NRCS Natural Resources Conservation Service

Riparian Forest Buffer

Conservation Practice WV Job Sheet *Code 391*

Definition

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

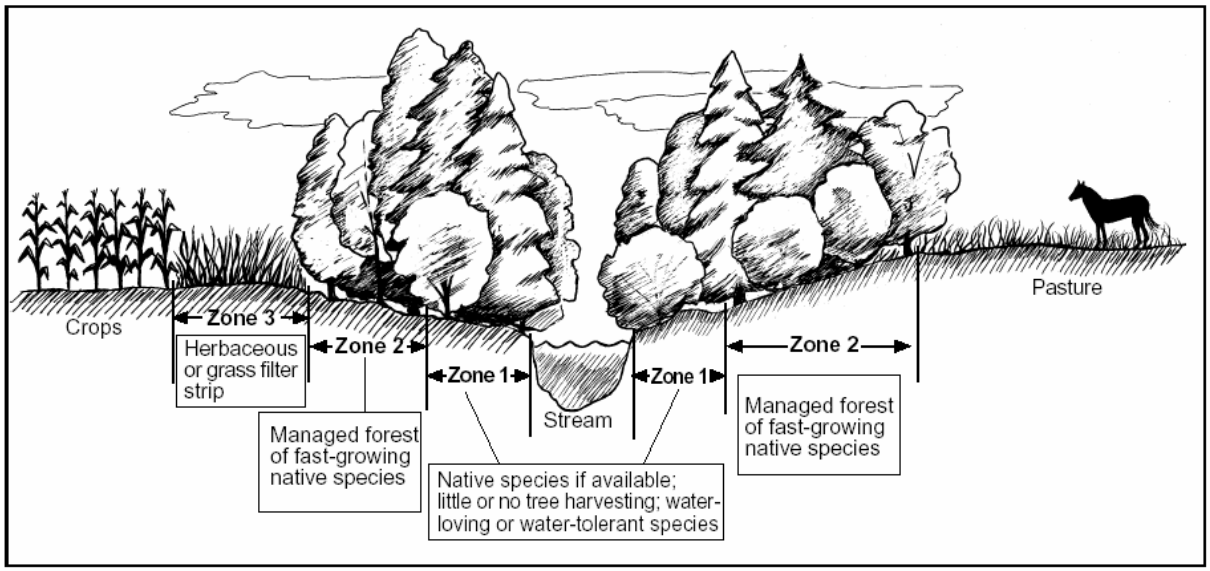
Purpose

Riparian forest buffers start at the top of the streambank. They should be of sufficient width to intercept sediment, nutrients, pesticides, and other materials in surface runoff and reduce nutrients and other pollutants in shallow subsurface water flow. Woody vegetation in buffers provides food and cover for wildlife, helps lower water temperatures by shading the waterbody, and slows out-of-bank flood flows. In addition, the vegetation closest to the stream or waterbody provides litter fall and large woody debris important to aquatic organisms. Also, the woody roots increase the resistance of streambanks and shorelines to erosion caused by high water flows or waves. Some species established or managed in a riparian forest buffer can be managed to provide timber, wood fiber, and horticultural products.

Riparian forest buffers are normally established concurrently with other practices as part of a resource management system. In most cases, a riparian area may consist of several different component practices such as fencing, tree and shrub planting, stream crossings and water developments. In some cases, eroding streambanks or shorelines will need to be stabilized before or in conjunction with the establishment of the riparian buffer.

Considerations for Wildlife

Riparian forest buffers provide critical habitat for many types of wildlife because of their diverse plant communities, complex structure, and close proximity to water. Wildlife may be permanent residents of the riparian area or occasional visitors that use the area for food, water, connective corridors or temporary shelter. Although riparian areas can support many types of wildlife, the importance of a particular riparian area will depend on the surrounding land uses, the vegetation and animal populations present. Selection of planting material should be based on wildlife needs for food, cover and shelter for a variety of species.



A riparian forest buffer includes a zone 1, the area closest to the stream or waterbody, and a zone 2, the area adjacent to and up gradient of zone 1. Trees and shrubs in zone 1 provide important wildlife habitat, litter fall for aquatic organisms, large wood that can fall into the stream or waterbody, and shading to lower water temperature. This zone also helps stabilize streambanks and shorelines. Trees and shrubs in zone 2 (along with zone 1) intercept sediment, nutrients, pesticides, and other pollutants in surface and subsurface water flows. Zone 2 can be managed to provide timber, wood fiber, and horticultural products. A third zone, zone 3, is established if periodic and excessive water flows, erosion, and sediment from adjacent upslope fields are anticipated. Zone 3 generally consists of herbaceous plants or grasses and a diversion or terrace, if needed.

Considerations for Establishment

Riparian forest buffers may be established through either natural regeneration or tree and shrub planting. A number of factors must be evaluated before determining which method is appropriate for a particular site including:

- The quality and spacing of seed trees
- Condition of existing seed bed
- Landowner objectives
- The potential effects of wildlife browsing
- The potential of invasive species to interfere with the purpose of the buffer
- Cost
- Soil type

Site preparation may be necessary for planting or natural regeneration. It should be done at a time and manner to insure survival and growth of selected species.

When planting trees and shrubs, select native species that are adapted to the site. Hardwood species should be the predominant species in riparian buffers. Select species that have multiple values such as those suited for timber, biomass, nuts, fruit, browse, nesting and aesthetics. In areas where wildlife browse may be a problem, appropriate protection measures will be required.

Operation and Maintenance

Excessive water flows and erosion must be controlled upslope of the riparian forest buffer. In all cases the riparian forest buffer must be protected from grazing.

As the buffer matures, periodic harvesting of some of the trees becomes an important activity for maintaining plant health and buffer function. Forest management activities should not interfere with the planned function of the buffer.

Activities that result in the removal or disturbance of vegetation and leaf litter should be avoided.

Specifications

Site-specific requirements are listed on the following pages of this job sheet. Specifications are prepared in accordance with the WV NRCS Field Office Technical Guide. If site preparation is necessary see the WV conservation practice standard for Forest Site Preparation, code 490 for specific requirements.

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Client:	**Farm #:**
Field(s):	**Tract #:**
Designed By:	**Location:**
Date:	**Total Acres:**

Purpose (check all that apply)	
☐ Reduce excess sediment, organic material, nutrients, pesticides in surface runoff and excess nutrients/chemicals	☐ Provide a harvestable crop of timber, fiber, forage, fruit, or other tree-related crops consistent with other purposes
☐ Create wildlife habitat and establish wildlife corridors	☐ Provide protection or enhancement of aquatic resources

Is this buffer associated with the Conservation Reserve Program (CRP) or the Conservation Reserve Enhancement Program (CREP) ☐ **YES** ☐ **NO**	If YES, refer to the Riparian Buffer Management/Maintenance Job Sheet Supplement for additional information.

Layout

Water body/course type and name/location: _____

Floodplain Width (ft): _____

Minimum buffer zone widths (ft) – specify left and right of stream facing upstream. Use left only for water bodies, such as lakes and ponds. In addition to the combined widths of Zones 1 and 2, a 20 foot wide Zone 3 consisting of perennial sod/herbaceous cover may be maintained or established along the inside of any planned or existing fence. Include herbaceous species in zone 3 notes or refer to other jobs sheets.

Zone 1	**Zone 2**	**Zone 3**
Left: Ft. Right: Ft.	Left Ft. Right: Ft.	Left: Ft. Right: Ft.
Notes:	Notes:	Notes:
Total Buffer Length (ft)		

Tree and Shrub Information

Desired Species:	**Establishment Method** [1]	**Seed Source Present**	**Planting Arrangement** [2]	**Site Preparation Necessary** [3]
Zone # 1				
1				
2				
3				
4				
Zone # 2				
1				
2				
3				
4				

[1] **Establishment Method**: Planting or Natural Regeneration; if planting is the chosen method of establishment refer to the WV Conservation Practice Standard (612) Tree/Shrub Establishment and their associated job sheet(s).

[2] **Planting Arrangement:** N/A, Linear, Clump, or Interplanting; for additional planting information establishment refer to the WV Conservation Practice Standard (612) Tree/Shrub Establishment and their associated job sheet(s).

[3] **Site Preparation Necessary:** If yes, refer to the WV Conservation Practice Standard (490) Forest Site Preparation and associated job sheet(s).

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Additional Specifications and Notes: (i.e. site conditions prior to establishment, operation and maintenance specifics, etc.)

Questions regarding the planting or maintenance of the tree/shrub establishment should be directed to:

_____ **at**_____

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