

Large Wood Debris (LWD) Placement

Dead trees and logs accumulate in healthy streams due to windthrow or tree mortality. As the large wood pieces break down, nutrients are incorporated into a stream's food web, benefiting aquatic species.

In narrow upstream channels, large wood jams:

- Create temporary pools or pockets
- Trap sediment (sediment wedges)
- Provide nutrient-rich hotspots

In valley reaches, large downed wood pieces:

- Raise water tables
- Enrich soils of riparian meadows
- Create deep pools aquatic species thrive in
- Dissipate high energy flows
- Increase water storage
- Expand the extent of riparian plants



Photo: Large wood jam added to Pine Creek after severe wildfire in 2015. Trapped sediment has built up several feet in front of it along the floodplain, enhancing nutrient retention.

High Flow Dissipation

One use of LWD placement is to mitigate flood risks following high-severity wildfires, where the ground vegetation that would normally slow and absorb rainfall has been destroyed. Large wood jams or pieces can help capture and disperse high flows through these stream systems, dissipating some of the energy before floodwaters reach valley bottoms.



Photos: large wood was placed along Canyon Creek as part of the burned area emergency response plan. High flows in April were arrested and water was dispersed over a larger area, slowing current and allowing more water to be absorbed instead of flushed downstream.

Floodplain Reconnection

Natural wood recruitment along many streams on the Forest is impeded due to adjacent roads or other alterations, so LWD placement helps meet a number of restoration objectives.

Channel-spanning log jams:

- reactivate historical overflow channels
- reconnect stream to its original floodplain
- reestablish channel complexity

Placing trees with rootwads attached:

- Creates aquatic microhabitats within the inner root spaces
- Helps anchor wood in streams



Photos: Channel spanning wood jam added to Camp Creek in August 2016. By October, new flow path had been activated and deep pool had formed behind and in front of rootwad.

Purpose and Need:

The purpose of the Aquatic Restoration Project is to maintain or enhance watershed health, species recovery, and diversity on the Malheur National Forest. The 2014 Aquatic Restoration Decision authorized 17 categories of aquatic restoration activities that will aid in the recovery of aquatic species and impaired water bodies.



Photos: (Top) Wickiup site along Canyon Creek. LWD was added in November, 2015 as part of the burned area emergency response plan. High flows in April were dispersed over floodplain, dissipating energy and trapping sediment.

(Bottom) Excavator placing LWD into Camp Creek.



For More Information See:

Aquatic Restoration Project Environmental Assessment and Decision Notice:

<http://www.fs.usda.gov/detail/malheur/landmanagement/projects/?cid=stelprd3817723>

The Aquatic Restoration Project facilitates the completion of projects across the Forest to benefit fish species listed as “threatened” under the Endangered Species Act, and to improve water quality.

The website above is designed to provide information about aquatic restoration activities on the Malheur National Forest, and will provide an annual list of projects planned, as well as an accomplishments section about completed projects.

The list and description of projects to be implemented each fiscal year will be posted on this website as available, and at least 30 days prior to planned implementation.

Project implementation checklists will be used on each project to ensure all activities are consistent with the Malheur Forest Plan and project design criteria associated with the Aquatic Restoration Project decision.

Watch for future brochures that highlight more aquatic restoration activities.

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Aquatic Restoration

Large Wood Debris Placement on the Malheur National Forest



How large wood placement helps restore riparian communities, processes, and functions on our landscape



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for the greatest good