

## NATURAL RESOURCES CONSERVATION SERVICE

### CONSERVATION PRACTICE STANDARD

#### RIPARIAN HERBACEOUS COVER

(Acre)

#### CODE 390

#### DEFINITION

Grasses, grass-like plants, and forbs that are tolerant of intermittent flooding or saturated soils and that are established or managed in the transitional zone between terrestrial and aquatic habitat.

plant community is dominated by native herbaceous vegetation that is tolerant of periodic flooding or saturated soils.

Along watercourses or on the fringe of water bodies where the plant community is dominated by herbaceous vegetation because the establishment of woody vegetation is not in keeping with the landowner's objectives.

#### PURPOSE

To provide the following functions:

- Provide habitat (food and shelter) for aquatic and terrestrial organisms.
- Improve and protect water quality by reducing the amount of sediment and other pollutants, such as pesticides, organics, and nutrients, in surface runoff as well as nutrients and chemicals in shallow ground water flow.
- Help stabilize streambanks and shorelines.
- Serve as corridors to provide landscape linkages between existing habitats.
- Increase net carbon storage in the biomass and soil.

Where the natural plant community has changed or has been converted to cropland or introduced grasses, and a native herbaceous plant community will be established.

Where the herbaceous vegetative zone fails to meet the Filter Strip (393) standard based on plant densities or the lack of pollutants in runoff.

When the water body fringe or watercourse is not located on a field edge and the Field Border standard (386) is not applicable.

Where channel and streambank stability is adequate to support this practice.

#### CONDITION WHERE PRACTICE APPLIES

Areas adjacent to perennial or intermittent watercourses or water bodies where the

## CRITERIA

### General Criteria Applicable to All

#### Purposes

Select native perennial species that are adapted to site conditions and provide diversity, cover, and food for wildlife. Species selected should also provide a deep, binding root mass to strengthen streambanks and improve soil health.

Site hydrology, including duration of flooding and saturation, shall be evaluated in determining the most adaptive plant species selected for establishment.

Protect and enhance riparian vegetation and water quality by reducing the use of that vegetation for haying and grazing until the desired plant community is well established. A plan for limited livestock grazing or haying will be designed to protect and enhance established and emerging vegetation, streambank stability, and wildlife habitat.

Harmful pests present on the site will be controlled or eliminated, as necessary, to achieve and maintain the intended purpose. No plant listed as “rank 1” by the Tennessee Exotic Pest Plant Council shall be established on the site.

Necessary site preparation and planting shall be done at a time and manner to ensure survival and growth of selected species. Only viable, high-quality, and adaptive seed will be used. Site preparation shall be sufficient for establishment and growth of selected species, and be done in a manner that does not compromise the intended purpose. Refer to Tennessee’s “Native Warm Season Grasses Establishment” Job Sheet.

Riparian widths will vary depending on the requirements of wildlife species and associated environmental concerns.

Minimum width per side shall include the first bench of the floodplain, or at least 1.5 times the stream width (based on the horizontal distance between bank full elevations). Minimum width for water bodies shall be 15 feet.

Existing underground functional drains shall be replaced with rigid, non-perforated pipe through the buffer or equipped with a management regulating structure to allow control of overflow.

Facilitating practices may include, but are not limited to:

Streambank and Shoreline Protection (580)

Stream Channel Stabilization (584)

Fence (382)

Riparian Forest Buffer (391)

Pasture and Hay Planting (512)

Upland Wildlife Habitat Management (645)

Filter Strip (393)

Use Exclusion (472)

Prescribed Grazing (528)

### Additional Criteria for Wildlife Food and Cover

The minimum required width to provide habitat for reptiles and amphibians dependent on the water body is 50 feet (one side of stream channel from top of bank).

The minimum required width to provide habitat and corridors for terrestrial wildlife (avian and large mammals) is 100 feet (one side of stream channel from top of bank).

The plant communities established will target wildlife needs, existing resources in

the watershed, and local management objectives. Refer to the Upland Wildlife Habitat Management standard (Code 645), job sheets, and technical notes to determine wildlife needs for target species.

The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and associated upland native plant communities.

If mowing is necessary to maintain cover, it will occur outside the primary nesting season of April 15 to August 15 and allow for adequate re-growth for winter cover.

#### **Additional Criteria to Protect or Improve Water Quality**

The minimum required width shall be 2.5 times the stream width (based on horizontal distance between bank full elevations). For water bodies, the minimum width shall be 35 feet. For streams, the stated width is for one side of the channel.

Channel and streambank stability shall be addressed prior to or in conjunction with the installation of this practice.

Concentrated flow erosion or mass soil movement shall be controlled in the up-gradient area prior to establishment of the riparian herbaceous cover.

The native or natural plant community shall be managed and maintained in a manner that controls erosion and maintains water quality.

Alternative water sources or controlled access stream crossings shall be implemented as necessary to protect water quality.

#### **Additional Criteria to Stabilize Streambanks and Shorelines**

Select native plant species that provide a deep, binding root mass to strengthen streambanks and improve soil health.

#### **Additional Criteria to Provide Corridors and Connect Landscapes**

Riparian zones shall connect with existing native plant communities to facilitate wildlife movement and improve access to additional available habitat.

#### **Additional Criteria to Increase Net Carbon Storage in the Biomass and Soil**

Maximize width and length of the riparian buffer to fit the site.

Plant species used will have the highest rate biomass production for the soil and other site conditions, consistent with meeting fish and wildlife habitat requirements for the site.

### **CONSIDERATIONS**

Considerations should be given to how this practice will provide riparian habitat and linkage to other habitats. This should include minimizing gaps and maximizing connections with other existing landscape features such as abandoned fields, wetlands, rare habitats, and non-riparian buffers such as field borders. However, habitat connection may not be desirable for isolated areas containing rare species.

When considering wildlife, increase the width to reduce predation impacts. Narrower zones may become "sinks" where mortality exceeds reproduction.

Minimize the driving of farm equipment through the site.

Target riparian buffer restoration on a watershed basis to address habitat fragmentation, connectivity, and provide corridors for wildlife by maintaining continuous native streamside vegetation.

Select plant species that provide multiple benefits such as biomass, nesting, aesthetics, and tolerance to locally used herbicides. The inclusion of forb species (broad-leaf plants) in mixture with grasses will increase the nesting value for grassland birds.

For first- and second-order streams, consider selecting taller varieties over shorter varieties of native grasses to provide more shade and buffering of stream temperatures. Modification of stream temperatures will be negligible in all cases.

This practice should not be used in lieu of the Riparian Forest Buffer (Code 391) standard when buffering of stream temperatures is desired, especially cold-water streams.

Avoid plant species that may be alternate hosts to undesirable pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

The location, layout, and density of the buffer should complement natural features.

Corridor configuration, species planted, and management should enhance habitats for threatened, endangered, and other species of concern, where applicable.

All maintenance operations should be completed outside the primary nesting season of April 15 to August 15 each year

even when wildlife is not the intended purpose.

Maintenance may include periodic mowing, light disking, prescribed burning, grazing, or haying. Mowing should be the least desirable due to the accumulation of duff that can damage the plant community. Mowing and grazing height should be to a minimum of 8-12 inches. Mowing should be once each year or less. To increase diversity, perform maintenance practices on only part of the area each year and rotate to another part the following year.

## **PLANS AND SPECIFICATIONS**

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

## **OPERATION AND MAINTENANCE**

The purpose of operation, maintenance, and management is to ensure that the practice functions as intended over time.

The riparian area will be inspected periodically and protected from adverse impacts such as excessive vehicular and pedestrian traffic, pest infestations, pesticide use on adjacent lands, livestock damage, and fire.

As applicable, erosion control measures shall be continued in the up-gradient area to maintain riparian function.

Any use of fertilizers, pesticides, and other chemicals within or adjacent to the site to assure riparian area function shall not compromise the intended purpose.

Trees and shrubs must be controlled to prevent dominance of the riparian zone and maintain openness in the system.

## REFERENCES

Dillaha, T. A., J. H. Sherrard, D. Lee, S. Mostaghimi, V. O. Shanholtz. 1988.

Evaluation of Vegetative Filter Strips as a Best Management Practice for Feed Lots. "Journal of the Water Pollution Control Federation" 60(7): 1231-1238.

Dillaha, T. A., R. B. Reneau, S. Mostaghimi, D. Lee. 1989. Vegetative Filter Strips for Agricultural Nonpoint Source Pollution Control. Transactions of the ASAE 32(2): 513-519.

Magette, W. L., R. B. Brinsfield, R. E. Palmer and J. D. Wood. 1989. *Nutrient and Sediment Removal by Vegetated Filter Strips*. Transactions of the ASAE 32(2): 663-667.

Partners in Amphibian and Reptile Conservation. 2002. Habitat Management Guidelines for Amphibians and Reptiles of the Midwest. 57 p.

Poole, G. C., and C. H. Berman. 2000. Pathways of Human Influence on Water Temperature Dynamics in Stream Channels. U.S. Environmental Protection Agency, Region 10, Seattle, WA. 20 p.

Schultz, R. C., J. P. Colletti, T. M. Isenhardt, W. W. Simpkins, C. W. Mize, and M. L. Thompson. 1995. *Design and placement of a multi-species riparian buffer strip*. Agroforestry Systems 29:201-225.

Southeast Exotic Pest Plant Council. May 2001. Report from the Tennessee Exotic Pest Plant Council. 6 p. <http://www.se-eppc.org/>

Thompson, Jennifer N. and Don L. Green. 1994. Riparian Restoration and Streamside Erosion Control Handbook. Nonpoint Source Water Pollution Management Program for the State of Tennessee. 74 p.

USDA Natural Resources Conservation Service. National Biology Handbook, Part 614.4. 1999. Conservation Corridor Planning at the Landscape Level. 139 p.

USDA, Natural Resources Conservation Service. National Engineering Handbook, Part 653. 1998. Stream Corridor Restoration: Principles, Processes, and Practices. 483 p.

Vought, L. B.-M., J. Dahl, C. L. Pedersen and J. O. Lacoursiere. 1994. *Nutrient Retention in Riparian Ecotones*. *Ambio* 23(6): 343-348.

Wenger, Seth. 1999. *A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation*. Institute of Ecology. University of Georgia. 59 p.