

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

RIPARIAN HERBACEOUS COVER

(Ac.)

CODE 390

DEFINITION

Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.

PURPOSE

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes

- Provide or improve food and cover for fish, wildlife and livestock,
- Improve and maintain water quality.
- Establish and maintain habitat corridors.
- Increase water storage on floodplains.
- Reduce erosion and improve stability to stream banks and shorelines.
- Increase net carbon storage in the biomass and soil.
- Enhance pollen, nectar, and nesting habitat for pollinators.
- Restore, improve or maintain the desired plant communities.
- Dissipate stream energy and trap sediment.
- Enhance stream bank protection as part of stream bank soil bioengineering practices.

CONDITIONS WHERE PRACTICE APPLIES

Areas adjacent to perennial and intermittent watercourses or water bodies where the natural plant community is dominated by herbaceous vegetation that is tolerant of periodic flooding or saturated soils. For seasonal or ephemeral watercourses and water bodies, this zone extends to the center

of the channel or basin.

Where channel and stream bank stability is adequate to support this practice.

Where the riparian area has been altered and the potential natural plant community has changed.

This practice does not apply to:

- Woody establishment in riparian areas for which the conservation practice standard (391) Riparian Forest Buffer is applicable
- Plantings for which the primary purpose is to remove pollutants from runoff and wastewater where conservation practice standard (393) Filter Strip or (635) Vegetated Treatment Area apply.

CRITERIA

General Criteria Applicable to All Purposes

The location, layout, and width of the buffer will be selected to accomplish the intended purpose and function.

The minimum width of riparian herbaceous buffer is 30 feet or 1.5 times the width of the stream (based on the horizontal distance between bank-full elevations) whichever is greater; and a minimum of 15 feet for water bodies. The maximum width of the riparian herbaceous buffer is 120 feet. The width of the buffer or any portion of it may be increased to the maximum when it is determined by the planner that additional width is needed to fully address on-site resource conditions.

Determine the width of the riparian herbaceous cover planting based on the geomorphic potential of the site and project purposes,

including the life history requirements of local fish and wildlife species, including pollinators.

Where available, use Ecological Site Description to guide restoration to appropriate vegetative community phase and include appropriate vegetative functional groups.

Select perennial plants that are adapted to site and hydrologic conditions and provide the structural and functional diversity preferred by fish and wildlife likely to benefit from the installation of the practice.

In areas where native seeds and propagules are present, natural regeneration can be used in lieu of planting. Planting is required in Kentucky unless determined in coordination with an NRCS state specialist that sufficient native seed bank is present.

Vegetation shall be established according to the species and rates in (327) Conservation Cover. Establish forb mixtures as part of a native grass planting according to the appropriate tables in that standard. Select species from these tables based on planning objectives.

Protect riparian vegetation and water quality by reducing or excluding haying and grazing until the desired plant community is well established.

Stream type and site hydrology must be considered. Selected plant species must be adapted to the projected duration of saturation, expected flood velocities and inundation of the site.

Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose.

Pest management will be conducted in a manner that mitigates impacts to pollinators.

Management systems applied will be designed to maintain or improve the vigor and reproduction of the desired plant community.

Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species. Only

viable, high quality and site-adapted planting stock will be used.

When the hydrology of the site has been altered by subsurface drainage sufficiently to affect the intended plant community; any existing underground functional drains that pass through the buffer shall be replaced with rigid, non perforated pipe or equipped with a management regulating structure to allow control of overflow and restoration of intended hydrologic regime.

Domestic grazing should be deferred for a minimum of two years or until such time as the desired plant community is established.

Additional Criteria to Maintain or Improve Water Quality and Quantity

Minimum width shall be increased to 2.5 times the average stream width (based on the horizontal distance between bank-full elevations) up to 120' wide. Minimum width for this purpose shall be increased to 35 feet for water bodies. Concentrated flow erosion or mass soil movement shall be controlled in the up gradient area prior to establishment of the riparian herbaceous cover.

Species selected shall have stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain.

Additional Criteria to Stabilize Streambanks and Shorelines

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

Additional Criteria for Increasing Net Carbon Storage in Biomass and Soils

Maximize width and length of the herbaceous riparian cover to fit the site.

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

Additional Criteria for Pollinator Habitat

Riparian herbaceous buffers intended to benefit pollinators shall be a minimum of 0.5 acres in size.

Include native forbs and legumes that provide pollen and nectar for native pollinators. Utilize a diverse mix of plant species that bloom at different times throughout the year.

A minimum of 10 species shall be established which include at least one native grass or sedge. Of the ten species utilized, a minimum of three species shall be established in each of the bloom periods of very early and/or early, mid and late season. Note that very early and early may constitute one blooming period. Refer to (327) Conservation Cover for establishment and species/mixes.

Additional Criteria for Terrestrial Wildlife

When wildlife habitat is the primary objective a predominance of native species adapted to the site shall be utilized. Cool season or other non-native and/or introduced forage species shall not be utilized without concurrence from the NRCS state staff specialist.

Buffer widths may be increased up to the 120' maximum based on target species needs.

Density of the vegetative stand established for this purpose shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity.

If mowing is necessary to maintain herbaceous cover it will occur outside the nesting and fawning season and allow for adequate re-growth for winter cover. The primary nesting season for Kentucky is May 15th to August 1st.

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

If riparian herbaceous cover is used in conjunction with conservation practice standard (391) Riparian Forest Buffer (upslope herbaceous component), the minimum width shall be 30 feet in addition to the minimum width of the forest riparian buffer.

Additional Criteria for Restoring Desired Plant Community

Use Ecological Site Description (ESD) State and Transition models, where available, to determine if proposed actions are ecologically sound and defensible. Treatments need to be congruent with dynamics of the ecological site(s) and keyed to states and plant community phases that have the potential and capability to support the desired plant community. If an ESD is not available, base design criteria on best approximation of the desired plant community composition, structure, and function.

CONSIDERATIONS

Selection of native plant species is preferred. All selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

Other conservation practices that may facilitate the establishment of this practice or enhance its performance include:

- Stream Habitat Improvement and Management – (395)
- Streambank and Shoreline Protection – (580)
- Fence – (382)
- Forage and Biomass Planting – (512)
- Access Control – (472)
- Prescribed Grazing – (528)
- Brush Management – (314)
- Herbaceous Weed Control – (315)
- Heavy Use Area Protection – (561)
- Critical Area Planting – (342)
- Riparian Forest Buffer – (391)
- Early Successional Habitat Development and Management – (647)
- Conservation Cover – (327)
- Restoration and Management of Rare and Declining Habitat – (643)
- Stream Crossing – (578)
- Watering Facility – (614)

Considerations should be given to how this practice will complement the functions of adjacent riparian, terrestrial and aquatic habitats.

Consider the effects of upstream and downstream conditions, structures, facilities, and constraints on the planned activities.

Control of invasive trees and shrubs may be required to prevent dominance of the riparian zone by woody plants and maintain openness in riparian system.

Establish alternative water sources or controlled access stream crossings to manage livestock access to the stream and riparian area.

Selection of native plant species is recommended. Introduced species may be used. All selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

Herbaceous riparian areas can function to link pollinators with adjacent fragmented habitat, and can serve as a conduit to move pollinators into areas requiring insect pollination. Different flower sizes and shapes appeal to different categories of pollinators. To support many species, consider establishing the greatest diversity possible. Consider incorporating nesting habitat, including patches of unshaded bare soil for ground nesting bees or where bumble bee conservation is a priority, clump forming warm-season native grasses.

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

The location, layout and vegetative structure and composition of the buffer should complement natural features.

Corridor configuration, establishment procedures and management should enhance habitats for threatened, endangered and other plant or animal species of concern, where applicable.

Use plant species that provide full ground coverage to reduce particulate matter

generation during establishment and maintenance operations.

PLANS AND SPECIFICATIONS

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

The following should be identified within riparian herbaceous buffer specifications (as appropriate):

- purpose of buffer
- size of planting including the width, length and total acres
- planted species selection and rates
- site preparation including any competition suppression methods
- required soil amendments
- method of establishment
- planting date(s)
- vegetation protection measures
- any required permits
- operation and maintenance provisions

OPERATION AND MAINTENANCE

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

The riparian area will be inspected periodically in order to detect adverse impacts and make adjustments in management to maintain the intended purpose.

Control of concentrated flow erosion or mass soil movement shall be continued in the up-gradient area to maintain riparian function.

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

Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose.

To protect pollinators and maintain habitat with a diversity of plant structure, a third or less of the site should be disturbed (mowed, grazed, burned, etc.) each year, allowing for recolonization of pollinators from surrounding habitat.

Pest management will be conducted in a manner that mitigates impacts to pollinators.

Avoid haying or grazing when streambanks and riparian areas are vulnerable to livestock or mechanical damage.

If mowing is necessary to maintain herbaceous cover, it will occur outside the nesting and fawning season and allow for adequate re-growth for winter cover.

Following the establishment period, a plan for limited livestock grazing based on the carrying capacity of the area or haying and mowing may be designed to protect and enhance established vegetation, stream bank stability or wildlife habitat. Timing of haying or grazing will avoid periods when streambanks are saturated and vulnerable to livestock or mechanical damage. This plan will insure that livestock are excluded from the stream during critical periods for aquatic species; and where wildlife is a primary concern, during critical nesting seasons (May 15th to August 1st). Refer to conservation practice standard (528) Prescribed Grazing or (511) Forage Harvest Management for additional information.

Management systems will be designed and applied to maintain or improve the vigor and reproduction of the desired plant community, e.g., the riparian functions and values.

Additional operation and maintenance specifications may be required on a site specific basis to maintain the intended purpose of the practice.

REFERENCES

FISRWG (Federal Interagency Stream Restoration Working Group). 1998. Stream Corridor Restoration: Principles, Processes and Practices. National Technical Information Service, U. S. Department of Commerce, Springfield, VA. Also published as NRCS,

U.S. Department of Agriculture (1998) *Stream Corridor Restoration: Principles, Processes, and Practices*. National Engineering Handbook (NEH), Part 653. Washington, D.C.

Fripp, J. B.; Hoag, J.C, and Moody, T. 2008. Streambank Soil Bioengineering: A Proposed Refinement of the Definition Riparian/Wetland Project Information Series No. 23.

Hoag, J.C. and J.B. Fripp. 2002. Streambank Soil Bioengineering Field Guide for Low Precipitation Areas, Interagency Riparian/Wetland Project. Plant Materials Center, USDA-NRCS, Aberdeen, ID.

Hoag, J.C., S.K. Wyman, G. Bentrup, L. Holzworth, D.G. Ogle, J. Carleton, F. Berg, and B. Leinard. 2001. USDA-NRCS, Boise, ID and Bozeman, MT. [Technical Note 38: Users Guide to the Description, Propagation, and Establishment of Wetland Plant Species and Grasses for Riparian Areas in the Intermountain West](#). (PDF; 6.3 MB)

Leopold, Luna.1994. A View of the River. Harvard University Press. Cambridge, MA.

Naiman, R.J., N. Decamps, M. E. McClain. 2005. Riparian Ecology, Conservation, and Management of Streamside Communities. Elsevier Academic Press, Burlington, MA.

Rosgen, David 1994. A Classification of Natural Rivers. *Catena* 22:169-199

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.ts.

United States Department of Agriculture, Natural Resources Conservation Service. 2008. General Manual: Title 190 – Ecological Sciences: Part 404 – Pest Management... Washington, DC.

United States Department of Agriculture, Natural Resources Conservation Service. 2003. National Range and Pasture Handbook. Washington, DC.

http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_for_Pollinator_Conservation.pdf

Agroforestry Notes on supporting pollinators
(General 6, 7, 8 and 9):

<http://www.unl.edu/nac/agroforestrynotes.htm>