

# Riparian Herbaceous Cover

**WV Conservation Practice Job Sheet**

**Code 390**



## Definition

This practice utilizes grasses and/or forbs that are tolerant of intermittent flooding or saturated soils established or managed in the transitional zone between terrestrial and aquatic habitats.

## Purpose

This practice is used to provide pollinator and other wildlife habitat in the form of food or cover, habitat connectivity and some measure of temperature moderation to streams.

It may improve and protect water quality by reducing the amount of sediment and other pollutants, such as pesticides, organic materials, and nutrients in surface and shallow ground water. In addition, it may be used to increase carbon and biomass within the soil.

## Condition Where This Practice Applies

This practice applies to areas adjacent to perennial and intermittent watercourses or water bodies where the plant community is dominated by herbaceous vegetation tolerant of periodic flooding or saturated soils.

It also pertains to a riparian areas that have been altered or the natural plant community has changed or been converted to cropland, pastureland or other agricultural uses.

This practice should only be utilized where channel and stream bank are stable.

Additional practices could be required to facilitate installation including but not limited to; (512) Pasture and Hay Planting, (472) CR&A, (342) Critical Area Seeding and (647) Early Successional Habitat Development/Management.

## General

Select perennial plants that are adapted to the site and will tolerate the environmental conditions of the site (flooding, climate, etc.) and provide diversity.

Vegetation for any of the listed purposes may be established through natural regeneration, planting or both. Natural regeneration may be appropriate where the current management does not allow the plant community to perform the intended function. For example, hay or pasture fields may be cut or grazed to the top of the streambank resulting in insufficient cover adjacent to the stream. Removal of livestock or foregoing mowing in the riparian zone may be enough to establish the desired riparian herbaceous cover. Usually planting in conjunction with natural regeneration provides a more diverse community and structure.

Any erosion on the site and immediately upslope from the site must be controlled prior to establishment of the new cover. This may require installation of additional conservation practices such as field borders, grassed waterways or filter strips.

To increase net carbon storage in biomass and soils, maximize the width and length of the herbaceous riparian buffer to fit the site. Choose plant species that have the highest rates of carbon sequestration and biomass production for the conditions. Operations which set back succession should not be frequently undertaken if installing this practice for this purpose (e.g. disking, haying, mowing, etc.)

## ESTABLISHMENT

### Size of RHB

The width of the riparian herbaceous border (RHB) may vary depending on the objectives of the practice. However, **the minimum width is required to be 35 feet or 1.5 times the stream width** (based on the horizontal distance between bankfull elevations) **whichever is greater**; and a minimum of 15 feet for water bodies. The width could increase depending on the intended purpose; and it should at least always include the first bench of the floodplain.

To protect or improve water quality, the minimum width is increased to 2.5 times the

stream width (based on the horizontal distance between bankfull elevations) or 50 feet for waterbodies (ponds, lakes, etc).

If this practice is utilized in conjunction with a Riparian Forest Buffer (391), to maintain an upslope herbaceous component of a forest riparian buffer (e.g. provide forage for pollinators) the minimum riparian herbaceous cover width is 35 feet. This is in addition to the required minimum width of a forest riparian buffer.

### Site Preparation

Site preparation and planting should be done at a time and manner to insure survival and growth of the selected species. It should be performed so that it does not create a potential for sedimentation and erosion into waterbodies and streams.

Site preparation for natural regeneration should consist of removal of the existing vegetation through grazing, herbicide application, mechanical removal (mowing, disking or plowing) or any combination. This will allow better germination and greater seed to soil contact. The site should be disked in the late fall or early spring. Fall disking may require the planting of a small grain cover crop to reduce the risk of erosion.

Herbicides may be applied to remove any noxious or undesirable vegetation. They should only be applied at recommended rates for the specified use. Contact the WVU Extension Service for herbicide recommendations. Note: In most instances, herbicide applications will occur in close proximity to waterbodies. Use only herbicides approved for these situations. Take appropriate precautions and follow all label directions and warnings.

**Native Warm Season Grass** - Fescue or other dense sod may require removal prior to establishment of other species. Follow the guidance listed in the WV job sheet (327) Conservation Cover - *Warm Season Grass Establishment for Wildlife* for site preparation methods.

**Cool Season/Legume Conventional Method** - Plowing and disking should be done deep enough to kill all existing vegetation and to incorporate lime and fertilizer into the top 4-6 inches of the surface soil. Any existing rills and

gullies should be obliterated and a firm seedbed prepared. The surface should be reasonably smooth, free of ridges, rocks and other obstructions.

#### **Cool Season/Legume No-Till Method -**

Eliminate competitive vegetation by heavy grazing, mowing and/or herbicides to completely destroy competitive growth. Broad leaf and other undesirable weeds should be eradicated by applying herbicides at least 2 weeks prior to seeding. Contact WVU Extension Service for herbicide recommendations. Follow all labels, warnings and precautions when applying herbicides.

Seed must be placed in firm contact with the mineral soil and at a depth of ¼ to ½ inch of the surface. Depth control bands or other methods should be used to insure proper placement of seed.

#### **Vegetation Selection**

Where possible, the selected plant species should have multiple values such as: biomass production, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

Avoid plant species that may be alternate hosts to undesirable pests. Stand diversity and selection of multiple species should be considered to avoid loss of function due to pests, drought or disease.

To help stabilize streambanks and shorelines, select species that provide a deep, binding root mass to strengthen banks and improve soil health.

In some instances, natural succession may be used to establish the desired vegetation. This should only occur where there is a limited potential to cause erosion and the desirable seed sources exist. Natural regeneration may result from the removal or exclusion of livestock or; altering the management of an area to promote the herbaceous species already established. The grass and herbaceous cover should be allowed to grow to its maximum height and to a density that provides the intended function.

All seed should conform to the minimum state standards for purity, germination and other specifications.

Native warm season grass species are recommended for this practice, but other species including cool season grasses and adapted forbs may be used. Refer to the WV Job Sheet (512) Forage and Biomass Planting - *Warm Season Grass Establishment for Wildlife* for species selection, establishment methods and site preparation.

Some suggested cool season grass/legume mixtures are listed in Table 1 below. No variety of tall fescue or reed canarygrass should be planted in conjunction with this practice. Other species and mixtures could be used. Contact the local field office of the NRCS to determine if other species are suitable.

For establishment of pollinator habitat and pollinator enhancements 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 (early, mid and late season).

A minimum of 10 species must be established which include at least one native grass or sedge to provide pollinator enhancements. Suitable species may be found in the plant tables listed within the West Virginia Pollinator Handbook.

	PLANTING DATE	MIXTURE/RATE
1	March 15 – April 15 OR Aug. 15 – Sept. 15	Red Clover @ 8 lbs/acre Timothy @ 4 lbs/acre
2	March 15 – April 15 OR Aug. 15 – Sept. 15	Ladino Clover @ 2 lbs/acre Orchardgrass @ 8 lbs/acre
3	March 15 – April 15 OR Aug. 15 – Sept. 15	Alsike Clover @ 4 lbs/acre Timothy @ 4 lbs/acre
4	March 15 – April 15 OR Aug. 15 – Sept. 15	Red Clover @ 6 lbs/acre Alsike Clover @ 2 lbs/acre Orchardgrass @ 4 lbs/acre
5	March 15 – April 15 OR Aug. 15 – Sept. 15	Alfalfa @ 10 lbs/acre Timothy @ 4 lbs/acre
6	March 15 – April 15 OR Aug. 15 – Sept. 15	Alfalfa @ 10 lbs/acre Orchardgrass @ 4 lbs/acre
7	March 15 – April 15 OR Aug. 15 – Sept. 15	Birdsfoot Trefoil @ 8 lbs/acre Timothy @ 4 lbs/acre
8	March 15 – April 15 OR Aug. 15 – Sept. 15	Birdsfoot Trefoil @ 8 lbs/acre Orchardgrass @ 6 lbs/acre
9	March 15 – April 15 OR Aug. 15 – Sept. 15	Birdsfoot Trefoil @ 8 lbs/acre OR White Clover @ 2 lbs/acre Orchardgrass @ 5 lbs/acre Kentucky Bluegrass @ 5 lbs/acre

**Table 1.** Cool season grass and legume species and rates for West Virginia. Check with the local field office of the NRCS to determine if other species and mixtures may be suitable. For pollinator habitat, refer to the West Virginia Pollinator Handbook.

## OPERATION & MAINTENANCE

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

Periodic disturbance of the riparian area is required to maintain the stand vigor and reduce or eliminate competition and woody invasion. This may be accomplished by grazing, haying or mowing, light disking or other acceptable methods.

Herbaceous areas should be allowed to reach full maturity and height prior to implementing management practices. Disturbance regimes should only occur when the stand has reached

maximum density or woody encroachment begins. Disturbance regimes will vary by species, however, as a general rule management activities should occur no more frequently than every 2-3 years.

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 (March 15 – July 15). Where possible, schedule maintenance activities to allow residual growth to provide winter cover for wildlife.

Limited livestock grazing plans should be based on the carrying capacity of the area and designed to protect the established vegetation, stream bank stability and wildlife habitat. Refer to WV Conservation Practice Standards (528) Prescribed Grazing – *Riparian Grazing Management*; (647) Early Successional Habitat Development/Management - *Cool Season Grassland Management for Wildlife*; (512) Forage and Biomass Planting - *Warm Season Grass Establishment for Wildlife* job sheets for additional information.

Do not harvest or graze the area until the stand is well established. **For warm season grasses, this could take as long as three years.**

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

The buffer should be inspected after heavy storm events and floods. Check for areas where water is concentrated and take appropriate measures to disperse flows.

Consider the need and use of fertilizers carefully where wildlife is a concern. Fertilization often results in stands becoming too dense for wildlife to utilize. Periodic application of lime may be required.

## Specifications

### 390 Riparian Herbaceous Cover - WV Job Sheet

Site-specific requirements are listed on the specification sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide and the Riparian Herbaceous Cover practice standard (390). Information on this job sheet is considered to be part of the conservation plan.

<b>Client:</b>	<b>Farm #:</b>	<b>Adjacent Waterbody</b>
<b>Field(s):</b>	<b>Tract #:</b>	<input type="checkbox"/> <b>Stream</b>
<b>Designed By:</b>	<b>Date:</b>	<input type="checkbox"/> <b>Pond/Lake</b>
		<input type="checkbox"/> <b>Other</b>

Purpose (check all that apply)	
<input type="checkbox"/> Improve wildlife and/or pollinator habitat by providing corridors, increasing diversity, connectivity, structure or food, cover or nesting	<input type="checkbox"/> Improve stabilization of streambanks and shorelines along waterbodies
<input type="checkbox"/> Increasing net carbon storage in biomass and soils	<input type="checkbox"/> Protect or improve water quality
<input type="checkbox"/> Restore, improve or maintain desired plant communities	<input type="checkbox"/> Dissipate stream energy and trap sediment

Existing Vegetation (area to be converted)	
<input type="checkbox"/> Tall fescue or other thick sod requiring removal prior to establishment of more beneficial vegetation ( <b>Refer to site preparation specifications</b> )	<input type="checkbox"/> Cropland (row or annual)
	<input type="checkbox"/> Other: _____

Layout	Field ____	Field ____	Field ____	Field ____
<b>Waterbody or Bankfull Stream Width<sup>1</sup></b> (ft)				
<b>Herbaceous Riparian Width</b> (ft)				
<b>Riparian Length Along Waterbody</b> (ft)				
<b>Total Area</b> (acres)				
<b>Target or Planted Species<sup>2</sup></b>				
<b>Method of Establishment<sup>3</sup></b>				
<b>Planting Date(s)</b>				
<b>Seeding Rate(s)</b> (lbs/acre PLS or lbs/acre)				
<b>Lime</b> (tons/acre)				
<b>Fertilizer</b> (formulation & lbs/acre)				
<b>Win PST Report(s)</b>				

1. This is the average stream width measured horizontally from bankfull elevations. Use 15 feet for ponds and other waterbodies. **Minimum** width is 1.5 times the average stream width or 35 feet whichever is greater. For water quality, use 2.5 times the average stream width and 50 feet for ponds or other waterbodies.
2. List the species planted or the desired species expected through natural succession. If planting one of the mixtures listed in Table 1 of this document, simply list the mixture number found in the left column. If planting a pollinator mix listed in the WVPH, attach mix or species to job sheet.
3. Identify how the riparian cover will be established: **Drilled, Broadcast, Natural Regeneration** or **Other** suitable method (specify in the Planting Methods section). Refer to practice standard (342) Critical Area Planting or (512) Pasture and Hay Planting for information regarding seedbed preparation. *No variety of tall fescue or reed canarygrass shall be used for planting in conjunction with this practice.*

## 390 Riparian Herbaceous Cover - WV Job Sheet

### Site Preparation (Complete as appropriate)

- Warm Season Grass Establishment or Pollinator Enhancements** - Fescue or other dense sod may require removal prior to establishment of more wildlife friendly species. *Follow appropriate procedures in WVPH or conservation practice 512. See Additional Specifications section.*
- Conventional Method Cool Season Grasses and Legumes or Pollinator Enhancements** - Plowing and disking should be done deep enough to kill all existing vegetation and to incorporate lime and fertilizer into the top 4-6 inches of the surface soil. Any existing rills and gullies should be obliterated and a firm seedbed prepared. The surface should be reasonably smooth, free of ridges, rocks, and other obstructions.
- No-Till Method for Cool Season Grasses and Legumes or Pollinator Enhancements** - Eliminate competitive vegetation by heavy grazing, mowing and/or herbicides to completely destroy competitive growth. Broad leaf and other undesirable weeds should be eradicated by applying proper herbicides at least 2 weeks prior to seeding date. Contact WVU Extension Service for herbicide recommendations. Seed must be placed in firm contact with the mineral soil and at a depth of 1/4 to 1/2 inch of the surface. Depth control bands or other controls should be used to insure proper placement of seed.
- Natural Regeneration** – Eliminate any undesirable vegetation by heavy grazing, mowing and/or chemical applications. Apply lime and fertilizer according to soil test recommendations and disk the area to expose mineral soil and allow for better germination of seed and incorporation of supplemental nutrients. Disking or chemical application date(s) \_\_\_\_\_. Fall disking may require a cover crop of \_\_\_\_\_ at \_\_\_\_\_ lbs/acre planted \_\_\_\_\_ (date).

### Planting Methods (Complete as appropriate)

- Warm Season Grass Establishment or Pollinator Enhancements** - Follow the guidance listed in the WV job sheet (512) *Warm Season Grass Establishment for Wildlife* for planting methods and rates or those outlined in the WV Pollinator Handbook.
- Conventional Method for Cool season grasses and legumes** - Seed should be planted at a rate of \_\_\_\_\_ lbs/ac. The seed should be covered to a depth of 1/4 - 1/2 inch in a firm seedbed. A roller or cultipacker should be used to ensure good seed to soil contact. If necessary, mulch newly seeded area with \_\_\_\_\_ tons per acre of mulch material. A small grain crop may be needed as a companion crop at the rate of \_\_\_\_\_ pounds per acre (clip or harvest before it heads out).
- No-Till Method for Cool Season Grasses and Legumes** - Drill grass and/or legume seed 1/4 - 1/2 inch deep uniformly over area. Establish vegetation according to the specified seeding rate. If necessary, mulch newly seeded area with \_\_\_\_\_ tons per acre of mulch material. A small grain crop may be needed as a companion crop at the rate of \_\_\_\_\_ pounds per acre (clip or harvest before it heads out).

### Operation and Maintenance (Complete as appropriate)

Maintain original width and length of the riparian herbaceous cover(s). Harvest, mow, reseed, and fertilize as necessary to maintain plant density and vigorous plant growth. **Note:** *Where wildlife or pollinators is a primary consideration, fertilization may result in stands becoming too dense for wildlife use.* Maintain a proper stand density for the purpose(s) intended. Inspect after major storms, remove trapped sediment, and repair eroding areas. Regular disturbance may be necessary to maintain the intended function of the riparian area such as grazing, haying/mowing, light disking or other acceptable method. Management operations should be scheduled to remove woody invasion or other undesirable species. For warm season species, follow the guidance listed in the WV job sheet (512) *Warm Season Grass Establishment for Wildlife*. Maintenance activities should not occur during the nesting season (March 15 – July 15) when feasible. If feasible disturb no more than one-third of the stand in any given year. **Maintenance method and compatible uses include:**

- |   |  |
|---|--|
| <input type="checkbox"/> <b>Mowing/Haying:</b> Frequency _____                | <input type="checkbox"/> <b>Light Disking:</b> Frequency _____ |
| <input type="checkbox"/> <b>Grazing:</b> # of Livestock _____ Frequency _____ | <input type="checkbox"/> <b>Other (specify):</b> _____         |

Maintain the dominant cover at the minimum height of \_\_\_\_\_ inches between maintenance activities.

## Riparian Herbaceous Cover – Job Sheet

If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

### Additional Specifications, O&M or Notes:

**For more information concerning this practice contact:**

\_\_\_\_\_ at \_\_\_\_\_

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