RIPARIAN HERBACEOUS COVER DESIGN PROCEDURES
390DP

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1. SCOPE

Riparian areas are ecosystems that occur along water courses or at the fringe of waterbodies. Riparian herbaceous cover consists of grasses, grass-like plants, forbs, and occasional intermixed shrubs.

Figure 1. Example of a site where Riparian Herbaceous Cover could be used to improve the quality of vegetation community adjacent to stream channel by converting smooth brome to native grasses and forbs with intermixed shrub thickets and removing invasive tree species.

2. SIZE AND LOCATION

Riparian buffer 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 be at least 1.5-times the stream width (based on the horizontal distance between bank-full elevations). In no instance should the buffer be less than 20 feet wide at any point measured perpendicular from the top of the bank or the edge of the waterbody to the outside edge of the buffer.

3. SITE PREPARATION, SEEDING RATES, SEED SOURCE REQUIREMENTS

Refer to Herbaceous Design Procedures (550DP) for requirements on establishment of herbaceous vegetation, including site preparation, cover crops or other appropriate cover, planting methods, and timing. Refer to Range Planting (550) or Pasture and Hay Planting (512) standards for species adaptation and selection.

Seeding rates will depend upon site characteristics. Standard seeding rates found within the Range Planting (550) or Pasture and Hay Planting (512) standards may be used (20 PLS/sq ft and 30 PLS/sq ft, respectively). Design parameters outlined in the Filter Strip (393) standard should be used to implement a buffer intended to remove sediment, organic matter, and other pollutants (40 PLS/sq ft).

Refer to Statement of Work documentation requirements (390SOW) for guidance on deliverables for design, installation, and checkout of this practice.

Sites where enhanced wildlife habitat is an objective should utilize the Upland Wildlife Habitat Management (645) standard as needed or appropriate.

Fence (382) may be needed to manage livestock use within the buffer zone. An alternative water source may need to be established using one or more of the following standards: Dam, Multiple Purpose (349), Pond (378), Pipeline (516), Spring Development (574), Watering Facility (614), or Water Well (642).

For sites without an off-site water source, utilize the Streambank and Shoreline Protection (580) standard to prevent excessive erosion where livestock enter the riparian corridor. A stream crossing may be needed to facilitate livestock movement to both sides of the riparian buffer.

Shrub plantings, where applicable, shall be designed in “blocks” rather than linear “belts” to mimic natural settings and maximize diversity of wildlife habitat interspersion (Tree Planting Procedures Guide 380TPP, NE-CPA-15). Only native shrub species should be used. For more information on appropriate shrub species, see Tables 1-10 in Conservation Tree/Shrub Groups under Windbreak Interpretations in Section II of the FOTG for site adaptability and Table 11 for origin, wildlife values, and other attributes.

In limited situations where minor areas are devoted to tree cover, they should not exceed 25 percent of the buffer area and should be designed or managed with allowances for greater spacing to create a “savannah” rather than a “forest” habitat. For example, tree density should be less than 50 trees per acre and spaced at no less than 30 feet. Small understory trees and shrubs are allowed in addition to this limitation. Additional details are provided in the Riparian Forest Buffer Design Procedures (391DP) standard for “forest” habitat tree plantings within a portion of the site.

4. HERBACEOUS VEGETATION SPECIES COMPOSITION

Preference should be given to native species that are adapted to site conditions (soil type and duration of saturation and inundation) and that provide diversity of cover and food for wildlife. Species selected should also provide a deep, binding root mass to strengthen streambanks and improve soil health.

Sites should consist of a diverse mixture of grasses, forbs, and/or shrubs. Monotypic stands of exotic grasses, such as smooth brome, reed canarygrass, and Kentucky bluegrass, do not provide quality wildlife habitat. Species composition on planted or on managed sites should incorporate a significant amount of broadleaf plants, including native forbs and/or introduced legumes, within the herbaceous cover.

Sites that are suited for predominantly herbaceous vegetation and occasional, intermixed shrub patches should be developed/managed to maintain and enhance those qualities and characteristics (Appendix A – Riparian Buffer Vegetation Recommendations). Riparian herbaceous cover is the preferred practice around wetlands that were not historically wooded. This practice is also preferred around ponds unless shading is necessary for cold-water fish habitat.

Generally, sites that are/were naturally wooded with native tree species should be developed/managed using the Riparian Forest Buffer Design Procedures (391DP) standard.

Nebraska Biology Technical Note #65 – Terrestrial Natural Communities of Nebraska, Steinauer and Rolfsmeier, 2010, should be used as a reference to determine sites that are suited for riparian herbaceous cover and should not be devoted primarily to tree cover using a Riparian Forest Buffer (391).

The following natural communities are critical habitat types that frequently occur adjacent to rivers and streams throughout Nebraska and should be developed or managed as Riparian Herbaceous Cover (390):

- Eastern Cordgrass Wet Prairie
- Eastern Sedge Wet Meadow
- Eastern Saline Meadow
- Northern Cordgrass Wet Prairie
- Sandhills Wet Meadow
- Western Subirrigated Alkaline Meadow
- Western Sedge Wet Meadow
- Lowland Tallgrass Prairie
- Missouri River Floodplain Terrace Grassland
- Sandhills Mesic

The following natural communities are critical habitat types that frequently occur adjacent to rivers and streams throughout Nebraska and should be developed or managed as Riparian Forest Buffer (391):

- Eastern Cottonwood-Dogwood Riparian Woodland
- Cottonwood-Diamond Willow Riparian Woodland
- Eastern Riparian Forest
- Peachleaf Willow Woodland
- Mesic Bur Oak Forest and Woodland
- Paper Birch Springbranch Canyon Forest
- Basswood-Ironwood Springbranch Canyon Forest
- Green Ash-Elm-Hackberry Canyon Bottom Forest

Each natural community description for these sites also contains detailed information related to herbaceous plant species composition which can be used to develop planting recommendations or management options.

Removal of invasive woody (tree) species, such as Russian olive, salt cedar, Siberian elm, eastern red cedar, and others, may be necessary to meet the objectives of this standard.

5. BUFFER MANAGEMENT

Natural processes, including Prescribed Burning (338), Prescribed Grazing (528), and rest from disturbance, are preferred to accomplish management where practical to compliment the plant community. Grazing activities are generally preferred to haying/mowing and, where allowed, should be used to create diversity of herbaceous vegetative structure, maintain plant vigor and plant community diversity, and/or shift species composition (e.g. cool-season vs. warm-season grasses and forbs) to obtain desired wildlife habitat objective. Short-term grazing events, less than 30 days, will improve habitat conditions without negative impacts to the integrity of the site.

Haying/mowing activities will occur after July 15 to protect nesting birds. Refer to Upland Wildlife Habitat Management (645) for more information. Note: periodic exceptions may be warranted to implement a specific management treatment to achieve a desired wildlife habitat objective.

The timing/duration of grazing or haying operations should allow for adequate residual vegetation or vegetative regrowth to accommodate nesting birds and other wildlife species (refer to Prescribed Grazing (528) or Forage Harvest Management (511).

For sites that require management to meet desired objectives, Early Successional Habitat Development/Management (647) may be utilized. However, no tillage should occur within the 30 feet of buffer immediately adjacent to the water course or waterbody. Prescribed Burning (338) may also be an appropriate management option throughout the buffer.

6. HABITAT EVALUATION WORKSHEET

A <u>planned</u> score of 0.5 or greater is required on NE-CPA-43 (Riparian Habitat Evaluation Worksheet) to meet the minimum acceptable wildlife habitat conditions for the site. In addition, a minimum score of 0.2 is required within the “Species Composition” category on the Riparian Habitat Evaluation Worksheet. In most instances, it is recommended that a minimum of 25% of the buffer area be enhanced by establishing or using management to encourage diverse native plant communities.

7. GENERAL OPERATION AND MAINTENANCE REQUIREMENTS

Refer to the Riparian Herbaceous Cover (390) and the Operation and Maintenance recommendations within the Filter Strip (393) standard and specification for additional information.

Note: certain conservation programs (e.g., Conservation Reserve Program) prohibit livestock grazing as a management option. Any fertilizers, pesticides and other chemicals used to maintain or improve riparian area function shall not compromise the intended purpose (refer to the current Guide for Weed Management in Nebraska for herbicide use guidelines).

Maintenance is needed on certain sites to control unwanted vegetation (e.g., undesirable tree cover in herbaceous communities and invasive, non-native herbaceous species).

8. SUPPORT REFERENCES

Herbaceous Design Procedures (550DP)
Range Planting (550)
Pasture and Hay Planting (512)
Filter Strip (393)
(390SOW)
Upland Wildlife Habitat Management (645)
Fence (382)
Dam, Multiple Purpose (349)
Pond (378)
Pipeline (516)
Spring Development (574)
Watering Facility (614)
Water Well (642)
Streambank and Shoreline Protection (580)
Tree Planting Procedures Guide (380TPP)
NE-CPA-15
Conservation Tree/Shrub Groups
Appendix A – Riparian Buffer Vegetation Recommendations
Prescribed Burning (338)
Upland Wildlife Habitat Management (645)
Forage Harvest Management (511)
Early Successional Habitat Development/Management (647)
NE-CPA-43
Riparian Herbaceous Cover (390)
Filter Strip (393)
Guide for Weed Management in Nebraska
Riparian Forest Buffer Design Procedures (391DP)
Nebraska Biology Technical Note #65 – Terrestrial Natural Communities of Nebraska
Prescribed Grazing (528)
Riparian Forest Buffer (391)