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2022 “Waters to Watch” – Tincup Creek Stream Restoration Project, Idaho (retrospective nomination)

May 2022 Overview of the Project site taken from the three panel kiosk display.

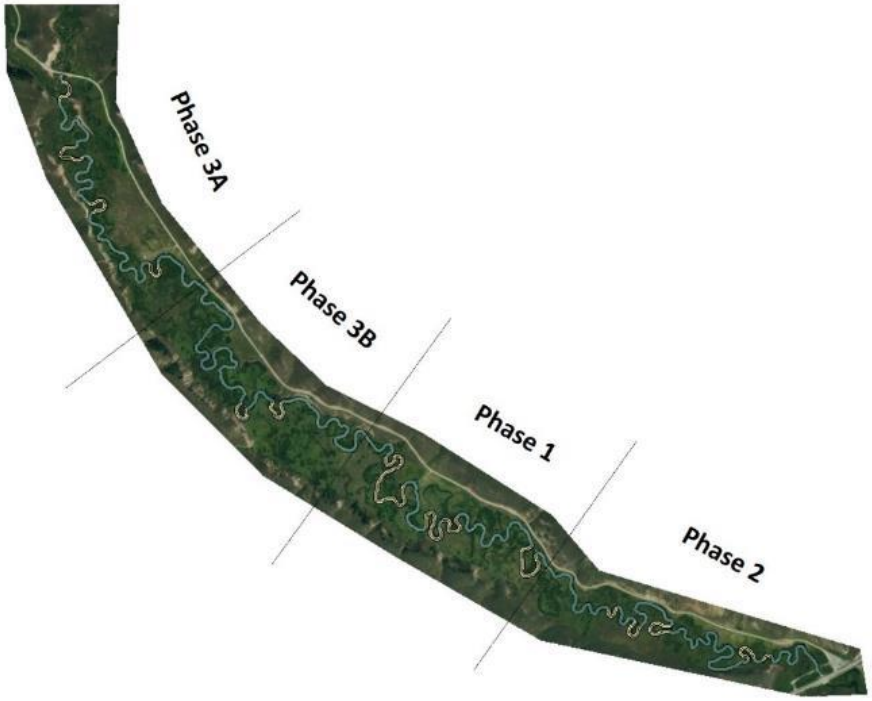
Purpose of the project: The Tincup Creek Stream Restoration Project was a large-scale, multi-phased project to improve ecosystem function and habitat for Yellowstone Cutthroat Trout and other native species by restoring channel and floodplain function on 4 miles of degraded stream. The Tincup Creek Stream Restoration project improved riparian conditions and habitat for a full assemblage of native fishes such as Longnose and Speckled dace, Sculpin, Redside shiners, Mountain suckers, the rare Northern Leatherside chub, and Yellowstone Cutthroat Trout (YCT). In addition, at least three other aquatic or semiaquatic species of interest are present including a native pilose crayfish, western pearl shell mussel, and a unique clade of boreal toads. These are all native species with a special management emphasis. Because of the assemblage of these native species, and the degraded yet recoverable nature of the system, Trout Unlimited (TU) and the Caribou-Targhee National Forest (CTNF) chose to focus their efforts here.

The primary cause for the degraded state of the stream has been linked to aerial spraying of willows in 1956, which precipitated the subsequent unraveling of the stream system. The project accomplished a long-term vision of restoration for YCT and other native species by focusing on restoring channel and floodplain function and processes. Primary restoration methods included restoring eroding meander bends using bioengineering techniques, reconnecting old meanders, and raising riffle elevations.

The project was not designed to stabilize the stream in place, but rather to re-elevate it to restore the functions and processes that make for healthy habitat, floodplains, and riparian zones. By focusing on restoring floodplain connectivity, proper channel dimensions, and old meanders using native willows and sod as well as imported wood, habitat for native species was improved.

Project Timeline:

The project was completed over a four-year time frame, starting in August 2017 and completed in 2020.



Stream reach map showing the entire 5-mile project area divided into phase locations.

“Before and After” photos from Phase I (2017)

Before After

Before: Outside bend widening into eroding hillslope. After: Bend narrowed, floodplain added, hillslope recontoured and wood and willows embedded into the newly built bank.

Before After

Before: Over-widened, eroding meander bend. After: Same bend restored, with narrower channel, resloped and revegetated banks, and large wood added.

Tara Hicks, co-owner/operator of Rockin’ T Construction, transplanted sod and whole willow clumps to build and rapidly revegetate new stream bank in 2017.

2018 aerial photo taken by TU Chapter member of the Phase I treatment area looking upstream toward Phase 3 area (photo courtesy of Rex Litchfield).

Cattle exclusion fence installed in 2018.

“Before and After” photos from Phase 3 (2020)

Before After

Before: Channel is located right against a steep hillside, with willows on the inside instead of outside bends. After: A floodplain bench was built to create better habitat, and willows were moved from the inside to the outside bend to protect it from erosive forces and allow for floodplain access on the inner bend.

Before After

Before: This bend has been the project’s poster child for the need for restoration since the project was started and has been affectionetely called the “Big Nasty”, with raw, steep, vertical, eroding outside bends. After: The willows that were removed from inside the bend were all transplanted to the outside of this horseshoe bend to stabilize it. Much of the flow here has now been diverted onto the floodplain by beaver activity, so actual stream flow and erosive forces in this section have been reduced.

Community Benefit: Tincup Creek in Bonneville and Caribou Counties is 37.0 miles in length and flows from an elevation of 9,076 to 5,741 feet. This high elevation stream historically provided locals and visitors with excellent fishing opportunities. By restoring Tincup Creek to its natural historic state visitors and locals alike are able to once again enjoy the beauty of a healthy stream filled with fishable fish populations.

In addition to the habitat work, the Western Native Trout Initiative and Desert Fish Habitat Partnership co-funded a three panel interpretive signage display at the project site, and Trout Unlimited and the US Forest Service produced a film called Together – Tincup Creek, Idaho about the project.

Throughout the years the awe-inspiring majesty of many of the United States western waters have been reduced through the damning of rivers and the creation of cities and towns as our population across the country has grown. While the convenience of better jobs, shorter commutes, and access to a plethora of dining and shopping venues is wonderful, the downside is the diminishing appreciation and use of our countries federal and state lands for hunting, fishing, and general leisure activities. There are now few who regularly enjoy a backdrop as unique and beautiful as the one found at Tincup Creek.

Total project outcomes (2017-2020):

- 4.5 miles of stream were restored
- 23,350 feet of channel were treated.
- 10 historic meander bends were reconnected, for a total of 5,140 feet in increased stream length.
- 500 trees with large root wads were placed.
- 88 riparian and wetland acres were improved.
- 5,680 feet of fencing and a cattle guard were installed, and cross-fences improved.
- 546 volunteer hours were contributed to the project by 3 TU chapters.
- 17 agency, nonprofit, and foundation partners were involved in the success of the project.
- A project video was created and distributed widely, including online and at the American Fisheries Society meeting in 2019.
- Four press releases were distributed and were covered in at least eight media articles.
- Interns from BYU Idaho were involved in mussel surveys for the project.
- The project received an award for Partnerships and Volunteerism from the Intermountain Region of the US Forest Service in 2019.
- A three-panel interpretive signage display was installed overlooking the project area.

Many benefits are expected from completion of the project, including a healthier floodplain and riparian area – with a shift toward more mesic species in the floodplain as overland flow increases, especially in the spring. Beaver populations and dams are expected to increase as runoff forces are better dissipated on the floodplain instead of staying in-channel. Habitat diversity and complexity are expected to increase with more rearing and hiding cover available to different life stages and different fishes. Northern Leatherside chubs are expected to increase in population density due to greater habitat complexity and beaver activity (especially in the upper reaches of the project area). The sediment load in the system will decrease due to the treatment of eroding banks. Sediment deposition will also decrease as the channel is narrowed and fines are more easily transported down the system. These improvements should result in higher reproductive success and recruitment, with surges expected in population densities of all native fishes. Most of all, project partners expect to see a healthy and functioning riparian system that continues to improve through time.

The total project contributions by all partners over the project's four years, both cash and in kind, was $654,107. (Agency costs are likely under represented – project had significant design build savings by performing the work in house.)

Economic Calculator results:

Jobs: 12.2609 Total Sales: US $1,057,707.73 Value Added: US $654,178.91 Income: US $491,949.02

Project Partners: This project was funded by the following partners:

- Western Native Trout Initiative
- Desert Fish Habitat Partnership
- Trout Unlimited
- U.S. Forest Service: Caribou-Targhee National Forest
- Idaho Department of Fish and Game
- Idaho Department of Transportation
- Caribou County Road and Bridge
- Idaho Department of Environmental Quality
- National Forest Foundation
- Jackson Hole Trout Unlimited
- Jackson Hole One Fly
- Snake River Cutthroats Trout Unlimited
- Star Valley Chapter Trout Unlimited
- Agrium and Bear Lakes Grazing Association
- U.S. Fish and Wildlife Service

Interpretive signage designed in 2019 and installed in 2020.


Together: Rebuilding Tincup Creek
You are witnessing the renewal of Tincup Creek, thanks to people power. Historic grazing practices started changing the area you see below. Then in 1956, aerial spraying removed most of the willows. The entire system started unraveling. This affected the native fish and wildlife species. In order to act on their behalf, partners worked in to help.
Nature's healing could have taken centuries. Instead an inspired group of people joined forces to reconnect the floodplain and strategically relocate willows. The 2017 to 2020 project focused on five miles of stream. How does Tincup Creek look today? Feel free to explore.
The Unraveling of Tincup Creek
Before
After
Willow Power
Teaming Up
USDA
JACKSON HOLE
ITAFOS
WO Ranch


Flood: When Rising Waters are Welcome
After Floods Recede, Verdant Life Proceeds
Five Cheers for a Flooded Floodplain


Dive into the Future of Tincup Creek
Imagine visiting Tincup Creek now and in the future. What will change? How will the plants, wildlife, and fish benefit and respond?
Take a pretend plunge into the future. Feel the icy water shaded by overhanging willows. Peer through crystal clear and clean water. A Yellowstone cutthroat trout swims to the surface to snap up a mayfly. A crayfish claw waves from streambed cobbles and a beaver paddles by.
Rebuilding Tincup Creek is the story of leaving our planet better for our children and their children. Give nature a boost, and recovery begins.
Western Toad
Yellowstone Cutthroat Trout
Western Pearlshell Mussels
Northern Leatherside Chub
Mixed Crayfish

Volunteers from the Snake River Cutthroats (Idaho Falls), Star Valley, and Jackson Hole Trout Unlimited Chapters helped to plan willows at a September 2020 volunteer day.

2019: Leslie Steen (TU) and Lee Mabey (Caribou-Targhee National Forest) accepting the U.S. Forest Service Intermountain Region Partnerships and Volunteerism award from Nora Rasure, USFS Regional Forester.