NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

RIPARIAN HERBACEOUS COVER

(Acre)
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 natural or native plant community has changed.

CRITERIA

General Criteria Applicable to All Purposes

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 if no native seed bank is present. Use Range Planting, Code 550 for establishing native grasses, forbs, and grass-like vegetation, and Forage & Biomass Planting, Code 512 for establishing acceptable introduced species. Where needed, use Critical Area Planting, Code 342 for planting specifications.

Necessary site preparation and planting shall be done at a time and manner to ensure

survival and growth of selected species. Select viable, high quality and adapted planting stock.

Site preparation shall be conducted sufficiently for establishment and growth of selected species and be done in a manner that does not compromise the intended purpose.

Control or eliminate harmful pests present on the site, as necessary, to achieve and maintain the intended purpose.

Conduct pest management in a manner that mitigates impacts to pollinators; refer to Florida NRCS conservation practice standard Integrated Pest Management, Code 595.

Protect riparian vegetation and water quality by reducing or excluding haying and grazing until the desired plant community is well established. Domestic livestock grazing should be deferred for a minimum of two growing seasons or until such time as the desired plant community is established.

Design management systems to maintain the vigor and reproduction of the desired plant community. When applying haying or grazing, prescribe practice during periods when streambanks are not saturated and vulnerable to livestock trampling or mechanical damage. Annual livestock forage inventory and annual grazing management plan will be designed to protect established and emerging vegetation, stream bank stability, wildlife habitat and aquatic species; refer to Prescribed Grazing, Code 528.

Use ecological site description, 26 Ecological Communities of Florida, FNAI Guide to the Natural Communities of Florida, Edition 2010 to guide restoration to appropriate vegetative community phase and include appropriate vegetative functional groups.

Riparian widths will vary depending on the requirements of wildlife species, intended purpose and associated environmental concerns. Minimum width per side shall include the first bench of the floodplain or be at least 1.5-times the stream width (based on the horizontal distance between bank-full elevations or 15 feet for water bodies).The following widths are for a single side beginning at the edge of the normal low flow channel.

Riparian Herbaceous Width Criteria:

Primary Purpose	Minimum	Maximum
Water Quality	35’ or 2.5X stream width	150’
Bank Stabilization	35’ or 2.5X stream width	100’
Wildlife Habitat	100’	300’

Existing underground functional drains that pass through these areas shall be replaced with rigid, non perforated pipe through the buffer or equipped with a management regulating structure to allow control of overflow. Use Structure for Water Control, Code 587.

Impact to cultural resources, wetlands, and Federal and State protected species shall be evaluated and avoided or minimized to the extent practical during planning, design and implementation of this conservation practice in accordance with established National and Florida NRCS policy, General Manual (GM) Title 420-Part 401, Title 450-Part 401, and Title 190-Parts 410.22 and 410.26; National Planning Procedures Handbook (NPPH) FL Supplements to Parts 600.1 and 600.6; National Cultural Resources Procedures Handbook (NCRPH); and The National Environmental Compliance Handbook (NECH).

Comply with applicable federal, state and local laws and regulations, during the installation, operation (including product harvesting), and maintenance of this practice.

Additional Criteria to Maintain or Improve Water Quality and Quantity

Control concentrated flow erosion or mass soil movement in the up-gradient area prior to establishment of the riparian herbaceous cover. Increase minimum widths to 2.5 times the stream width (based on the horizontal distance between bank-full elevations) or 35 feet for water bodies.

Manage and maintain the native or natural plant community to optimize functions of the riparian zone which control erosion and maintain water quality.

Select species with stiff stems and high stem density near the ground surface.

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 buffer to fit the site.

Select plant species with the highest rates of carbon sequestration and biomass production for the soil and other site conditions, consistent with meeting fish and wildlife habitat requirements for the site.

Additional Criteria for Pollinator Habitat

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

Additional Criteria for Terrestrial Wildlife

Select native plant species adapted to the site.

Incorporate plant diversity into and design management of the vegetative stand established for targeted wildlife habitat requirements and plant diversity.

Conduct mechanical or chemical disturbance of herbaceous or woody vegetation between September 15 and March 1 to accommodate wildlife nesting needs. 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.

Exceptions are allowed to maintain the health of the plant or ecological community being managed for the benefit of wildlife (e.g., mechanical or chemical control of undesirable vegetation during establishment or restoration of desirable vegetation or use of prescribed burning to mimic natural seasonal occurrence of fire).

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

Consider how this practice complements the functions of, and provides linkages with, adjacent riparian, terrestrial and aquatic habitats.

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

Consider habitat and wildlife objectives such as: habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors and native plant communities in the management plan.

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

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

Select plant species that are native and 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.

Avoid plant species which may be alternate hosts to undesirable pests. Consider species diversity to avoid loss of function due to species-specific pests.

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

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, shapes, and blooming seasons 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.

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

Use plant species that provide full ground coverage to reduce particulate matter generation during establishment and maintenance operations.

Establish alternative water sources or controlled access stream crossings to manage livestock access to the streamside vegetation.

Evaluate energy consumption when developing the conservation plan; plan and design practices in a manner that requires the least amount of energy to accomplish the desired outcomes.

Other conservation practices that may facilitate the establishment of riparian herbaceous cover or enhance its performance include:

- Streambank and Shoreline Protection – Code 580
- Stream Channel Stabilization – Code 584
- Fence – Code 382
- Riparian Forest Buffer – Code 391
- Forage and Biomass Planting – Code 512
- Range Planting – Code 550
- Filter Strip – Code 393
- Access Control – (472)
- Prescribed Grazing – Code 528
- Brush Management – Code 314
- Herbaceous Weed Control – Code 315
- Heavy Use Area Protection – Code 561
- Critical Area Planting – Code 342
- Riparian Forest Buffer - Code 391
- Early Successional Habitat Development and Management - Code 643
- Conservation Cover – Code 327
- Restoration and Management of Rare and Declining Habitat – Code 647
- Stream Crossing – Code 578
- Watering Facility – Code 614
- Upland Wildlife Habitat Management – Code 645
- Wetland Wildlife Habitat Management – Code 644

PLANS AND SPECIFICATIONS

Plans and specifications need to be in keeping with this standard and will describe the details adequately so the practice can be applied to meet intended purpose.

Plans for riparian herbaceous covers shall:

- be based on an assessment of watershed conditions that affect the physical, biological and chemical conditions of the water body and its riparian area,
- be based on an assessment of current water body and riparian conditions. Evaluate riparian widths, riparian vegetation, floodplain conditions, aquatic and terrestrial plant species present and habitat limitations,
- include a site map or sketch of current and planned conditions, and
- include approved specification sheets, job sheets and narrative statements.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan shall be prepared and provided to the

landowner to ensure that the practice functions as intended over time.

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

As applicable, control of concentrated flow erosion or mass soil movement will be continued in the up-gradient area to maintain riparian function.

Maintenance may include periodic mowing, light disking, chopping or prescribed burning. To increase diversity, perform maintenance on 1/3 to 1/2 of the area each year and rotate to another part the following year until each area is treated.

Be sure that use of fertilizer, pesticides and other chemicals to assure riparian area function will not compromise the intended purpose. Apply according to Florida NRCS conservation practice standards, Nutrient Management, Code 590 and Pest Management, Code 595.

REFERENCES

Florida Agronomy Field Handbook
Revised Universal Soil Loss Equation

Florida Erosion Control Handbook

National Biology Handbook, Part 613. November 2004. Conservation Corridor Planning at the Landscape Level. USDA-NRCS

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.

Guide to the Natural Communities of Florida, Florida Natural Areas Inventory (FNAI), 2010. http://www.fnai.org/pdf/nc/FNAI_NatComGuide_2010.pdf

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.

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. Isenhart, W.W. Simpkings, 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