

*A simple and cost-effective way to protect and improve the health of our streams — and our drinking water — is to plant trees along waterways.*

Photo: David H. Funk

# Streamside Forests

THE NATURAL, COST-EFFECTIVE SOLUTION FOR CLEAN WATER

## Streams Provide Drinking Water

Streams provide much more than places for recreation; they provide habitat for plants and animals — and drinking water for many of us.

## Trees Make Streams Healthier

Pennsylvania — or Penn's Woods, as it was called — was almost completely forested for thousands of years. Today, many streams no longer have trees growing along their banks. The absence of these streamside forests, combined with poor land use, has resulted in declining stream health.

## Plant Trees for Cleaner Water, Naturally

Unhealthy streams mean poor water quality, which increases the amount of money we must spend to treat our water supplies. A simple and cost-effective way to protect and improve the quality of our streams — and our drinking water — is to restore trees along waterways.

## Streamside Forests = Healthier Wildlife Habitat

Streamside forests are important habitat areas for wildlife. These forests maintain the stream conditions that aquatic animals and plants need to thrive.

Shade from streamside forests keeps water temperatures cool — a necessity for brook trout, the state fish of Pennsylvania.



Photo: Tara Muenz



Photo: Charles Dow

Streamside forests are important habitat areas for mink, which prefer to live in forested areas near water.

Tree leaves provide food and habitat for many aquatic animals, such as insects and crustaceans, which in turn provide food for fish.

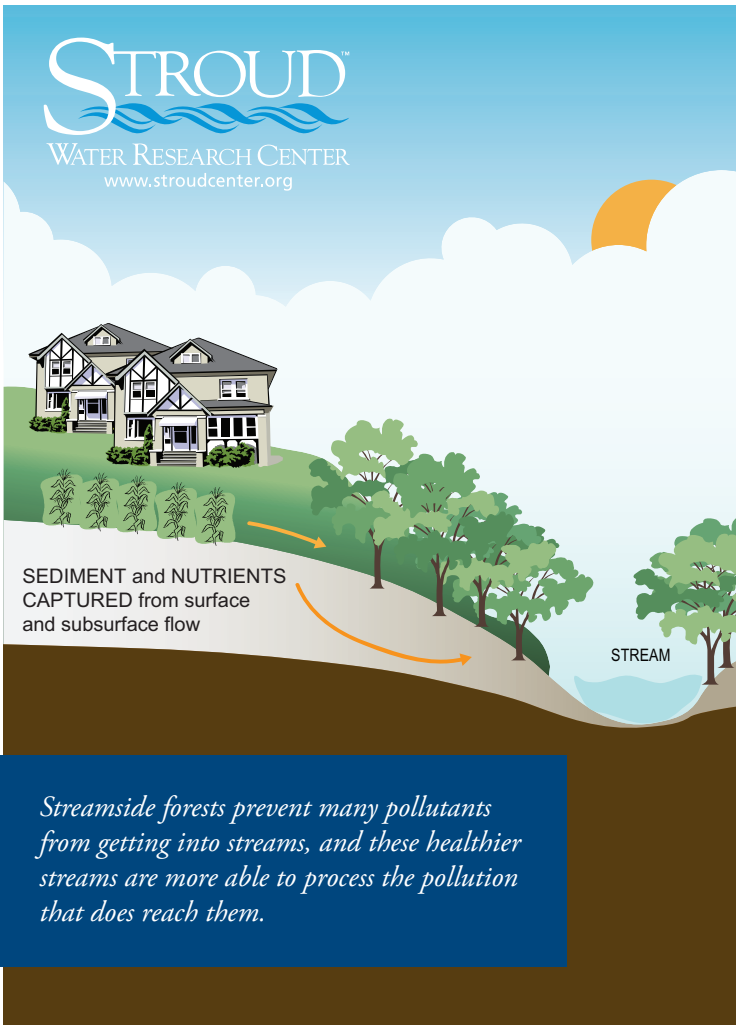


Photo: Christina Medved



Photo: David H. Funk

Tree roots stabilize streambanks and reduce erosion. They also create habitat for animals.



SEDIMENT and NUTRIENTS  
 CAPTURED from surface  
 and subsurface flow

STREAM

*Streamside forests prevent many pollutants from getting into streams, and these healthier streams are more able to process the pollution that does reach them.*

# Streamside Forests and Water Quality

## Trees Reduce Pollution

Streamside forests reduce the amount of sediments that reach streams and help them to better process the pollution that does enter them. Healthy, forested streams are full of life, including microscopic organisms that are efficient at breaking down pollutants. Planting trees along streams supports a rich variety of life that can continue to clean our water for us, naturally.

## Trees Reduce Flooding

Forests function like sponges. Roots from trees and shrubs break up the soil so that rainwater soaks into the ground, rather than running off the surface. This helps reduce flooding and replenish groundwater, another important source of drinking water.

## Trees Decrease Drinking-Water Costs

Poor water quality costs taxpayers money. Streamside forests reduce the cost of clean drinking water by reducing the need for chemicals to treat the water.

## Streamside Forests = Cleaner, Cheaper Water

A 10% increase in forest cover in the area of a drinking-water source results in a 20% decrease in treatment and chemical costs.

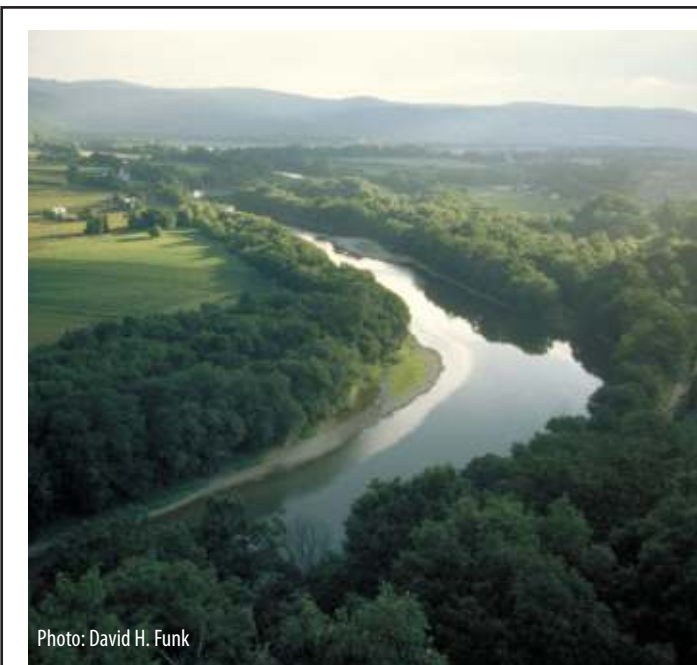
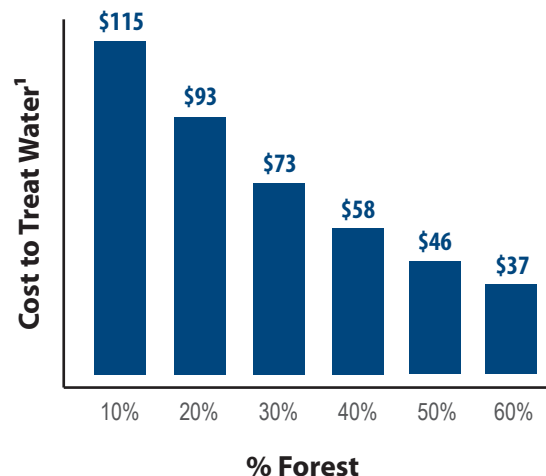


Photo: David H. Funk

### TREES SAVE TAXPAYERS MONEY



Source: American Water Works Association, 2004

<sup>1</sup> Cost per million gallons of water.



*Planting trees next to streams is an effective and cost-efficient way to improve and protect the quality of our waterways — and ultimately, our drinking water. Every tree counts, providing benefits now and well into the future.*

Photo: Kristine Lisi

# Plant Trees and Become Part of the Solution

## Start With a Tree

Plant trees on your property even if you don't have a stream. Tree roots break up the soil and allow rainwater to infiltrate into the ground, which helps replenish groundwater and reduce flooding.

## Plant Native Species

Plant native trees and shrubs. Native plants will thrive in our climate, are easier to care for, and provide excellent food and habitat for wildlife.

## Remember, Wider Is Better

Streamside forests provide a setback — or buffer — between the stream and the adjacent land use. A narrow streamside forest can provide some benefits, such as shade, but wider buffers are necessary to keep streams healthy. Research findings support a 100-foot minimum on both sides of the stream.



Trees provide benefits that last for generations.  
Photo: Jan Battle

## Why Streamside Forests?



Photo: David H. Funk

### SIX REASONS TO PLANT TREES

- 1. Improve water quality by reducing pollution.**
- 2. Lower drinking-water treatment costs.**
- 3. Replenish groundwater supplies.**
- 4. Reduce flooding.**
- 5. Provide habitat for wildlife.**
- 6. Increase property values.**

# Streamside Forests

TREES AND SHRUBS RECOMMENDED FOR WET TO DRY SITES



Arrows denote that certain species can tolerate a wetter or drier environment. Source: PA DEP Riparian Forest Buffer Guidance – Document #394-5600-001.

## TREES

### Wet Conditions

Maple, silver  
 Box elder →  
 Persimmon →  
 Birch, river →  
 Pawpaw →  
 Sycamore →  
 Cottonwood  
 Willow, black

### Average Conditions

← Maple, red →  
 Hickory, bitternut →  
 ← Birch, black and sweet →  
 ← Locust, black and yellow →  
 ← Redbud →  
 ← Hackberry →  
 American beech →  
 ← Honey locust →  
 Kentucky coffee tree →  
 Tuliptree →  
 Black gum →  
 ← Large-toothed aspen →  
 ← Oak, pin →  
 ← Oak, shingle  
 ← Oak, swamp white →  
 ← Red (slippery) elm

### Dry Conditions

← White pine  
 Black cherry  
 Sassafras  
 Oak, white  
 ← Oak, red  
 Oak, chestnut  
 Hickory, shagbark  
 ← Maple, sugar

For more information about forest buffer restoration, please call 610-268-2153 and select Watershed Restoration, or email [buffers@stroudcenter.org](mailto:buffers@stroudcenter.org).

## SMALL TREES AND SHRUBS

### Wet Conditions

Smooth alder  
 Chokeberry, red  
 Chokeberry, black →  
 Dogwood, red osier and silky  
 Summersweet →  
 Winterberry →  
 Swamp rose  
 Swamp azalea  
 Meadowsweet →  
 Highbush blueberry →  
 Witherod →  
 Northern arrowwood  
 Willow, sandbar

### Average Conditions

Mountain laurel →  
 American hornbeam →  
 Shadbush (*A. arborea* and *canadensis*) →  
 Dogwood, gray and flowering →  
 American hazelnut →  
 ← Common spicebush  
 ← Rosebay rhododendron  
 ← Southern arrowwood  
 ← Ninebark  
 American elder →  
 ← Bayberry →

### Dry Conditions

Witch hazel  
 Staghorn sumac  
 Nannyberry  
 Blackhaw