

Practice: 391 - Riparian Forest Buffer

Scenario: #1 - Plant using Direct Seeding, Per Acre

Scenario Description:

In order to establish a buffer of trees that restores a riparian plant community along with associated benefits, using a mechanical nut planter to direct seed acorns and nuts. The buffer will be located adjacent to and up-gradient from a watercourse or water body and extend a minimum of 50 feet wide. The planting rate will not exceed 1,500 seed (acorns or nuts) per acre. Species seeded shall be adapted to the site's conditions.

Before Situation:

A former riparian forest habitat has been used for ag commodity production. Active bank erosion is depositing sediment, nutrients, and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife. The need for a riparian forest buffer is indicated in a conservation, water quality, or forest management plan. Resource concerns to be addressed are soil erosion - excessive bank erosion; water quality - excess sediment and organics in surface waters and elevated temperature; degraded plant condition - inadequate structure and composition; and inadequate habitat for fish and wildlife - habitat degradation.

After Situation:

As per the plan, a buffer of trees providing filtration, shade, and desirable habitat will be established by direct seeding at a rate that does not exceed 1,500 seed per acre.

Scenario Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$1,809.03

Scenario Cost/Unit: \$180.90

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Mechanical nut planter	1601	Mechanical nut planter for direct seeding of trees and shrubs. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$1.69	8	\$13.52
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$19.95	8	\$159.60
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$31.63	8	\$253.04
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$37.95	8	\$303.60
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	8	\$161.20
Materials						
Trees and shrubs, seed	1871	Brush Chipper, 12" capacity, typically 35 HP. Includes chipper and power unit. Does not include labor.	Pound	\$4.67	150	\$700.50
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	1	\$217.57

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Scenario: #2 - Plant using cuttings, Per Acre

Scenario Description:

Establish a buffer of trees using cuttings into a suitably prepared site to restore riparian plant communities and associated benefits. The planting will consist of tree and/or shrub poles and live stakes (whips) planted by hand. Cuttings should be planted at a minimum of 250 per acre. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 50 feet wide. The cuttings will be planted to most effectively enhance the riparian area and protect the streambank while the cuttings are still dormant. Species planted shall be adapted to the site's conditions.

Before Situation:

A former riparian forest habitat has been used for commodity production. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife. The need for a riparian forest buffer are indicated in a conservation plan, water quality management plan, forest management plan or other document. Resource concerns to be addressed are soil erosion - excessive bank erosion; water quality - excess sediment and organics in surface waters and elevated temperature; degraded plant condition - inadequate structure and composition; and inadequate habitat for fish and wildlife - habitat degradation.

After Situation:

A buffer of trees and shrubs will be established by planting poles or stakes using the species, spacing and location shown in the plan or technical note along a riparian corridor to provide filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Scenario Feature Measure: Area of planting

Scenario Unit: Acre

Scenario Typical Size: 3

Scenario Cost: \$518.05

Scenario Cost/Unit: \$172.68

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$31.63	1	\$31.63
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.62	4	\$46.48
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	4	\$72.44
Materials						
Cuttings, woody, medium size	1308	Woody cuttings, live stakes or whips typically 1/4" to 1" diameter and 24" to 48" long. Includes materials and shipping only.	Each	\$0.49	750	\$367.50

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Scenario: #3 - Planting Bareroot Hardwood Seedlings,Per Plant

Scenario Description:

Establishing a buffer of trees by hand planting bare-root shrub and tree seedlings. Trees and shrubs will be selected based on soils and site conditions and target 400 trees per acre on approximately a 10' X 10' spacing. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 50 feet wide.

Before Situation:

A former riparian forest habitat has been used for ag commodity production. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife. The need for a riparian forest buffer are indicated in a conservation plan, water quality management plan, forest management plan or other document. Resource concerns to be addressed are soil erosion - excessive bank erosion; water quality - excess sediment and organics in surface waters and elevated temperature; degraded plant condition - inadequate structure and composition; and inadequate habitat for fish and wildlife - habitat degradation.

After Situation:

A buffer of trees and shrubs will be established by hand planting bare root seedlings using the species, spacing and location shown in the plan or technical note along a riparian corridor to provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

Scenario Feature Measure: Area of Treatment

Scenario Unit: Each

Scenario Typical Size: 800

Scenario Cost: \$677.10

Scenario Cost/Unit: \$0.85

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.62	8	\$92.96
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$31.63	2	\$63.26
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	8	\$144.88
Materials						
Shrub, seedling or transplant, bare root, 6-18"	1506	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	\$0.47	800	\$376.00