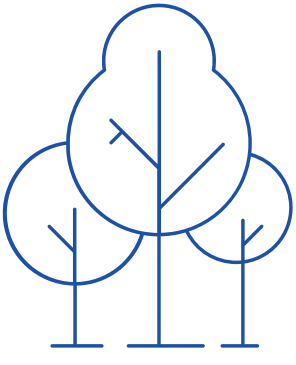
Let's Keep TR Beautiful | Reedy River Water Quality Group | TreesUpstate | ReWa renewable water resources | UF UPSTATE FOREVER | Be Smart With tr Travelers Rest

FRIENDS OF THE REEDY RIVER

FREE TREE GIVEAWAY

Help reforest our watershed by planting free bareroot trees in your yard!



FEB. 25-26

REWA & TRAILBLAZER PARK

FRIDAY 3-6 PM | SATURDAY 9AM-12PM

Limit 4 trees/household. Trees are first come, first serve
bald cypress, tulip poplar, overcup oak, & swamp chestnut oak.

FRIENDSOFTHEREEDYRIVER.ORG/EVENTS

PRESENTED BY DUKE ENERGY.

TREES PROVIDED BY Powerhouse

FRIENDS OF THE REEDY RIVER

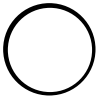
FREE TREE GIVEAWAY

COLOR CODE

Each bareroot tree is tagged with a colored chenille tie that corresponds with the tree type.

OVERCUP OAK

Medium growth rate. Full sun to partial shade. Well-drained soil preferred but can tolerate frequent flooding.



TULIP POPLAR

Fast growth rate. Full sun . Prefers normal moisture but can tolerate drought.

BALDCYPRESS

Medium growth rate. Full sun. Adaptable to wet or dry conditions and can withstand flooding.

SWAMP CHESTNUT OAK

Slow growth rate. Partial shade. Moist soil preferred but can tolerate drought.

PLANTING A BARE ROOT TREE

1. Soak tree roots in water for 3-6 hours.
2. Dig a wide and shallow hole. **Width**: Hole should be 3x the width of the root ball. **Depth**: The root flare should be planted at or slightly above ground level. Build a mound at the base of the hole and spread out the roots across the mound. Remove any roots circling around the trunk.
3. Backfill with original soil to 2/3 full. In the top 1/3 section, mix in 10% - 20% of amendment, topsoil and organic material. Water around the root ball to settle the soil.
4. Mulch wide, to the dripline if possible. Keep mulch away from the trunk. Mulch should be 2" - 4" deep. Create a berm to catch rain water. Deconstruct the berm after one year.
5. Remove all tags and nursery stakes. Stake the tree if necessary. Use stakes and a flexible material, like arbortie. Remove staking after one year.
6. Water in the tree at the time of planting. Water regularly for the first 2 years. See watering guidelines.

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 phosphorous 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%: *http://forestsforwatersheds.org/forests-and-drinking-water.* Similarly, a study of the High Rock Lake watershed in North Carolina showed that water treatment costs trended lower in watersheds that are at least 70% covered in forest: *www.ncforestatlas.com/wq/hrlw.*

Green Swamp. Photo Credit: Misty Buchanan

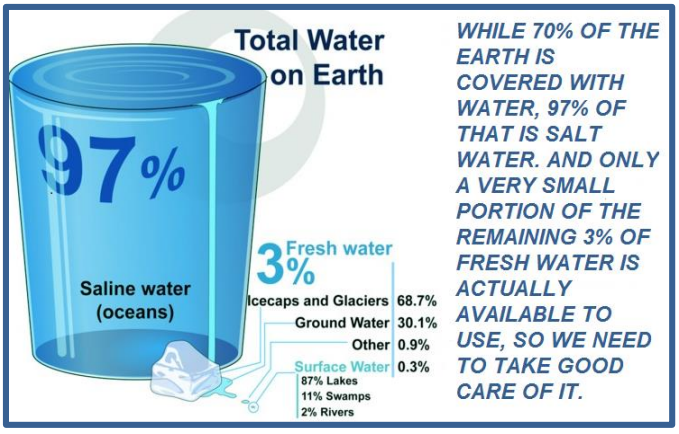
Rainfall runoff that flows over parking lots and roads also picks up oil, grease, trash or other pollutants. This rainfall runoff then flows into stormdrains that flush the water directly to the stream, river or lake it drains to, without any treatment. But healthy forests, especially when properly managed 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 NC. 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.

Abundant Water

Forests increase the amount of water that is available for human use, and reduce the amount of water that travels across the surface of the land. Not only do living tree roots hold soil in place, but as trees age new roots grow and old roots die, creating small spaces (pores) in the soil, which allows water to soak and infiltrate into the soil. While all plant roots, even grasses, have this effect, tree roots extend further through the soil. Trees' support roots are larger and they decay more slowly, so even dead or declining tree roots contribute to long term soil stability and soil porosity. As forests are cut to build subdivisions and shopping malls, and soil surfaces are replaced with asphalt and concrete, less water is able to soak into the ground to fill the underground aquifers that supply drinking water for over **half** of NC's residents.



Less Flooding

The more parking lots, roads, buildings and grassed lawns within a community, the more water runs off the surface of the land to stormdrains, retention ponds and streams, rivers and lakes. In fact, a one acre parking lot releases 36 times more water than one acre of forest (Changing Landscapes, USDA NA–TP–01–14 A3). The volume of water is not the only factor contributing to flooding, the speed that the water reaches its destination increases the potential for flooding even more.

ESTIMATES FOR THE AMOUNT OF WATER A TYPICAL LARGE CANOPY TREE CAN INTERCEPT IN ITS CROWN, RANGE FROM HUNDREDS TO THOUSANDS OF GALLONS OF WATER PER TREE ANNUALLY DEPENDING ON SPECIES AND TREE AGE (LARGER TREES INTERCEPT MORE WATER).

Trees and their surrounding green spaces slow water flow so that the precipitation can infiltrate into the soil. But even water that does not soak into the ground is slowed on its way, so that peak flow is reduced and pressure on the banks of streams, rivers and lakes to hold all that water is eased. Large floods make the news and cause major economic damage. Small floods cause loss of property from erosion and can be an issue for those living near streams, rivers and lakes. As surface runoff is reduced and slowed, by plants and trees, flooding is also reduced.

Water Management

A watershed is the area of land that water travels across on its way to a stream, river or lake. What happens uphill, or upstream, in a watershed has an effect on everyone downstream. As North Carolina's population continues to increase, it becomes more important that communities create a watershed plan that identifies how clean the water is, how the land is used and where water pollution is coming from. This type of plan identifies places in the watershed where forests, parks and other open places are needed and where they can be restored, and protected. Most watershed plans include a combination of protection and restoration measures. Protecting natural resources is more cost-effective than restoration but, unfortunately, such efforts often occur after significant impacts have already occurred. Working lands and undeveloped greenspaces allow people to work the land, explore the forests, play in the parks and exercise outside while the water is cleaned and replenished.

Haw River at Bynum. Photo Credit: Allison Weakley

Forest Management

Well managed forests provide many benefits for water, people and wildlife. An unmanaged stand of trees may have a high density, with too many trees crowded together. This means the trees grow more slowly as they must compete for a limited amount of soil nutrients, water and light. And that stress makes the trees more susceptible to diseases and pests, such as pine beetles. Crowded and stressed trees can also make it easier for wildfire to spread rapidly from tree to tree.

Removing or thinning the stressed, damaged and diseased trees from a forest gives healthy trees more room to grow, and standing healthy trees protect the water. Prescribed fire, or managed burns, reduce the growth of invasive plants and other competing vegetation. These management practices allow increased light and precipitation to reach the forest floor. As more light reaches the ground native plant life, such as wildflowers, shrubs and grasses can grow to provide food and shelter for large and small wildlife. Not only are forests important habitat for wildlife but, when forests, green spaces and riparian areas are connected, they create paths that animals can use to move from one area to another. Healthy forests can look quite different from one another, depending on their age, the tree species composition, and how the different tree species grow. To benefit all types of wildlife, different types of forests at different stages of growth, from young to mature, are necessary.

Managed forests not only contribute to clean water but can provide a source of income for landowners. Management can include commercial thinning, partial cuts or clear cuts. Registered foresters, management plans, and forestry best management practices are important to ensure that the trees, as well as the soil and water, are not damaged or degraded during such activities.

Did you know? North Carolina has specific Best Management Practices for Forestry *North Carolina Forestry Best Management Practices (BMP) Manual to Protect Water Quality*

Forest management activities can be done without harm to water or soil. The Forestry Best Management Practices (BMPs) are measures to implement for protecting water and conserving soil. In North Carolina, there are also Forest Practices Guidelines (FPG) rule standards that must be met.

Below are some examples of fundamental BMPs for timber harvesting operations:

1. Always leave a protective streamside management zone (SMZ) along each side of intermittent streams, perennial streams, or other permanent bodies of water. The SMZ should capture and filter sediment, provide shade to the stream, stabilize stream banks, and conserve the natural ground cover material. Refer to the FPG rules for requirements of SMZs.
2. Lay out, construct and maintain logging roads, skid trails, and log deck landings to minimize soil disturbance and erosion. Limit the slope grades of roads and trails. During logging, apply leftover logging debris on top of skid trails and decks to naturally cover and protect the soil. Avoid spilling or leaking oil, fuel, or other contaminant fluids.
3. Avoid crossing streams with machinery whenever possible. This is a FPG requirement. If a crossing must be installed use bridgemats, if possible, for temporary access. If a culvert is needed, use a pipe diameter large enough to handle storm flow and avoid stream blockages. Promptly stabilize and cover any exposed soil at the crossing and on each approachway.

Think About It

While technology can do many things, we should take advantage of the natural processes around us. Retaining trees and forested land does more than give wildlife a home, it provides the resources humans need to exist and to thrive. Forests do this more inexpensively than man-made infrastructure. Managing our forests responsibly, recognizing their value and including them in planning considerations is necessary for clean water, now and in the future.

WHAT CAN YOU DO?

1 GET EDUCATED! FIND OUT YOUR WATERSHED ADDRESS.

Go to the EPA site *cfpub.epa.gov/surf/locate/index.cfm* 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 cause flooding or make floods more severe. Forest management planning can minimize the amount of roads within a forest area. Contact a professional with the North Carolina Forest Service 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 fluctuations, improving its quality. A wide buffer is better but even some trees along a stream are better than none at all.

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 utility lines or underground pipes. 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.

ON-LINE TOOLS TO GET STARTED

North Carolina Green Growth Toolbox offers many ideas: *www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox.aspx*

Tools for Managing Your Rural or Urban Forest: *www.ncforestservice.gov*

Interactive River Basin Map: Find your watershed address: *www.eenorthcarolina.org/riverbasins-interactive.html*

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.arborday.org/programs/treeCityUSA*

Piedmont Together offers goals and strategies for communities: *www.piedmonttogether.org*

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