



**CONSERVATION ENHANCEMENT ACTIVITY**

**E643D**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Low-tech process-based restoration to enhance floodplain connectivity**

**Conservation Practice 643: Restoration of Rare or Declining Natural Communities**

**APPLICABLE LAND USE: Range, Pasture, Forest, Associated Ag Land**

**RESOURCE CONCERN: Animal**

**ENHANCEMENT LIFE SPAN: 1 Year**

**Enhancement Description**

Beaver Dam Analogues (BDAs) and/or Post-Assisted Log Structures (PALS) are low-tech structures used to facilitate process-based restoration of rare and declining 'Stage 0' stream conditions. These structures are used to mimic, promote, and sustain the natural processes of beaver dam activity and wood accumulation that lead to more fully connected floodplains. BDAs and PALS are hand-built with a mixture of woody debris and on-site soils and vegetation. This enhancement is intended primarily to kick-start natural ecological, geomorphic, and hydrologic processes required for maintenance of healthy and functioning streams and associated floodplains.

**Criteria**

- Implement a series (complex) of Beaver Dam Analogues (BDAs) and/or Post-Assisted Log Structures (PALS) within stream reaches where the state approved evaluation tool identifies that the current condition meets planning criteria but restoration or enhancement is desired to improve floodplain connectivity, riparian condition, and move towards Stage 0 stream conditions.
- Document current condition as meeting planning criteria using the state approved evaluation tool and explain how implementation of the enhancement is expected to improve upon current condition (e.g., an increase in wetted area after

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implementation).

- Follow the conservation planning process and stream restoration guidance outlined in the Low-Tech Process-Based Restoration of Riverscapes Design Manual and Pocket Field Guide (Wheaton et al. 2019; available at: <http://lowtechpbr.restoration.usu.edu/>).
- Complete Low-Tech Restoration Risk Considerations Checklist. Apply enhancement only on 1st - 3rd order wadeable streams where all other risks are low-to-moderate. (See pg. 22 of Low-Tech Process-Based Restoration of Riverscapes Design Manual for checklist).
- Provide project design package that includes: 1) map showing stream reach(es) affected, 2) objectives for each reach, and 3) estimated number, type, and location of structures in each reach.
- Obtain all necessary Clean Water Act, Section 404 permits, and other federal, state, or local permits, as required.
- Structures should consist of native materials, such as woody debris (branches, limbs, small logs, brush) and on-site soils and vegetation. Where posts are required for structure stability, use only untreated wooden posts. Structures should be hand-built and avoid the use of heavy equipment (tractors, dozers, etc.).
- Recommend annual monitoring, maintenance, and adaptive management until stream condition objectives are achieved. Typical maintenance activities should include replacing posts, refilling structure with woody material, and extending structure length.
- Estimated application rate to achieve the appropriate depth of cover is 270 cubic yards per acre.



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### Documentation and Implementation Requirements:

#### Participant will:

- Prior to implementation, provide project design package that includes:
  - Map showing stream reach(es) affected,
  - Objectives for each reach, and
  - Estimated number, type, and location of structures in each reach. (NRCS will provide technical assistance, as needed.)
- Prior to implementation, obtain all necessary Clean Water Act, Section 404 permits, and other federal, state, or local permits, as required.
- Prior to implementation, document pre-treatment conditions of the area including the use of representative digital images/photos.
- During implementation, install BDAs and/or PALS using appropriate methods as per the plan and specifications.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, document post-treatment conditions of the area including the use of representative digital images/photos.
- After implementation, annual monitoring, maintenance, and adaptive management is recommended.



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**NRCS will:**

- As needed, provide technical assistance to meet the criteria of the enhancement.
- During implementation, evaluate any planned changes in the mulching plan to ensure enhancement criteria are met.
- If changes were made after implementation, use information provided from the participant to verify the applied system meets the enhancement criteria.

**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

**ND Sideboards:**

Contact State Biologist prior to planning and designing low-tech, process-based structures.