FACT SHEET

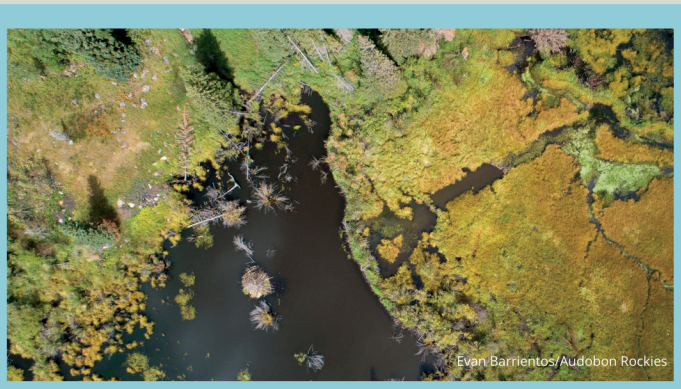
Low-Tech Process-Based Restoration (LTPBR)

Low-tech process-based restoration (LTPBR) refers to a method of restoring degraded or damaged riverscape ecosystems that relies on natural processes and minimizes the use of technology or external inputs.

It is a holistic approach to restoring ecosystems that emphasizes the importance of the ecological processes that sustain the environment. This method often involves the introduction of native species and the removal of invasive species, the re-establishment of hydrological cycles, and the promotion of natural disturbance regimes.

The goal of low-tech process-based restoration is to create self-sustaining ecosystems that can persist over time with limited human intervention.

Post-Assisted Log Structure, Cameron Peak Burn Area



Evan Barrientos/Audobon Rockies

What is a Riverscape?

A *riverscape* refers to the overall visual and physical characteristics of a river and its immediate surroundings. It encompasses the river channel, banks, floodplain, and adjacent landscape elements. A riverscape is a dynamic and interconnected system that includes the water, vegetation, landforms, and human-made features within the river corridor.

Benefits of LTPBR

Sustainability: Relies on natural processes and does not require ongoing inputs of energy, money, or resources.

Cost-effectiveness: Often less expensive than high-tech methods and can be done using locally available resources.

Improved ecosystem function: Can improve ecosystem functions, such as water retention, soil formation, and carbon sequestration.

Increased biodiversity: LTPBR can increase the diversity of plants, animals, and other species in the area.

Long-term success: Natural processes are self-sustaining and do not require ongoing intervention - more sustainable solution in the long term.

Types of Low-Tech Process-Based Restoration Techniques

Beaver Dam Analogs (BDA)

Beaver dam analogues (BDAs) are man-made structures that mimic the form and function of natural beaver dams. They are a permeable, channel-spanning structure with a constant crest elevation, constructed with a mixture of woody debris and fill material to form a pond and mimic a natural beaver dam. They can be built with or without posts to secure them in place.

Willow Wattles

Willow stakes can be harvested on-site and bundled using biodegradable twine. These bundles are then partially buried and staked into channels with regular baseflow where willows would naturally grow. Willow wattles provide water quality improvements through rapidly establishing woody riparian vegetation to increase sediment storage and nutrient uptake.

Post-Assisted Log Structures (PALS)

Post-assisted Log Structures (PALS) are constructed using woody material of various sizes pinned together with untreated wooden posts driven into the substrate to mimic natural wood accumulations. PALS are designed to influence hydraulic, hydrologic and geomorphic processes.

Log Structures/Tree Felling

Using large material found onsite, crews place and interlock large logs in the channel to increase roughness, reduce flow velocities, and enhance sediment deposition. These features reduce flow velocities by acting as speed bumps for downstream areas. Log structures return flow to the overbank and floodplain areas, reducing stream incision and rehabilitating the floodplain.

Illustration of the process of encouraging beaver dam activity with beaver dam analogs (BDAs) and how this can lead to (on right) self-sustaining Stage Zero conditions (anastomosing or multi-threaded channels around island complexes). Source: Goldfarb, 2018b.

Produced by Coalition for the Poudre River Watershed, a 501(c)3 nonprofit working to improve and maintain the ecological health of the Poudre River Watershd.

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