

HEALTHY FORESTS FOR CLEAN WATER

Did You Know?

We all need clean water to stay healthy, yet less than one percent of the water on earth can be used by humans as drinking water. Whether you drink water from a well or a municipal supply, forests keep that water clean and abundant. They do this by capturing rainwater and recharging underground aquifers. They also act as a natural filter as water moves over land, cleaning it of pollutants so it arrives at our lakes, rivers and streams in a better condition. We call this an ecosystem service — something our environment provides that people need, but don't have to pay for.

Natural Water Filter

Forests act as a natural water filter. When it rains, any water that does not soak into the ground becomes runoff and travels downslope to the closest stream, river or lake. As runoff travels it picks up nutrients from excess fertilizer and animal waste carrying that nutrient pollution into our waters, which is mainly nitrogen and phosphorus. All plants, including trees, use nitrogen and phosphorus for growth. But excess nutrients that get washed into streams, rivers and lakes support the growth of plants like algae. When there are a lot of pollutants in the water and an overgrowth of algae, it causes health concerns not only for the people who fish, swim or drink that water, but also other plants, fish, and insects that live in the water. Tree roots are an important mechanism for absorbing nutrient pollution before it reaches our waters.

A 2002 study by the Trust for Public Land and the American Water Works Association found that for every 10% increase in forest cover in the source watershed, treatment and chemical costs decreased by about 20%: www.awwa.org/resources-tools/water-knowledge/source-water-protection.aspx.

Similarly, a study of the High Rock Lake watershed in North Carolina showed water treatment costs trending lower in watersheds least 70% covered in forest: ncforests.gov/water_quality/pdf/ForestsWaterQualityHighRockLakeWatershed.pdf.



Green Swamp. Photo Credit: Misty Buchanan

Rainfall runoff that flows over parking lots and roads also picks up oil, grease, trash or other pollutants. This rainfall runoff then flows into storm drains that flush the water directly to the stream, river or lake it drains to, without any treatment. But healthy forests, especially when properly managed and maintained, catch this runoff, slow its speed and allow pollutants to settle out. The trees in the forests also absorb some of the heavy metals, chemicals, and oil that come off pavement and other surfaces.

Keep Your Land in Place

Tree roots hold the soil in place, which reduces erosion and keeps the soil from washing into our waterways. Soil erosion, or sediment, is the number one type of water pollution in many places. Human activities like construction, plowing agricultural fields, or cutting trees can increase the amount of soil that enters our waters, when carelessly or unprofessionally done. Sediment in the water clogs the gills of fish and other wildlife. It also covers rocks in the bottom of streams and rivers which these animals depend upon, to hide amongst or to lay their eggs on. Sedimentation can reduce the life that the waters support. However, this type of pollution is easy to reduce simply by following best management practices for construction, farming and forestry. The easiest way to keep soil in place is by encouraging healthy trees to grow, especially along streams.

WHAT CAN YOU DO?

1 GET EDUCATED! FIND OUT YOUR WATERSHED ADDRESS.

Go to the EPA site www.epa.gov/1to10w/1to10w.html and find where your land drains to — the name of the nearby river or stream. Where does it flow to? Is the river clean? Join a local watershed protection group or start your own with friends and neighbors and organize events such as trash clean-ups and tree planting

2 PLANNING TO HARVEST TREES NOW OR IN THE FUTURE? HAVE A PLAN!

Tree harvesting methods, including clear cutting, should not damage or impair wetlands or cause flooding. Forest management planning can minimize the amount disturbance by trails or roads within a forest area. Contact a professional [Forestry Consultant](#) to learn about forest management planning, how to create a plan for your property and utilize best management practices.

3 KEEP NATIVE TREES ALONG STREAMS TO PREVENT POLLUTION.

Whether harvesting timber or developing land for other uses, retain streamside protection zones of trees, shrubs, and natural groundcover to protect water from sedimentation and water temperature fluctuation, improving its quality. Follow the Forestry BMPs and guidance from RIDEM's [Office of Water Resources](#).

4 PLANT A NATIVE TREE IN YOUR YARD.

Plant in your yard, in a nearby park, at your school — anywhere you can fit trees that will not impact overhead or underground utilities. If you live in a subdivision, adopt a native plants policy for common areas.

5 REMOVE INVASIVE SPECIES

Take out species such as bamboo, privet, English ivy or Japanese stilt grass that can harm the biodiversity of your forests.

6 CONTACT YOUR LOCAL GOVERNMENT PLANNING DEPARTMENT

Ask them about local conservation initiatives. Review their Comprehensive Plan to determine if it sets goals for forest and water protection — if not, suggest that they consider this key topic!

7 REPLANT URBAN AREAS

Does your town or city have a tree management plan? Do they know the tree cover amount (hint: it should be at least 40% or more for a minimally good canopy). Is your city or town a "Tree City USA"? If not, contact your city arborist, city manager or mayor to discuss how to better manage your urban forest and apply for Tree City USA recognition.



Trees along streams filter runoff and keep water cool for fish.

RESOURCES TO GET STARTED

Managing Small Woodlots:

<https://ecosystems.psu.edu/research/centers/private-forests/news/managing-small-woodlots>

Healthy Watershed Economic Benefits:

http://water.epa.gov/polwaste/nps/watershed/ecoben_factsheet.cfm

Center for Watershed Protection:

www.cwp.org/2013-04-05-16-15-03/watershed-planning

National Arbor Day Foundation – Tree City USA

Program: www.arboday.org/programs/treeCityUSA

RIDEM Office of Sustainable Watersheds:

www.dem.ri.gov/programs/water/sustainablewatersheds/

RIDEM Office of Water Resources:

www.dem.ri.gov/programs/water/



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