

# Additional Resources

## About Riparian Buffers

### Reduce Your Stormwater: Riparian Buffers

Alliance for the Chesapeake Bay  
[stormwater.allianceforthebay.org/riparian-buffers/](http://stormwater.allianceforthebay.org/riparian-buffers/)

### Forest Buffers

Chesapeake Bay Program  
[www.chesapeakebay.net/issues/issue/forest\\_buffers](http://www.chesapeakebay.net/issues/issue/forest_buffers)

## Invasive Plants

### Plant Invaders of Mid-Atlantic Natural Areas

National Park Service & U.S. Fish and Wildlife Service  
[www.nps.gov/plants/alien/pubs/midatlantic](http://www.nps.gov/plants/alien/pubs/midatlantic)

### Invasive Species 101 - An Introduction to Invasive Species

Center for Invasive Species and Ecosystem Health  
[www.invasive.org/101/index.cfm](http://www.invasive.org/101/index.cfm)

### Invasive Plants and Invasive Plants Database Search

PA Department of Conservation and Natural Resources  
[www.dcnr.state.pa.us/forestry/plants/invasiveplants/](http://www.dcnr.state.pa.us/forestry/plants/invasiveplants/)

## Tree and Plant Health

### Tree Health and Plant Health Care

Trees are Good  
[www.treesaregood.com/treeowner/planthealthcare.aspx](http://www.treesaregood.com/treeowner/planthealthcare.aspx)

### “What is Killing My Tree?” Insect and Disease Resources

PA TREES .org  
[www.patrees.org/insect-and-disease-resources](http://www.patrees.org/insect-and-disease-resources)

All plant photos are from [invasive.org](http://invasive.org) with following credit:

- “Oriental Bittersweet” -James H. Miller, USDA
- “Mile-a-Minute” -Leslie J. Mehrhoff, Univ. of Connecticut
- “English Ivy” -Chuck Barger, Univ. of Georgia
- “Japanese Honeysuckle” -Chuck Barger, Univ. of Georgia
- “Kudzu” -Kim Starr, Starr Environmental

## Native Plants

### Native Plant Center: Chesapeake Region

Alliance for the Chesapeake Bay, US Fish & Wildlife  
[www.nativeplantcenter.net/](http://www.nativeplantcenter.net/)

### Plant Smart: Plants Database

PA Department of Conservation and Natural Resources  
[www.iconservepa.org/plantsmart/index.htm](http://www.iconservepa.org/plantsmart/index.htm)

## Other References

### Check total rainfall in your area over the last 7 days:

National Weather Service  
<http://water.weather.gov/precip/>

### Weed Control and Herbicides

National Pesticide Information Center  
<http://npic.orst.edu/pest/weeds.html>

### Tree Owner Information and PDF resources

Trees are Good  
[treesaregood.com/treeowner/treeownerinformation.aspx](http://treesaregood.com/treeowner/treeownerinformation.aspx)

### 9 Tree Care Tips & Techniques

Arbor Day Foundation  
<http://www.arborday.org/trees/tips/>

### A Plan for Your Woodlands

Forests for the Bay  
[https://www.forestryforthebay.org/create\\_a\\_plan.cfm](https://www.forestryforthebay.org/create_a_plan.cfm)



This resource was developed and produced by the Alliance for the Chesapeake Bay through support provided by the National Fish and Wildlife Foundation.

# Riparian Buffer Establishment Maintenance Plan and Schedule



*New riparian buffers need to be nurtured for the first few years to keep trees and shrubs healthy and growing until they become established. A mature buffer will develop a canopy that shades streams to keep water cool and develops deep roots that control run-off by holding onto soil which reduces bank erosion and sediment pollution. Young trees and shrubs need to be regularly monitored and maintained for moisture, weeds, disease, damage, deer browsing, and more. This plan includes basic maintenance tasks and a schedule that will streamline maintenance until the buffer reaches maturity. Additional resources can be found on the back cover of the plan.*

## Inspection

Inspect your planting site at least once a week after initial planting for the first two growing seasons. Check for signs of dry soil, pests, deer or vermin damage, tall weeds, and erosion of planting soil and mulch. Controlling issues quickly is crucial when plants are young. Following the first few growing seasons, inspection can take place less frequently, checking the buffer during dry spells, after storms and other seasonal changes.

## Watering

The most crucial maintenance activity in the first growing season is watering. Provide newly planted trees and shrubs about an inch of water a week from spring until fall. Monitor precipitation throughout the growing season and supplement watering when needed. One or two deep watering sessions during dry periods allows the soil to absorb moisture. Deep watering (low flow for longer periods of time) is much better for growing roots than several quick shallow waterings. Avoid washing soil and mulch away by using a low, controlled flow of water. Do not spray water on leaves and stem, as this can introduce fungus or mold. As the roots get established and spread out during the next few years, supplemental watering of the plants should be conducted during periods of droughts. If available, slow release tree watering bags are also effective to use in the first two to three years following a planting. These watering bags should be filled once a week.

## Weeding

Remove weeds and invasive plants starting in spring and continue throughout the summer. These invaders should be pulled by hand whenever possible. Invasive plants are generally non-native species that tend to establish in disturbed areas and grow quicker than natives. Because they grow quickly, invasive species may out-compete the planted trees and shrubs and, in-turn, be harmful to plant health and site appearance. If the buffer is in a public setting, volunteer groups with instruction can help with weeding. When pulling weeds, make sure to not accidentally up-root the desired plant. If up-rooting a desired species is likely, trim the weed to a low level and apply herbicide at a later date. Pull invaders like poison ivy and thistle using heavy gloves or consider herbicide treatment instead.

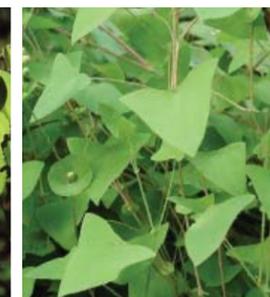
## Herbicide

The use of herbicide may be necessary to control poison ivy and other noxious weeds along walking trails, stream banks, and within the mulch around plants. This should be conducted carefully and by someone trained in herbicide application. Always consult a professional or your local conservation district if a trained individual is not on staff to assist in the application. Around water bodies, make sure to use water safe treatments. Carefully review the label and instructions on the herbicide container, as appropriate application techniques vary by chemical and targeted plant species.

*Invasive vines can be especially devastating to newly planted riparian buffers if left unchecked. In addition to controlling herbaceous and noxious weeds in a 2-3 foot area around your desired plants, make sure to remove these from the site:*



Oriental Bittersweet



Mile-a-Minute



English Ivy



Japanese Honeysuckle



Kudzu

For more information, visit [allianceforthebay.org](http://allianceforthebay.org) or contact your local Alliance for the Chesapeake Bay office:

Maryland  
501 Sixth St.  
Annapolis, MD 21403  
443-949-0575

Pennsylvania  
3310 Market St. Suite A  
Camp Hill, PA 17011  
717-737-8622

Virginia  
PO Box 1981  
Richmond, VA 23218  
804-775-0951

Recommended Maintenance Schedule - First Growing Season												
Maintenance Task												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inspection	Green											
Weeding	Grey	Grey	Green									
Herbicide	Grey	Grey	Pink									
Watering	Grey	Grey	Pink	Pink	Green	Green	Green	Green	Green	Pink	Pink	Pink
Mulch	Grey	Grey	Green	Green	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Mowing / Weed Whipping	Grey	Grey	Grey	Green	Green	Pink	Pink	Pink	Pink	Green	Green	Green
Tree Shelters / Tree Tubes	Grey	Green	Green	Green								
Deer Fencing	Grey	Pink	Pink	Pink								
Pruning	Grey											

Green = Action Needed   Pink = Possible Action   Grey = Monitor

Recommended Maintenance Schedule - 2nd and 3rd Growing Seasons												
Maintenance Task												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inspection	Green											
Weeding	Grey	Grey	Green									
Herbicide	Grey	Grey	Pink									
Watering	Grey	Grey	Pink									
Mulch	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Mowing / Weed Whipping	Grey	Grey	Grey	Green	Green	Pink	Pink	Pink	Pink	Green	Green	Green
Tree Shelters / Tree Tubes	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Green	Green	Green
Deer Fencing	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Pruning	Pink	Pink	Grey	Pink	Pink							

Green = Action Needed   Pink = Possible Action   Grey = Monitor

Recommended Maintenance Schedule - 4th Growing Season and Beyond												
Maintenance Task												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inspection	Green											
Weeding	Grey	Grey	Pink									
Herbicide	Grey	Grey	Pink									
Watering	Grey	Grey	Pink									
Mulch	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Mowing / Weed Whipping	Grey	Grey	Grey	Pink								
Tree Shelters / Tree Tubes	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Deer Fencing	Grey	Grey	Pink	Pink	Grey	Grey	Grey	Grey	Grey	Pink	Pink	Pink
Pruning	Pink	Pink	Grey	Pink	Pink							

Green = Action Needed   Pink = Possible Action   Grey = Monitor

## Mulch

Mulch new plants to maintain soil moisture and deter weed growth. Mulch should be applied at a depth of 2-4 inches and the area should be as wide as the tree's drip-line. Mulch should not touch the trunk of the plants, or it may cause rotting or rodent destruction. When adding new mulch, break up the existing layer and do not exceed a total depth of 4 inches between the existing and newly applied mulch.

## Mowing / Weed Whipping

Mow and whip to maintain a "rough cut" of the grass in between trees and shrubs until the canopy fills in. Cutting can be done per site user preference but mowing 2-3 times a growing season and maintaining a 6-12 inch height is sufficient. Be especially careful to never weed whip against the tree trunks or in mulched areas, as even small cuts or wounds in the plant's bark can introduce disease and may be fatal to young trees.

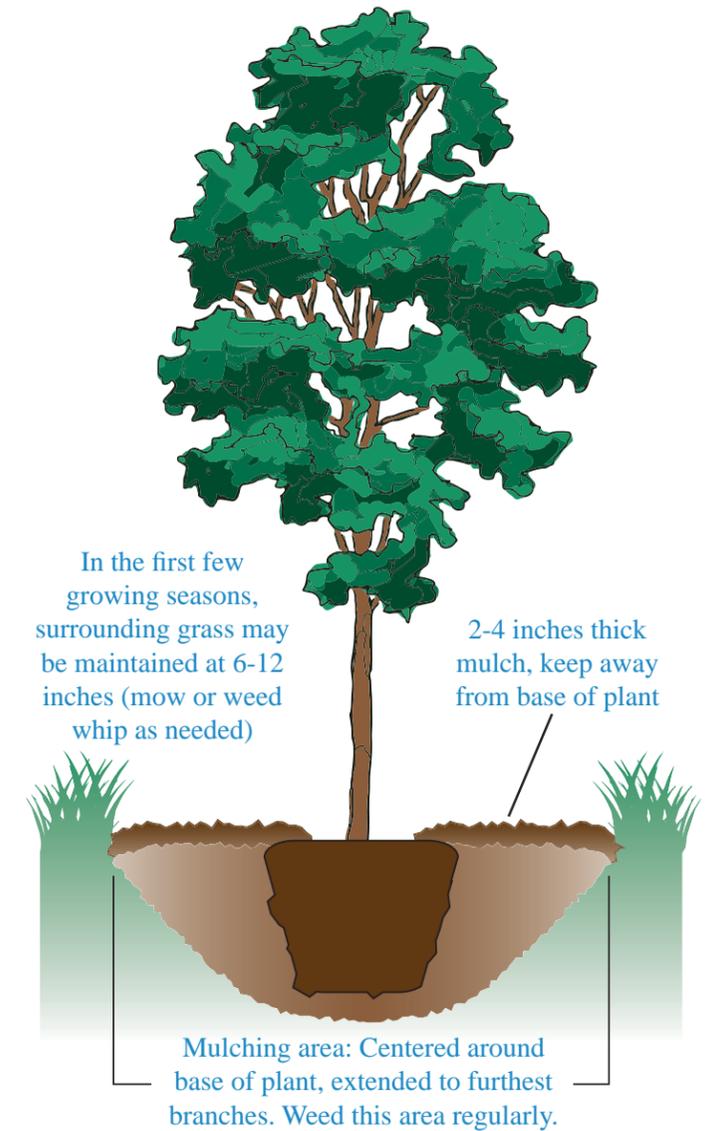
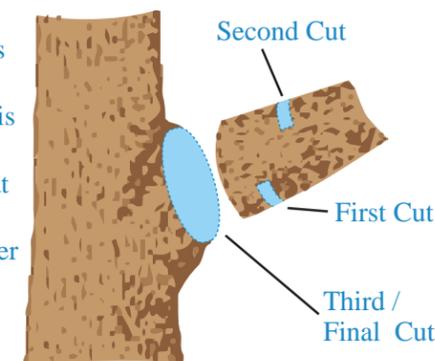
## Tree Shelters / Tree Tubes

If shelters are used on-site, they require routine maintenance. Weeds growing between the tubes and tree trunks should be pulled, especially in the fall. Weed growth in this area will harness winter rodent habitat and feeding on bark, often resulting in fatal damage to the tree. Tubes should be secure against the ground. Additionally, inspect the shelters following major storm events and make repairs as needed to damaged shelters or stakes. Bird netting may be removed as the trees grow above the shelter. Shelters should be removed when the tree trunk is 3 inches in diameter at the base or the majority of the tree's branches are 5 feet off the ground or taller.

## Deer Fencing

If fencing is used on-site, inspect annually and following any major storm events. Repair as needed and cut down weeds to maintain attractive appearance. The deer fencing can be removed when the majority of the tree's branches are 5 feet off the ground or taller.

If pruning is necessary, make cuts just outside of the branch collar, which is a bulge of overlapping fiber that connects the branch and the stem. Improper pruning can lead to permanent damage and plant decay.



## Pruning

Pruning plants for the first three growing seasons should be avoided. Pruning should be done in the late fall or winter while the plants are still dormant. Pruning serves two primary purposes. First: to remove dead, damaged, or diseased branches or branches growing at odd angles or causing obstruction. Second: to establish good structure, with one single terminal leader (the main vertical branch of the tree). Additionally, if upright form is desired, lower branches may be pruned. Good structure makes for a strong tree. No more than 20% of the trees branches should be pruned in any given dormant season. The location of the pruning cut is critical to the tree's growth and ability to close the wound. Improper pruning cuts that are too close to the trunk may lead to permanent internal decay. The pruning cut should be made just outside the branch collar, the area where the branch is connected to the trunk and is surrounded by extra tree fibers. Do not prune flush to the tree, or the wound will not close. Only make cuts with clean and sharp tools, like hand pruners or (for cuts more than a half inch in diameter) lopping shears or a pruning saw.