



United States Department of Agriculture
Natural Resources Conservation Service

Riparian Forest Buffer

A tree/shrub border adjacent and up-gradient from watercourses/ waterbodies.

Lifespan of Practice: 15 years

Tennessee Implementation Requirements No. TN-391



DEFINITION

An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.

INSTALLING THE PRACTICE

Location and Width

Extend the riparian buffer from the normal water's edge or the top of the bank from 35 to 150 feet. Stabilize the bank by separate treatment where erosion or vertical cutting of the bank exists. See NRCS standard Streambank and Shoreline Protection, 580. The minimum riparian buffer width should be approximately 30% of the floodplain width, but never less than 35 feet.

- **Zone 1** is in the channel from the water line or at the top of the bank extending 15 feet, measured horizontally. This is the area most susceptible to erosion. Shrubs are most desirable when Zone 1 is within the channel banks.
- **Zone 2** should be at least 20 feet wide measuring from the edge of Zone 1. The combined width of both zones 1 and 2 should be 35 to 100 feet.
- **Zone 3** is adjacent to Zone 2 and may be planted in a grass or grass/legume mixture to provide additional wildlife habitat, reduce concentrated flow, and decrease erosion. The filter strip also protects seedlings from sedimentation. Follow native grass-based options for Zone 3 unless addressing soil erosion.

Tree/shrub Establishment

Planting guides are available from the Tennessee Department of Agriculture, Division of Forestry.

Site Preparation – Deaden competing vegetation in at least a 3-foot diameter around each tree/shrub planting site. Any whole fields or portions of fields that contain introduced sod grasses (e.g. fescue, Bermudagrass) will be controlled with herbicide in their entirety before plantings. Simply spraying the row or area for planting is not sufficient. Use only chemicals approved for application near water bodies. (See NRCS standard Tree and Shrub Site Preparation, 490).

Cuttings – Should be 0.5 to 1.5 inches in diameter and 2 to 3 feet long. Remove branches from the cutting. Place cuttings in water until planted. Drive angled cuttings with a rubber-headed mallet into a pilot hole. Willow and silky dogwood cuttings are two species which have proven to have high survival rates in Tennessee.

Seedlings – When possible, plant materials and seed should be from within a 150-mile radius of the planting site. Keep seedlings in a moist, cool environment until they are planted.

Protect seedlings from sun and wind during shipping and the planting operation. Keep seedling roots moist during transportation, storage, and during the planting operation. Seedlings should be planted immediately after delivery. If planting will be delayed for more than 5 days, place them in cold storage at 35 to 45 degrees F. If cold storage is not available, heel-in seedlings. Spread roots against the back of a trench that is slightly deeper than the root system. Cover roots with soil and tamp the soil firmly to eliminate air space.

Place plants in a hole or slit of sufficient depth and width to fully accommodate the root system in its natural form and position. Set seedlings deep enough that the root collar is at or slightly below ground level. Pack soil firmly around the roots.

At the time of planting, it is recommended that a branch of the seedlings be flagged or marked to help monitor growth and coordinate maintenance.

Spacing (feet by feet)

	Trees	Shrubs
Zone 1	8 x 8	4 X 4
Zone 2	8 to 12 x 8 to 12	4 to 8 x 4 to 8

Tree/shrub Species – Plant only native species that provide multiple benefits for wildlife and water quality. Zone 1 and Zone 2 shall consist of at least three hard mast species per zone. In tree plantings, one of the hard mast species must be from the red oak family and one must be from the white oak family. Rows may contain the same species but shall not exceed a maximum of one consecutive row of the same species. To achieve optimum interspersation, plant at least 2 species per row alternating species within the row.

Planting Dates

Plant trees/shrubs between November 1 and April 1.

OPERATION AND MAINTENANCE

Mow, disk, treat with herbicide, or perform prescribed burning to control competitive vegetation prior to planting.

When using chemicals to control vegetation, read and follow label directions.

Fences may be necessary to exclude livestock and vehicle traffic. Inspect fences periodically, especially after flooding events.

No harvesting should be done in Zone 1 except for the periodic cutting and removal of trees with 30 degrees or greater lean on streambanks.

Zone 2 may be managed for selective timber harvest and other productive uses.

Any harvesting of trees should be done without degrading the buffer zone.

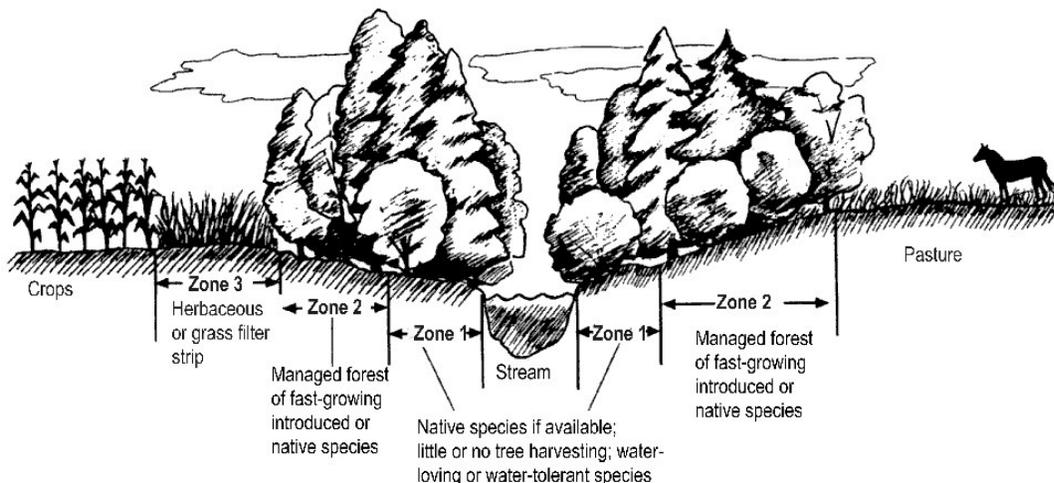
Complementary NRCS Practices

- Fence, 382
- Grade Stabilization Structure, 410
- Prescribed Grazing, 512
- Streambank and Shoreline Protection, 580
- Stream Crossing, 578
- Use Exclusion, 472

The following table lists some species commonly found in regions of West, Middle and East Tennessee. The table notes if the species are suitable for Zone 1 or 2.

PLANT SPECIES	West TN	Middle TN	East TN		PLANT SPECIES	West TN	Middle TN	East TN
Bald Cypress*	1, 2				Silky Dogwood*	1,2	1	1
Black Willow*	1,2	1			Swamp Chestnut Oak*	1,2		
Cherrybark Oak	1,2	1,2			Swamp White Oak*	1,2	2	1,2
Elderberry*		1,2	1,2		Tulip Poplar		2	2
Nuttall Oak	1,2				Water Oak	1,2		
Pin Oak*	2	2	2		Willow Oak*	1,2		

*Medium to High flood tolerance



Land User: _____ County: _____ Date: _____ Farm No.: _____ Tract No.: _____

Assisted By: _____

LOCATION						TREE/SHRUB SPECIES				HERBACEOUS SPECIES			
Tract No.	Field No.	Zone ¹	Width ²	Length	Ac.	Tree/Shrub Species	Spacing (Ft.)	Trees per Acre	Total Number Trees	Grass/Legume	Seeding Rate ^{3/} (/Ac)	Total Seed (Lbs/Oz)	Planting Date

1/ Zone 1, 2, 3 and designate cardinal direction from watercourse/waterbody. 2/ Width of existing trees not included. 3/ Seeding rates are based on a Pure Live Seed (PLS) basis.

Additional Notes:

Landowner Signature: _____ Date: _____

Conservation Planner: _____ Date: _____