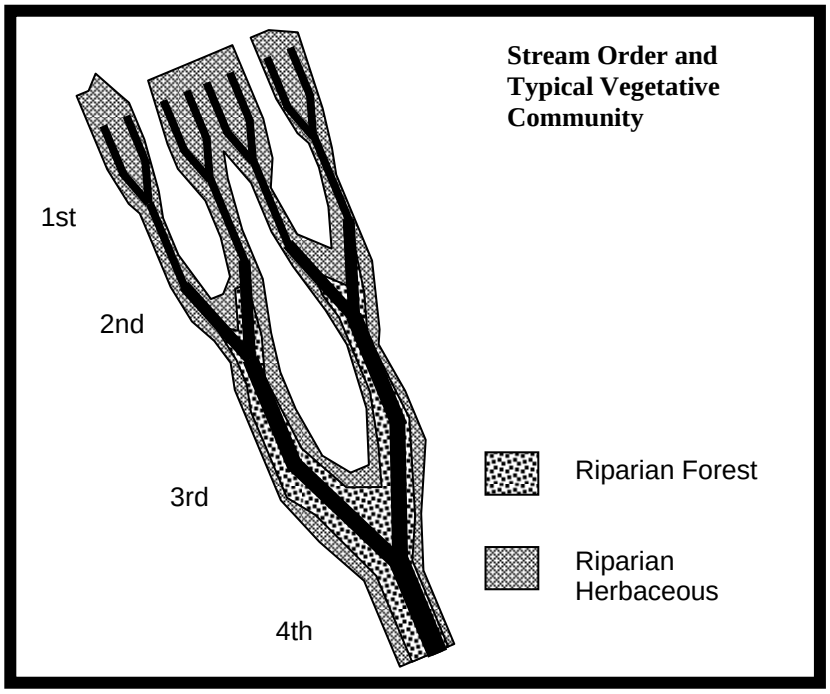
DESIGN, INSTALLATION, CHECK OUT AND DOCUMENTATION GUIDE

Riparian Herbaceous Cover - 390

Procedures, technical details, and other information listed below provide guidance for carrying out selected components of the named practice. **Items in bold font are required to meet the 390 Riparian Herbaceous Cover Standard.** This material is referenced from the conservation practice standard for the named practice and supplements the requirements and considerations listed therein.

General Design Parameters

The intended application of riparian herbaceous cover is adjacent to depressional, slope, and riverine wetland systems, lakes, and streams. The historic vegetative community (i.e., prairie or forest) surrounding these areas may determine the use of this specification. If the area was historically forested, the Riparian Forest Buffer (391) Standard and Specification may be preferred.



For riverine systems, this specification should be applied to upper reaches of watersheds (1st, 2nd, 3rd order streams). However application of this specification to 4th and 5th order streams (primarily forested) is not prohibited. This standard and specification may be installed in historically forested river corridors and managed to achieve natural regeneration of the forest plant community if desired.

The location, layout, width, length, and species selection for riparian herbaceous buffer will be designed to accomplish the intended purpose and function. The riparian herbaceous buffer will begin at the normal waterline or at the upper edge of the active channel and is measured horizontally on a line perpendicular to the water course or water body. **The minimum width will be 100 feet or 30 percent of the geomorphic floodplain whichever is less, but not less than 35 feet.**

Dominant vegetation will consist of existing natural or planted herbaceous cover suited to the site and the intended purpose. Reed canarygrass and creeping foxtail shall not be used due to invasive character and poor habitat value. **Plantings will consist of three or more native grass or sedge species and one or more forb species suited to the site. At least 50% of each planting mix (seed or propagule count) shall be rhizomatous or moderately rhizomatous grass or sedge species**. Plant species shall be selected based on their compatibility in growth characteristics and applicability to specific riparian functions.

Design Purpose

Wildlife Habitat and Corridors

The three design parameters that will have the most influence on wildlife utilization are location of the riparian herbaceous cover (connectivity to existing forest and grassland habitats), species selection, and width. Management objectives will dictate variations in design parameters.

When feasible, riparian herbaceous cover should be installed to provide corridors or linkages between existing forest and/or herbaceous habitats. Corridor connectivity will minimize travel distance between existing habitats providing food, cover, and shelter. Linking existing herbaceous habitats creates larger contiguous habitat blocks that reduce predator efficiency on ground-nesting birds.

Species selection, species composition (ex. grass/forb ratio), and management will determine the vertical cover of the stand (i.e., height and density). Each wildlife species has its own requirements. For example, dickcissels and ring-necked pheasants prefer grass-legume/forb mixtures whereas bobolinks prefer stands with a reduced forb component.

Design width, where wildlife is a primary concern, will be no less than 100 ft. This design width is a minimum; it will not meet all wildlife species requirements. Specifically, grassland passerines (songbirds) may have much greater width requirements.

Riparian herbaceous buffers designed to minimal widths will often function as “sinks.” They may provide suitable habitat to initiate nesting but the narrow width can increase mammalian predator efficiency, to the detriment of ground-nesting birds.

A general rule when planning riparian herbaceous cover for wildlife is that increasing cover width will have positive or neutral effects on all wildlife species.

Intercepting Direct Solar Radiation (reducing stream temperature)

In first and second order streams, temperature reduction can occur through direct stream shading. Select tall rhizomatous species such as big bluestem, prairie cordgrass, and switchgrass to maximize shading.

Riparian herbaceous buffers also reduce stream temperature indirectly by reducing ground temperature adjacent to streams, which in turn lowers runoff temperature. Ground temperatures are minimized most when there is complete groundcover with ½” to 1” of litter and live vegetative material.

Additionally, healthy riparian herbaceous corridors help to stabilize stream temperature by the increased infiltration rate of water into the soil profile. The soil profile acts as a “sponge” that slowly releases groundwater laterally into the stream. This slow release of relatively constant-temperature water helps regulate stream temperature throughout the year.

Management of the riparian herbaceous buffer is critical in providing optimum groundcover and plant health. Excessive removal through grazing, burning, or haying will result in minimal ground cover. Prolonged lack of removal will result in excessive litter accumulation that reduces grass vigor.

Improving Water Quality

Riparian herbaceous cover adjacent to first and second order streams will have greater influence on the overall water quality of a watershed than buffers occurring on higher order streams. Maintaining riparian herbaceous cover will limit tillage encroachment into wetlands and lakeshores and reduce sediment entering these systems. If sediment and contaminant removal is the primary purpose, refer to the Filter Strip Standard and Specification (393) found in FOTG - Section IV. The filtering efficiency of riparian herbaceous cover is dependent upon the run-on volume and sediment load, and the buffer width, slope, species character, and vegetation condition.

The filtering function occurs during sheet flow from the uplands; filtering efficiency is negligible when concentrated flow from the uplands or out-of-bank flow from the stream occurs. Filtering efficiency is reduced during high flows due to vegetation lying flat. This characteristic will have a positive impact on water quality by reducing scour erosion and resultant sediment load during out-of-bank flow events, but will filter little sediment from the water flowing over the grass.

Stability to Channel Bed and Stream Bank (erosion control)

Riparian herbaceous cover will reduce sedimentation to wetlands and lakes during runoff events and scour erosion along streams during out-of-bank flood events. For maximum protection select tall, rhizomatous grasses like switchgrass and prairie cordgrass. During flood events (out-of-bank flow) these grasses will lay over and effectively “shingle” the soil surface. During runoff events these grasses will stand erect, slowing water and filtering sediments.
Riparian herbaceous cover can often be utilized to stabilize wetland boundaries, stream banks, and channel beds on first and second order streams. Select deep-rooted species that can tolerate long periods of inundation. Good species for this purpose are the various wet meadow sedges. (Seed availability may be a problem. Transplanting of plugs is an effective alternative.) Prairie cordgrass and switchgrass would be the primary grass species to withstand repeated inundation and provide bank stability. Depending upon the situation, bank shaping may be necessary. Refer to Streambank and Shoreline Protection (580) Standard and Specification for design criteria.

In some situations bank erosion is a symptom of channel evolution. Channel evolution is the result of a combination of factors such as: contributing watershed, increased inflows due to drainage, reduced infiltration in the watershed or increased velocities due to reduction in flood plain area, channel straightening, or “hard” shoreline protection efforts. Depending on the stage of channel evolution (i.e., an active channel), bank stabilization practices may be ineffective and wasteful. In these situations, Riparian Herbaceous Cover can provide an area within which watercourses can evolve toward geomorphic stability (i.e., giving the stream space to establish a relatively stable channel with an appropriate gradient and sinuosity).

Installation

Selecting Species and Varieties

a. Determine the ecological (range) site based on field examination and soils data in Section II of the Field Office Technical Guide.

b. Refer to Section IV – Conservation Practices - Range Planting (550) Design, Installation, Check out and Documentation Guide, Table 1 for ecological (range) site recommended species and percent minimums and maximums.

c. Refer to Herbaceous Vegetation Establishment Guide found in FOTG Section I - Reference Subjects - Plant Materials subsection for approved named varieties and full seeding rates of native grasses, forbs, and sedges. Use named varieties when available.

Follow recommendations in Herbaceous Vegetation Establishment Guide for:

- Seeding dates (Part 1)
- Seedbed preparation (Part 2)
- Seeding equipment (Part 3)
- Drill Calibration (Part 4)
- Seed requirements (Part 5)
- Seeding depth (Part 6)
- Cover and companion crops (Part 7)
- Management and protection during establishment (Part 8)
- Guidelines for stand evaluation (Part 9)

Operation and Maintenance

O & M plan shall include the following;

- Specify the frequency of inspections and other actions needed during the initial establishment of the practice such as irrigation.
- Weeds shall be controlled to prevent competition with the planted vegetation.
- Insects shall be controlled to prevent damage to the planted vegetation.
- After the vegetation is established, inspect the site at least once annually, after runoff events that may erode the site, and after other events such as fire that may damage or impair the practice.
- Avoid vegetation/residue management activity during the nesting season (April 15 – August 1) unless necessary for the long-term health of the plant community.
- Avoid burning after September 1 to allow regrowth before frost, ujless necessary for the long-term health of the plant community.
- Complete any needed repairs effectively and promptly

- Cite the appropriate facilitating conservation practices that are required to maintain the practice:

  _____Fence – 382
  _____Filter strip – 393
  _____Forage Harvest Management – 511
  _____Mulching - 484
  _____Pest Management – 595
  _____Prescribed Burning – 338
  _____Prescribed Grazing – 528
  _____Riparian Forest Buffer - 391
  _____Stream bank and Shoreline Protection – 580
  _____Stream Channel Stabilization - 584
  _____Upland Wildlife Habitat Management - 645
  _____Use Exclusion – 472
  _____Wetland Wildlife Habitat Management - 644

CHECK OUT AND DOCUMENTATION

- Record the decision-maker's purpose(s) for applying the practice.
- Document vegetation planting plans with Form ND-CPA-9, Plan Data Sheet for Grass Seeding.
- Include an aerial photo, G.I.S. map, or scaled sketch of the area planted and legal description.
- Include a soil map of the area.
- Obtain copies of the seed tags and any subsequent germination tests.
- If sculpted planting, record the locations of species within the planting -– planned and actual.
- Record temperature, wind, humidity, and sunshine at time of planting vegetative plugs or rhizomes.
- Record site conditions at planting time (wet, dry, chunky, weeds, etc.)
- Include dated and signed certification that planting was installed according to NRCS standards and specifications **- OR -** describe elements not meeting NRCS standards and spec's.
- Document stand evaluation with Form ND-CPA-9a, Grass - Legume Stand Evaluation. Use the procedure outlined in the Herbaceous Vegetation Establishment Guide.
- Specify the facilitating conservation practices that are required as part of the over-all plan. Document each facilitating practice according to the procedure specified for it.
- Obtain decision-maker's signature on the Operation & Maintenance plan.
- In assistance notes, record site-specific conditions, discussions with decision-maker, and any off-site factors relevant to the plan.