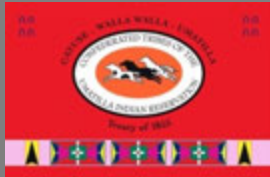


## RESTORATION

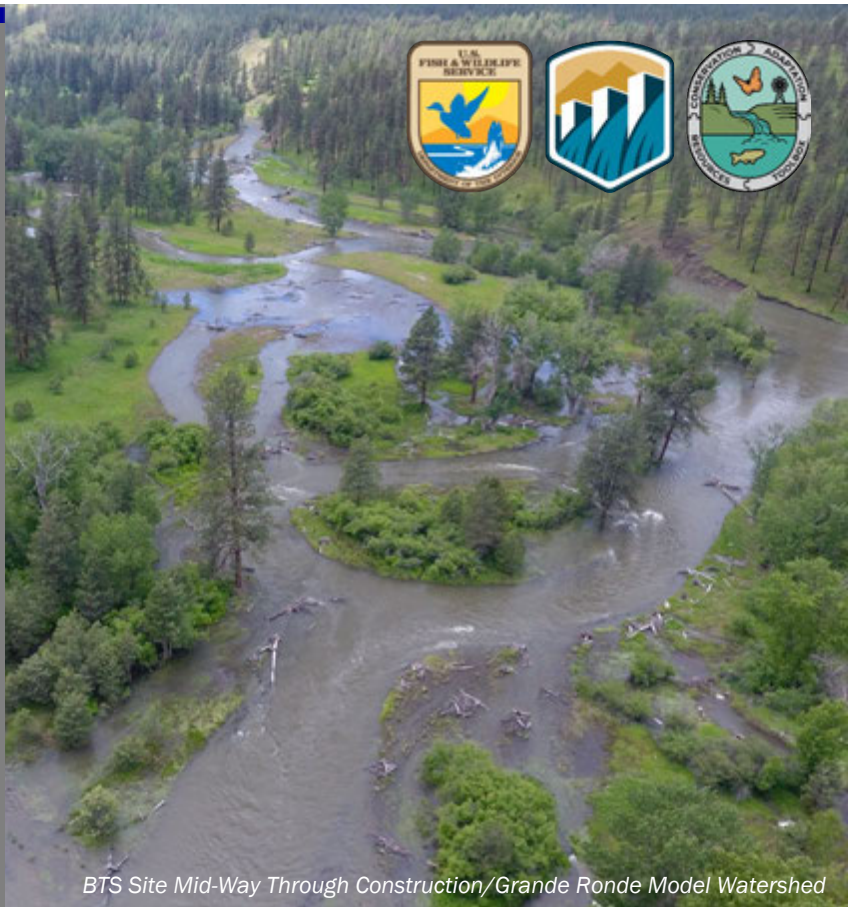
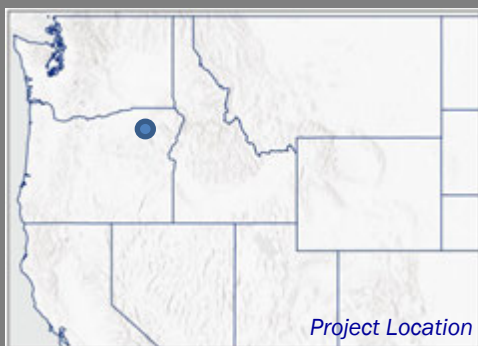
# Bird Track Springs Habitat Restoration on the Upper Grande Ronde River



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POWER ADMINISTRATION



The Bird Track Springs (BTS) reach of the Upper Grande Ronde River in Eastern Oregon has been dramatically altered by over a century of human caused disturbance. The result is a simplified single-thread river lacking habitat complexity and reduced capacity to sustain threatened salmon, steelhead, and bull trout. In 2018-2019, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Bureau of Reclamation (Reclamation), and the U.S. Forest Service (USFS) implemented a large-scale ecosystem restoration project in the BTS reach to restore riverine processes that sustain critical habitat supporting all life stages for important fishery resources.



*BTS Site Mid-Way Through Construction/Grande Ronde Model Watershed*

## KEY ISSUES ADDRESSED

Hydroelectric projects on the Snake and Columbia Rivers and severe habitat degradation in the tributaries have dramatically decreased populations of salmonid species throughout the Pacific Northwest. In the Upper Grande Ronde, beaver trapping, logging, grazing, river channelization, and construction have resulted in a channelized river, disconnected from its historic floodplain. Climate change and especially extreme water temperature fluctuations exacerbate inadequate habitat in the simplified single-thread channel. Previous Upper Grande Ronde restoration projects that introduced woody debris and other hydrologic structures into the river did not achieve needed results due to smaller-scale actions.

## PROJECT GOALS

- Enhance river complexity by reconnecting floodplain and side channels and adding large wood deposits to create a long-term, self-sustaining river wetland corridor
- Improve quality and quantity of suitable habitat for target salmonid species at all life stages
- Reinvigorate native plant communities along stream banks and across the floodplain

## BEYOND SALMONIDS

The habitat improvement benefitted a variety of freshwater species, including resident trout, Pacific lamprey, whitefish, and freshwater mussels, all important to the CTUIR.



Depositing Large Wood Along River Bend/CTUIR

## PROJECT HIGHLIGHTS

**Right Place for Restoration:** Using the Restoration Atlas, a centralized database of project sites in the Grande Ronde Watershed, partners prioritized Bird Track Springs for restoration because of its flow through a wide unconfined valley, offering a variety of complex habitat options.

**Developing the Design:** The design team used field surveys, geomorphic assessments, LIDAR imaging, and local knowledge of habitat types to determine what landscape-scale alterations to implement. Reclamation engineers used Auto-CAD CIVIL 3-D and hydraulic modeling to create a proposed conditions model that would achieve floodplain inundation, channel flow partitioning, and improved hydraulic habitat conditions.

**On-the-Ground Construction:** The project team implemented the restoration design in 2018-2019. The contractor re-shaped the river's path with approximately 5,000 feet of new main channels and 10,000 feet of new side channels. The project also re-connected approximately 150 acres of floodplain to the river. They installed river features to include riffles for vertical grade control and wood structures to provide initial horizontal stability along with complex habitat for fish. 15,000 native trees and shrubs were planted as part of the revegetation post-construction.

## Collaborators

- Grande Ronde Model Watershed
- See online for full list of collaborators

CART Author: Lindsey Smith, Miami University, August 2023.

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## LESSONS LEARNED

Scale matters in salmonid recovery projects because fish need immediate results to impact their population declines. Previous projects attempted in the area were not as successful because they did not fully reconnect river-floodplain processes that sustain dynamic habitat conditions required by salmonids.

Contractor collaboration during implementation of the restoration design was key to the project's successful completion. Estimating quantities in large-scale river restoration projects is difficult. Balancing earthwork cut/fill volumes with on-the-ground discrepancies resulted in a lack of material to fill/narrow the existing channel. Designers had to change the project grading in several areas to compensate. Source woody material is irregular, so it can be hard to meet design parameters in practice. At BTS, this led to an excess of woody material after the in-channel features were built. Modular, low-tech wood structures and bank protection features would have allowed for more flexibility in adjusting to conditions on the ground. However, the new channels have stayed intact even with large flood events in 2020 and 2022.

## NEXT STEPS

- Apply lessons learned to future projects in the Upper Grande Ronde by focusing design on floodplain connectivity and anastomosing channels (creating semi-permanent islands).
- Continue to monitor project outcomes such as physical habitat, floodplain connectivity, vegetative response, and baseflow and thermal changes through the CTUIR Department of Natural Resources.

For more information on this project, contact Reclamation's Public Affairs Office: [pninfo@usbr.gov](mailto:pninfo@usbr.gov)



Nearby Upper Grande Ronde River Beaver Dam and Lodge/CTUIR