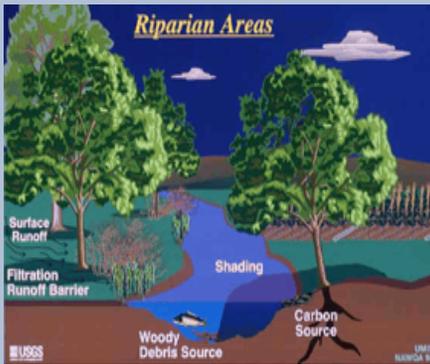
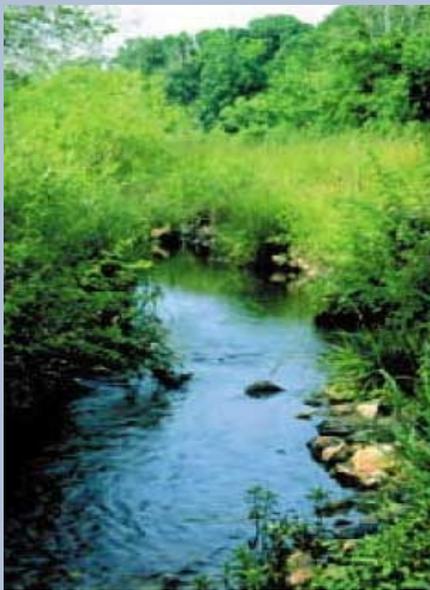


# Streamside Forests: Riparian Forest Buffers



Credit: USGS



Credit: Stroud Water Research Center

## What are Riparian Forest Buffers and why are they important?

Riparian forest buffers are made up of the trees, shrubs and grasses planted along waterways that help protect water quality. These streamside forests act as filters that help stop pollutants and sediment from reaching our waterways. Pollutants come in many forms, including excess nutrients, fertilizers, and chemicals that run off streets, lawns, and farm fields. Streamside forests slow down surface runoff and allow rainfall to infiltrate and recharge critical groundwater resources, filtering out any pollutants and reducing flooding. Riparian buffers also help stabilize streambanks; erosion is reduced when flooding is reduced, and streambanks are further stabilized by the root systems of riparian forest buffers.

A variety of wildlife species benefit from food, shelter, and important travel corridors provided by healthy streamside forests. Riparian buffers also cool water temperatures, increase oxygen, and provide habitat and food for fish and other aquatic life.

Maintaining and restoring streamside forests is a key strategy for improving water quality and aquatic habitat in Pennsylvania.

## Pennsylvania's Buffer Initiative

Pennsylvania is working hard to plant 95,000 acres of new riparian forest buffers by 2025. Reaching this goal will improve water quality in the Commonwealth and the Chesapeake Bay. Achieving this goal requires the help and cooperation of landowners and communities. There are several cost-share and grant programs in place for restoring riparian forest buffers to help landowners, municipalities, and other organizations with planting site

preparation, purchasing trees, and with the cost of maintenance of their buffers as they begin to grow.

## Restoring Buffers

Riparian forest buffer restoration begins with site identification – where are the deforested streams? Where are existing riparian forest buffers that could be improved? DCNR is working with partners across the State to identify places where buffers could be most effective in helping to restore stream health and function. Using mapping technology as well as on-site inspection, buffer planners consider conditions like existing tree cover, slope of the stream bank, the makeup of the surrounding landscape, and soil types. Assessing these characteristics ensures the selection of plants best suited for the site and that will be most effective in filtering pollutants.

When designing a buffer, it is best to strategically place trees and shrubs to allow for maximization of their protective functions. Trees and shrubs with large fibrous root systems are usually planted closer to the bank to provide stability.

Increasing the width of streamside forests, or the area from the streambank that the buffer planting extends upland, generally improves its potential to filter pollutants, and its utility for crops or wildlife habitat. However, planners can work with landowners to make sure their streamside forest is designed and planted to both meet the needs of the landowner and function properly to improve water quality.

Programs are available to assist landowners in planting buffers that produce a crop for personal or commercial use. Crops that are appropriate for growing and harvesting in riparian areas include

chokeberries, serviceberries, elderberries and decorative woody species, like curly or pussy willows and red-osier dogwood.

Contact your local DCNR Service Forester for help with planning the restoration of a forest buffer.

### Buffer Maintenance

A riparian forest buffer requires consistent maintenance during the first three to five years of establishment to ensure long-term success. Regular maintenance helps deter threats including damage from deer and other wildlife, invasion by exotic species, weeds, and human disturbance. Maintenance activities should be performed regularly. Frequent watering may be required during the first year after planting. Tree shelters should be used to protect newly established trees and shrubs. Weed control is critical to successful buffer establishment. Weeds and other vegetation will not only compete with seedlings for water and nutrients, but also can harbor rodents and other pests that damage seedlings, reducing survival and growth. Weed control can be accomplished mechanically, by mowing or hand weeding, or using herbicides or weed mats.

Occasionally, replanting trees and shrubs that did not survive may be necessary.

Good buffer maintenance in the early stages of establishment helps reduce the maintenance needs of streamside forests once they mature.

Some helpful guidelines for buffer maintenance can be found in the *Landowner Guide to Buffer Success* and *Riparian Forest Buffer Design and Maintenance*, available online.

### How You Can Help

If you own streamside land, plant a riparian buffer! Contact your local DCNR Service Forester for information on grants and cost-share programs that might be available to you. Volunteering with community and conservation organizations that are working to establish and maintain buffers is also an excellent way to get involved. Ask your Service Forester or County Conservation District about projects in your area. Share the benefits of streamside forests with your neighbors, family, and friends.

Pennsylvanians like you can make a difference in improving water quality through restoring streamside forests across the landscape, ensuring future generations have plenty of clean water.



Credit: Alliance for the Chesapeake Bay

### Resources

For more information, visit [www.dcnr.state.pa.us/forestry](http://www.dcnr.state.pa.us/forestry)

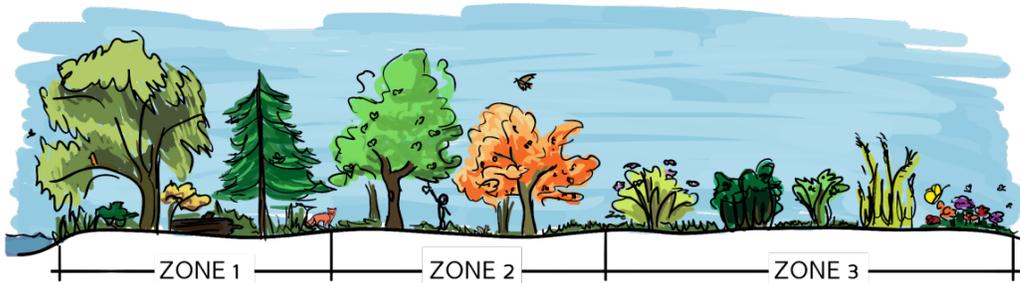
Select "Your Woods," then "Stream Buffers"

If you want to contact someone for help or information, choose "Service Foresters"

#### Landowner Guide to Buffer Success

This helpful publication takes you through the key steps to planting and maintaining a buffer through the year. An online version is available at the link below.

[www.cbf.org/document.doc?id=257](http://www.cbf.org/document.doc?id=257)



**ZONE 1**  
A strip of land planted with native riparian forest species that stretches 15 feet for more from the water's edge.

**ZONE 2**  
Extends out 35 feet or more from the edge of zone 1, and is planted with edible or marketable trees and shrubs.

**ZONE 3**  
From the edge of zone 2, this area is an area of active harvest. Often, woody decorative plants and perennials are grown here.

#### Characteristic tree and shrub species for each zone

Black Willow	Black Walnut	Witch Hazel
American Sycamore	Downy Service Berry	Eastern Redbud
Red Maple	Shagbark Hickory	Sugar Maple
River Birch	Blackberry	Wild Hydrangea
Buttonbush	American Hazelnut	Milkweed

### More Information

For more information on Riparian Forest Buffers or Agroforestry, contact:

DCNR Bureau of Forestry  
Phone: (717) 787-2703  
Email: [PAForester@pa.gov](mailto:PAForester@pa.gov)

