

USDA - Natural Resources Conservation Service

Practice: 643 - Restoration of Rare or Declining Natural Communities

Scenario: #50 - Beaver Dam Analogues or Post-Assisted Log Structures

Scenario Description:

This scenario includes installation of low-tech woody structures (Beaver Dam Analogues (BDAs) or Post-Assisted Log Structures (PALS)) to facilitate process-based restoration in perennial, intermittent, or ephemeral streams and riparian areas. These simple structures are low, semi-permeable, and hand-built using native materials (wood, sod, etc.). Untreated wooden fence posts are added where necessary for extra stability. Structures are designed to be short-lived and used primarily as a temporary tool to promote natural process recovery. Structures mimic the function of natural beaver dams and wood accumulation in streams by reducing water velocities, raising water tables, enhancing floodplain connectivity, and inducing other dynamic ecological and hydrogeomorphic processes. Typically, complexes consisting of multiple structures within a reach are used to meet project objectives. Structures can be used on all land uses to address a variety of resource concerns and are strategically placed to meet specific purposes, such as, mesic and wetland vegetation expansion, floodplain development in incised channels, increased habitat complexity for fish and wildlife, and beaver re-establishment. Associated practices include: 528, 391, 644, 612, 382. Typical scenario includes 20 structures averaging 20 ft length each (total = 400 lin ft of structures). Crew of one biologist, one crew manager, and three laborers (one skilled).

Before Situation:

Degraded stream channel and associated riparian/mesic/wetland vegetation are impaired by lack of structural complexity, channel incision, reduced floodplain connectivity, or inadequate habitat features. Extent of potential riparian/mesic/wetland vegetation is reduced due to lack of floodplain inundation or low water table. Channel condition/complexity is insufficient to permit proper hydrologic function, vegetation maintenance/recovery, or to support desired fish and wildlife habitat.

After Situation:

Low-tech structures mimic and promote ecological and physical processes that foster recovery of streams, riparian areas, wet meadows, or aquatic ecosystems. Channel complexity is increased and condition improved by promoting riparian/mesic/wetland vegetation expansion, reconnecting floodplains, and increasing habitat structure for fish and wildlife. Additional treatments may be needed through time until ecosystem is self-sustaining.

Feature Measure: Linear Feet
Scenario Unit: Linear Feet
Scenario Typical Size: 400
Scenario Total Cost: \$15771.19
Scenario Cost/Unit: **\$39.43**

Cost Details:

Component Name	ID	Description	Unit	Cost	QTY	Total
Equipment Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$22.15	12	\$265.80
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	\$28.58	18	\$514.44
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	\$11.44	48	\$549.12
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$4.44	24	\$106.56
Portable Post Driver	2722	Gas or Hydraulic Powered Post Driver, Portable, <300 lbs, labor not included	Hour	\$22.37	48	\$1,073.76
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	\$22.97	120	\$2,756.40
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.31	72	\$2,470.32
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	\$42.24	60	\$2,534.40
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$101.95	30	\$3,058.50
Materials						
Post, Wood, Untreated, 3-4' x 7'	2721	Round Post, Wood, Untreated, 3-4' x 7'	Each	\$5.92	400	\$2,368.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$73.89	1	\$73.89