



CONSERVATION ENHANCEMENT ACTIVITY

E391B

CONSERVATION STEWARDSHIP PROGRAM

Increase stream shading for stream temperature reduction

Conservation Practice 391: Riparian Forest Buffer

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Water

PRACTICE LIFE SPAN: 15 Years

Enhancement Description

Riparian area tree canopy cover density is increased and the extent of the forested riparian area is increased to provide greater stream shading.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Buffer width shall be increased to 60 feet and may be extended up to 180 feet or the State-allowed maximum width.
- Where necessary to improve stream shading, increase canopy cover density in the existing buffer area.
- In addition to providing shading, establish plant communities that address aquatic and terrestrial wildlife and pollinator needs and have multiple values such as habitat enhancement and nutrient uptake.
- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site and the intended purpose of providing stream shading.

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- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality, and adapted plant materials will be used.
- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.
- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Harmful plant and animal 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.
- Protect riparian vegetation until the desired plant community is well established.
- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 15 years.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



Documentation and Implementation Requirements

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Participant will:

- Prior to implementation, prepare the planned buffer area according to the planting plan NRCS has developed with you. Refer to NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391). (NRCS will provide technical assistance)
- Prior to implementation, select planting date, method, and density/spacing appropriate for the site and soil conditions. (NRCS will provide technical assistance.)

Planting Date	
Planting Method	
Density and spacing	

- Prior to implementation, work closely with NRCS to select plant species that are adapted to the specific site and that meet the goal of providing increased stream shading.

Species	Vegetative or Rootstock	Size	Protection (tubes, mats, nets)

- During implementation and before planting, grade the site, as needed, to eliminate concentrated flow through the buffer including water coming from uphill of the buffer.
- During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- After implementation, control harmful pests and vegetation and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.



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- After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer’s stream shading purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

NRCS will:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) to show how it relates to this enhancement.
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planting list.
- Prior to implementation, NRCS will provide technical assistance on:
 - Site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates.
 - Selecting planting techniques and timing appropriate for the site and soil conditions.
 - The potential for denser species plantings and focus in areas that will provide the most shade to the stream throughout the day.
 - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, review any planned changes to ensure they meet the enhancement criteria.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.

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- After implementation, verify the vegetation was established and any protections required are being maintained according to specifications provided to the participant.
- After implementation verify livestock are controlled or excluded as necessary to achieve the buffer’s goal of greater stream shading. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and grazing is being deferred for a minimum of two years.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

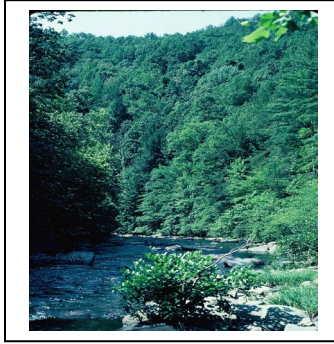
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Alabama Supplemental Guidance for CSP Enhancement

2024 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

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Conservation Practice 391: Riparian Forest Buffer



Increase Stream Shading for Stream Temperature Reduction

Where existing riparian forest buffers are located, along rivers, streams, ponds, lakes or other water bodies, increase the width to enhance stream shading benefits as well as provide greater protection of the waterway.

Benefits

Many species of aquatic organisms depend on clean, clear water. Lack of adequate shade from trees can cause many problems, from water temperature increases to increased aquatic plants in these waterways. Buffers also reduce rainwater runoff and sedimentation. Increasing the widths of existing riparian zones will enhance increase shading and protection for the adjacent waterway.

Enhancement Criteria

- I. Riparian Buffer Width: This enhancement requires increasing the existing 35 foot buffer on each side of a defined waterway. Widths shall be increased to a minimum of 100 feet but may be extended to 180 feet. If a wider floodplain exists, then the state-allowed maximum width will be 300 feet or the width of the floodplain, whichever is less.
- II. Length of Stream to be Treated: Treat the stream reach within the PLU to meet the planning criteria. Full stream reach (length) must be planned including both sides of the stream if landowner owns both sides. Partial stream reach work for this enhancement does not fully treat the resource concern and is not eligible for this enhancement.
- III. Qualifying Streams: Those identified on topographic maps as having a solid or dashed blue line. Other streams substantially affected by presence of water with soils, vegetation, and landform indicative of high soil moisture or frequent stream flows or flooding may be included if approved by an NRCS employee with demonstrated experience with riparian buffers. Examples include intermittent streams with defined bed and bank and intermittent streams in karst topography showing evidence of strong flow during rain events.
- IV. Eligible Land: This practice is eligible on all land uses. Fallow fields or timberland with existing natural tree or shrub regeneration may be acceptable without planting. Even if these areas have adequate regeneration, landowners may choose to plant these areas to improve species composition for multiple use management.
- IV A. Wildlife Plantings: Up to 10% of the riparian buffer acreage can be in herbaceous or shrub plantings that benefit pollinators and other wildlife. Annual or perennial

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herbaceous plants are acceptable. Shrubs or herbaceous plants must produce flowers preferred by pollinators during spring, summer or fall. Plantings cannot contain any area within the minimum SMZ extension (first 100 feet from the stream bank) to ensure maximum stream shading.

B. Tree Plantings: Tree planting is required on pasture and cropland. Trees selected for planting should be suited to the soils and hydrology of the site. Spacing density should be 605 trees per acre or less. Favor species that have multiple values such as timber, nuts, fruits, wildlife and aesthetics. To ensure quick shade when planting, the first 50 feet of the buffer extension shall include some light seeded species such as sycamore, yellow poplar or similar species suited for soils on the site.

- V. Invasive Plants: Control of invasive plants within the riparian buffer is **required**. “Alabama’s Ten Worst Invasive Weeds” publication lists the following species to be controlled: kudzu, tallowtree, cogongrass, Chinese privet, tropical soda apple, Japanese climbing fern, invasive roses, Eurasian water milfoil, hydrilla and alligator weed. When herbicides are used, follow label restrictions.
- VI. Livestock Grazing: If the riparian buffer is part of a livestock operation, the area shall be fenced out and grazing shall be limited to periodic flash grazing as prescribed in the Grazing Plan (CPS 528).
- VII. Periodic Removals: Harvesting selected forest products such as high value trees, medicinal herbs, nuts and fruits is permitted provided the buffer areas are not compromised by the loss of vegetation or harvesting disturbance. Follow Alabama BMPs for Forestry if timber is to be harvested within the 15-year lifespan of this practice. (No clearcutting allowed during practice lifespan). For more details, see Streamside Management Zones Minimum Standards:
http://www.forestry.alabama.gov/Pages/Management/Forms/2007_BMP_Manual.pdf

E391B JOB SHEET

TASK	Artificial Regeneration	Invasive Species
Date(s) Planted/Treated		
Species Planted Or Treated		
Invasive Treatment Type (foliar, basal bark, etc)	XXXXXXXXXXXXXXXXXXXX	
Invasive Percent Controlled	XXXXXXXXXXXXXXXXXXXX	

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Trees per Acre & Spacing		XXXXXXXXXXXXXXXXXXXXX
Notes		

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E391B JOB SHEET
- MAPS OF THE AREA or LOCATION(S) OF THE STANDS
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETION

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

CSP Participant Name

Date