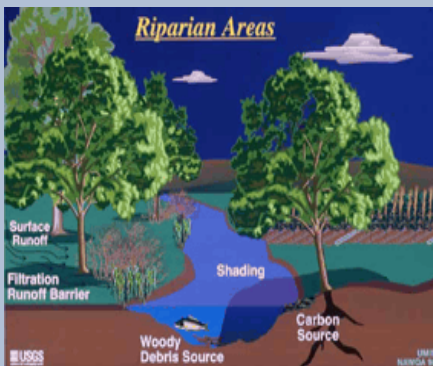


# Riparian Forest Buffers



Credit: USGS



Credit: WRC

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

Forest buffers are the trees, shrubs and grasses planted along waterways that help protect water quality. Technically known as riparian areas, they act as filters to reduce pollutants and sediment from reaching the water. Pollutants come in many forms, including excess nutrients and fertilizers, and chemicals that run off streets and farm fields. Riparian forest buffers don't just filter water; they improve bank stability and reduce erosion and flooding. Buffers slow down surface run-off and allow rainfall to infiltrate, recharging critical groundwater resources. Wildlife benefit from food, shelter, and important travel corridors that are provided by buffers. Buffers also cool water temperatures, increased oxygen, and increased organic materials that feed fish and other stream life. Maintaining and restoring buffers is a key strategy for improving water quality and aquatic habitat in Pennsylvania.

## Pennsylvania's Buffer Initiative

Pennsylvania has a goal of planting 95,000 acres of riparian forest buffers statewide by 2025 to improve water quality in waterways in the commonwealth and the Chesapeake Bay. To achieve this goal requires the help and cooperation of landowners and communities. To assist, there are a number of cost share and grant programs in place for restoring riparian forest buffers.

## Restoring Buffers

Buffer restoration begins with site identification – where are the un-buffered streams? Where are existing buffers that could be expanded? 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 computer technology, as well as on-site inspection, buffer planners consider conditions such as existing cover, the slope of the stream bank and surrounding landscape and soil types. Assessing these characteristics ensures the selection of plants best suited for the site, as well as the type of vegetative cover that will be most effective in filtering pollutants.

Another consideration is to position the buffer so it will capture and filter the most runoff. A contiguous buffer zone will most effectively buffer the stream. Gaps in the buffer zone can create areas of runoff that negate the filtering benefits of the buffer. Generally, the larger the buffer, the more beneficial to water quality; however, the width can be flexible to fit the needs of the land and the landowner.

When designing a buffer, it is best to strategically place plants in a way that allows 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 the buffer improves its potential to filter pollutants, and its utility for crops or wildlife habitat. Contact your local service forester or local DCNR office for help with planning the restoration of a forest buffer.

Some programs assist landowners in planting buffers that produce a crop for personal or commercial use such as chokeberries, serviceberries, elderberries and woody decorative species (such as pussy willow or red-osier dogwood).

## 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 consistently. Frequent watering may be required during the first year after planting. Tree tubes or cages 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 seedling survival and growth. Some helpful guides to buffer maintenance are the *Landowner Guide to Buffer Success* and *Riparian Forest Buffer Design and Maintenance*.

Weed control can be accomplished mechanically, by mowing or hand weeding, or through the use of herbicides or weed mats.

Occasionally, replanting is necessary to replace trees and shrubs that were unsuccessful. Good buffer maintenance for the first few years is key to faster establishment and less maintenance work down the road.

## How to Take Action

Even if you don't own land near streams, there are many ways you can help clean our waterways. Volunteering is one way to get involved; there are a number of community and conservation organizations working to establish and maintain buffers. Ask your Service Forester or Conservation District about projects in your area. If you are a landowner, reach out to your neighbors and let them know the benefits of installing a riparian forest buffer. Remember that riparian forest buffers can improve water quality, while providing you and your neighbors an opportunity to grow specialty crops and increase wildlife habitat in your own backyard. With the help of communities and landowners, Pennsylvanians can make a difference in improving the health of our waterways through restoring forest buffers.



Credit: Alliance for the Chesapeake Bay

## Resources

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

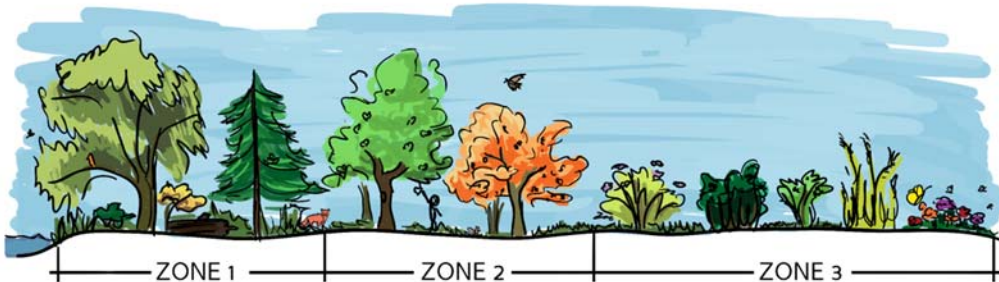
Select "Your Woods," then "Stream Buffers"

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



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

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

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 and Agroforestry contact:

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