



Memorandum

To: Michael Murray, US Fish and Wildlife Service
Jennifer Graves, Desert Fish Habitat Partnership
Therese Thompson, Western Native Trout Initiative

From: Leslie Steen, Trout Unlimited

Re: Final Report - Tincup Creek Stream Restoration Project Phase 3

Agreement: USFWS F19AP00414

Period of Performance: 12/01/19 – 11/30/20

Date: December 9, 2020

Project Description:

The Tincup Creek Stream Restoration Project was a large-scale, multi-phased project led by Trout Unlimited and the Caribou-Targhee National Forest (CTNF) from 2017 - 2020 to improve ecosystem function and habitat for Yellowstone cutthroat trout and other native species by restoring channel and floodplain function on 5 miles of degraded stream.

Project Objectives:

The project's goals were to restore stream processes and function, so that all parts of the aquatic system are able to interact with each other. By setting the system up to function properly, habitat complexity will increase through time and will promote a diverse native species assemblage including Yellowstone cutthroat trout, northern leatherside chub, boreal toad, western pearl shell mussels and bluehead suckers – all native species with special management emphasis.

- Objective 1: re-elevate the stream so it is reconnected to the floodplain by elevating riffles, narrowing the channel, and decreasing slope by reconnecting meander cutoffs.
- Objective 2: restore eroding banks by re-sloping them and planting whole willow clumps and sod mats.
- Objective 3: improve habitat complexity for the benefit of all native species in the project area through the above techniques as well as by incorporating large woody debris into meander cutoff plugs, leaving connected backwater channels when restoring meanders, creating or connecting off-channel ponds, and encouraging beaver dams to achieve more frequent overland flow during runoff.

- Objective 4: engage community volunteers interested in fish conservation and angling in restoration activities to learn about and cultivate a connection to the resource.

Project Budget and Matching Contributions:

Phase 3B (2020) Project Expenditures

Work Completed	Total
Supplies: weed treatment contractor	\$3,600
Contractor: excavation	\$73,519
Other: drone for monitoring	\$1,376
Other: interpretive signage site preparation	\$824
Other: BYUl mussel internship stipend	\$2,000
Other: Volunteer day supplies	\$587
Other: TU indirect overhead	\$11,405
Total	\$93,311

The majority of project expenditures were spent on the excavation contract with Rockin’ T Construction (\$73,519) for the stream restoration treatments.

Phase 3B (2020) Contributing Project Partners

Partner	Cash	In-Kind
Desert Fish Habitat Partnership & Western Native Trout Initiative	\$11,597	
Idaho Department of Environmental Quality 319	\$60,000	
Idaho Department of Fish & Game		\$5,000
Jackson Hole Trout Unlimited	\$587	\$871
Snake River Cutthroats Trout Unlimited		\$1,523
Southeast Idaho Mitigation Fund – Itafos	\$21,127	
Star Valley Trout Unlimited		\$871
Trout Unlimited		\$5,000
US Forest Service – Caribou-Targhee National Forest		\$23,000
Total	\$93,311	\$36,265

Out of the 2019 award for \$40,000 from the USFWS / Desert Fish Habitat Partnership / Western Native Trout Initiative, \$28,402.88 was spent on Phase 3A expenses in 2019 including the excavation contract, weed spraying contract, irrigation supplies, and TU indirect. The remainder of the award of \$11,597.12 was spent on Phase 3B expenses in 2020 including a portion of the excavation contract, BYUl internship stipends for mussel relocation surveys, and TU indirect.

Total Project Expenditures (from 2017 – 2020)

Work Completed	Total
Supplies - tree harvesting	\$49,390
Supplies - cattle guard, fencing, irrigation, mulch	\$35,792
Supplies - seed and weed treatment	\$10,073

Contractor	\$302,341
Other: Video and Drone	\$14,364
Other: Interpretive Signage	\$2,684
Other: Internship Stipend	\$6,000
Other: Volunteer day supplies	\$587
Indirect Overhead	\$63,911
Total	\$485,142

Total Contributing Project Partners (from 2017 – 2020)

Partner	Cash	In-Kind
Agrium & Bear Lakes Grazing		\$8,000
Caribou County		\$1,500
Desert Fish Habitat Partnership & Western Native Trout Initiative	\$116,932	
Idaho Department of Environmental Quality 319	\$60,000	
Idaho Department of Fish & Game		\$20,000
Idaho Transportation Department		\$18,000
Jackson Hole One Fly Foundation	\$57,250	
Jackson Hole Trout Unlimited	\$19,819	\$3,971
National Forest Foundation	\$50,000	
Snake River Cutthroats Trout Unlimited	\$7,500	\$4,623
Southeast Idaho Mitigation Fund – Itafos	\$28,877	
Star Valley Trout Unlimited	\$9,764	\$3,971
Trout Unlimited		\$19,760
US Fish and Wildlife Service – Idaho CCF	\$25,000	
US Forest Service – Caribou-Targhee National Forest	\$110,000	\$89,140
Total	\$485,142	\$168,965

The total project contributions by partners over the project’s 4 years, both cash and in-kind, is **\$654,107**.

Project Outcomes:

2020

In 2020, the Caribou-Targhee National Forest, in partnership with Trout Unlimited and others, completed the fourth and final year of a four-year project on Tincup Creek on the Soda Springs Ranger District. Project implementation for Phase 3B of the Tincup Creek Stream Restoration Project occurred between July 15 and September 30, 2020, with Rockin’ T Construction of Swan Valley, ID carrying out the excavation contract work and CTNF staff providing construction staking and project oversight.

Objectives 1 and 2 were accomplished through a variety of treatments similar to those used in previous phases including elevating riffles, narrowing the channel, decreasing stream slopes, reconnecting cut off meander bends, reconnecting the floodplain, and resloping and revegetating eroding banks.

- In total, 1.1 miles of stream were restored:

- 5,800 feet of channel were elevated and treated (through narrowing, bank treatments, and floodplain reconnection).

Objective 3 was accomplished through the above restoration techniques. In addition:

- Pool habitat and pool depth were increased.
- 100 large trees with root wads (previously harvested in 2017) were added into the system to provide structural stability and additional habitat complexity and instream cover, especially for juvenile trout and other native fish species.
- 26 riparian acres were improved.

Objective 4 was accomplished through the following:

- A volunteer day involving three TU chapters from Jackson Hole, Idaho Falls, and the Star Valley was held on September 12, 2020 (approximately 120 volunteer hours). Volunteers helped with restoration activities, including harvesting and planting willows

In addition:

- Two interns from BYU-Idaho surveyed and relocated sensitive western pearl shell mussels from treatment areas into restored areas.
- Monitoring according to the project's monitoring plan was completed by CTNF and IDFG staff, with pre-project habitat and fish monitoring completed within the Phase 3B reach as well as in representative sampling units outside of the project area.
- A press release was distributed to regional newspapers and [posted online at TU.org](#), and was covered as follows:
 - An article on [Buckrail.com](#), an online news source based in Jackson, WY. 8/26/20.
 - An article in the [Idaho Falls Post-Register](#). 8/20/20.
- Our partners at Western Native Trout Initiative and Desert Fish Habitat Partnership committed funding via the Western Association of Fish & Wildlife Agencies toward the design of interpretive signage for the project. We matched this effort with funding for the installation of the signs, which were installed in summer 2020.

Total Project Outcomes (2017-2020)

- 5 miles of stream were restored (5.3 miles were treated over the course of 4 years, however there was an overlap of approximately 1,900 feet that was treated in both 2017 and 2018, so the true stream length restored is 4.7 miles).
- 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 AFS meeting in 2019.
- 4 press releases were distributed and were covered in at least 8 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.

Project Photos from Phase 3B (2020):
Before and After Photos



Before: Hillside is steep and eroding due to yearly use by watering sheep.



After: A floodplain bench has been constructed to move the stream away from the steep, eroding hillside. The channel has been narrowed and elevated, with improved floodplain connectivity. Willows have been moved to outside banks to protect areas of higher erosion.



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: This bend has been the project's poster child for the need for restoration since the project was started and has been affectionally 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 above here has now been diverted onto the floodplain by beaver activity, so actual stream flow and erosive forces in this section has been reduced.



Interpretive signage designed in 2019 and installed in 2020.



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



Willows planted by volunteers during our September 2020 volunteer day.



Rockin' T Construction equipment staged to tackle the last stretch of the project in September 2020.

2017-2019 Additional Photo Highlights:



Volunteers from the Snake River Cutthroats (Idaho Falls), Star Valley, and Jackson Hole Trout braved the cold in mid-October 2017 to plant willows, mulch and seed.



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.



Volunteers from the Snake River Cutthroats (Idaho Falls), Star Valley, and Jackson Hole Trout helped to mulch and reseed restoration treatment areas at our September 2018 volunteer day.



BYU-Idaho interns surveyed and relocated sensitive western pearl shell mussels from treatment areas in 2018, 2019 and 2020.



Aerial photo taken by SVTU chapter member of Phase I treatment area looking upstream toward Phase 3 area (Photo courtesy of Rex Litchfield) in fall 2018.



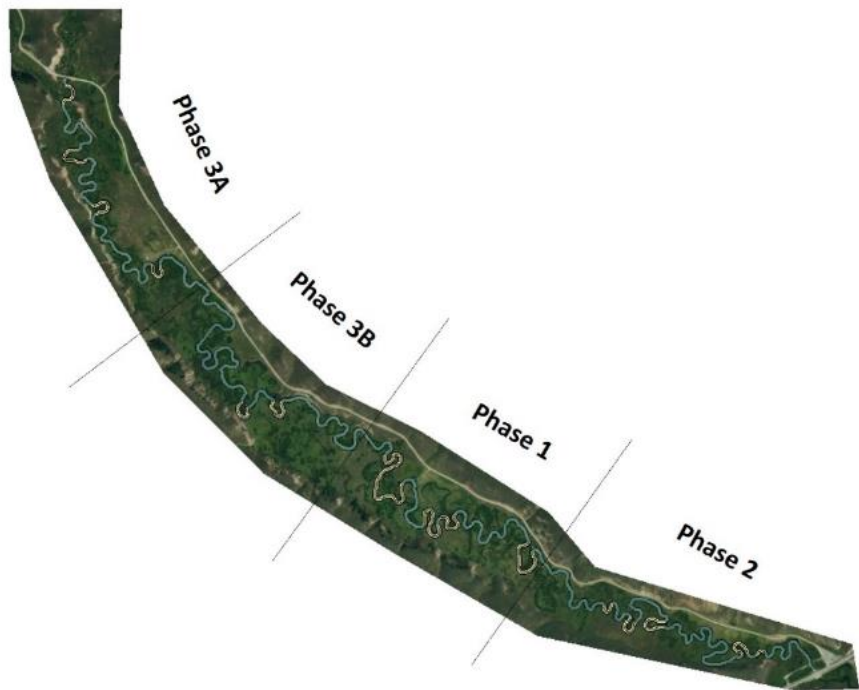
Cattle exclusion fence installed in 2018.



Volunteers from the Snake River Cutthroats (Idaho Falls), Star Valley, and Jackson Hole Trout helped to mulch, plant willows, and build exclusion fencing at our September 2019 volunteer day.



Leslie Steen (TU) and Lee Mabey (CTNF) accepting the USFS Intermountain Region Partnerships and Volunteerism award from Nora Rasure, USFS Regional Forester in 2019.



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