.
- Forests provide fish and wildlife habitat and help maintain aquatic diversity.

Private landowners are stewards of our watersheds; together, they own over 427 million acres of forest land. Their management of forests as part of a watershed ensures a sustainable supply of ecosystem services for the public.



A watershed is an area of land that catches rainfall and other precipitation and funnels it into a stream, river, lake, or other water body.

Today, about 80 percent of the Nation's population lives in or near urban areas. As concern for water quality grows in cities and surrounding communities, water suppliers and municipalities are turning their attention to their upstream water sources.

Investing in forest conservation protects our drinking water supplies and other watershed services.

As our population grows, demand for water and other natural resources will increase. The Forest Service estimates that within the next 25 years more than 11 percent (about 44.2 million acres) of the private forests in the contiguous United States will be at risk of conversion to developed uses. Conversion increases landscape fragmentation and decreases ecosystem function, significantly impairing watershed health and the multiple ecosystem services forests provide.

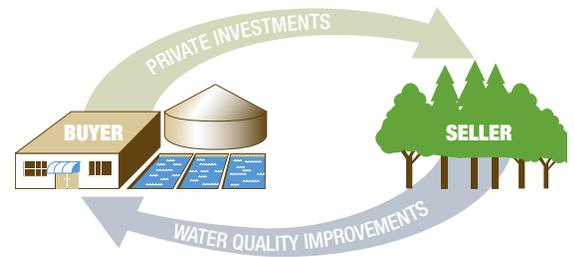
Investments in the protection and restoration of forested watersheds can help sustain these services and can often result in cost-effective alternatives to building new or improving existing infrastructure.

- The City of Topeka, Kansas, strategically designed its stormwater management projects to incorporate trees, shrubs, and grass. The results are a greener city, better stormwater quality, and an estimated 25-percent cost savings.
- In northwestern Oregon, a local wastewater facility is paying upstream landowners to plant shade trees along the Tualatin River. Instead of installing refrigeration systems at two treatment plants—a \$35 million expense with additional annual operating costs—the water utility is investing \$6 million in direct landowner incentives to achieve the same water quality goals.
- The Conservancy District in Miami, Ohio, has formed a watershed water quality credit trading program. Funding is provided to local landowners on a competitive basis to help them implement land management practices that reduce phosphorus and nitrogen runoff. The reduction generates credits that wastewater treatment plants can use to meet regulatory requirements. The Miami Conservancy District estimates that this program could save communities more than \$300 million over the next 20 years, while significantly improving water quality.



Reducing the cost of regulatory compliance is a primary incentive for watershed management.

Water quality standards and regulations can serve as drivers for watershed management. Trading schemes are beginning to emerge in regulated watersheds where facilities and landowners that discharge effluents into a waterway must comply with established standards. Pollutant credit trading is a voluntary, market-based approach to achieving water quality compliance at a reduced cost. Trading often involves the purchase of credits from landowners for undertaking land management practices that naturally maintain or improve water quality.



Private investments in watershed management and protection are motivated by a variety of factors such as philanthropy, improving corporate image, maintaining quality source water, and protecting structures or other investments. A primary motive, however, is to reduce the cost of compliance with regulatory requirements.

KEY ELEMENTS OF WATER QUALITY TRADING

Water quality trading takes place on a watershed basis to address local water quality issues. Most trading programs incorporate the following steps:

- Assess the potential for a trading program to meet watershed conservation objectives.
- Determine the pollutant reduction a landowner or seller can trade.
- Identify a trading partner or multiple buyers.
- Involve stakeholders in developing the program design and trading agreement.
- Verify and certify the implementation of necessary conservation practices.
- Track and report pollutant reductions and trades.

Modified from Conservation Technology Information Center. 2006. *Getting Paid for Stewardship: An Agricultural Community Water Quality Trading Guide*. West Lafayette, IN. <http://www.conservationinformation.org/>. (March 2007).

Economic incentives for watershed management can accelerate water quality improvements and help private and community landowners serve as stewards for the Nation's forests.

Almost 60 percent of the forest land in the United States is privately owned — the health and management of these forests are critical to the ecosystem services they provide us all. Payments to private landowners for forest management and improvement are emerging as alternative financing mechanisms for ensuring water quality and other important watershed services. When added to traditional forest revenues, these payments may offer private forest landowners the necessary additional economic incentive to stay on the land.

For more information about watershed services, visit our Web site:

<http://www.fs.fed.us/ecosystems-services>

The Forest Service is working to advance market-based approaches to conservation and stewardship on private and community lands. Private investment in ecosystem services promotes sustainable land management, supports ecological restoration and provides an economic incentive for landowners to own and manage forest land. Capturing the true value of nature's capital will help protect the Nation's private forests and grasslands and the essential public benefits they provide.



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