

BIG THOMPSON

RIVER RESTORATION

Colorado Flood Recovery: Watersheds and Natural Resources

Multi-Objective

- Flood Hazard Reduction
- Habitat Enhancement
- Fisheries Enhancement
- Water Quality Protection
- Community Engagement
- Volunteerism

In September 2013, the Big Thompson watershed experienced severe flood damage, resulting in destruction of infrastructure, property, loss of life, erosion, and removal of vegetation. This multi-objective flood recovery project addressed flood hazard reduction and mitigation, aquatic and riparian habitat enhancement, fisheries enhancement, water quality protection, and community engagement and volunteerism. Dam removal was one of the most significant accomplishments of the project, reconnecting 22.1 miles of fish habitat and allowing for migration of native rainbow and brown trout, among others.

This cost-effective project developed a stream restoration design for 2.5 miles of the North Fork of the Big Thompson River. It then implemented that design to include rehabilitation of the stream channel, removal of an outdated diversion structure, on-going revegetation and monitoring, as well as tapping into an extensive network of 300+ volunteers, and providing youth education programs.

Wildlands Restoration Volunteers (WRV), a non-profit working to foster a community spirit of shared responsibility for the stewardship and restoration of public, protected, and ecologically important lands, applied for and implemented the project on behalf of the Big Thompson River Restoration Coalition, private landowners, and State and local landowners including Colorado Parks and Wildlife, and Larimer County.

Volunteer and community participation is a critical component in the success of this project. WRV recruited 300+ volunteers from its extensive database of thousands of active WRV volunteers, as well as through collaboration with other community-based organizations. Without the support of the local community and WRV's volunteer base, this project would not have been possible.



Volunteers stabilize and revegetate a streambank within the project area.



Watershed
Big Thompson River



Locale
North Fork of the
Big Thompson River



Primary Sponsor
Wildlands
Restoration
Volunteers



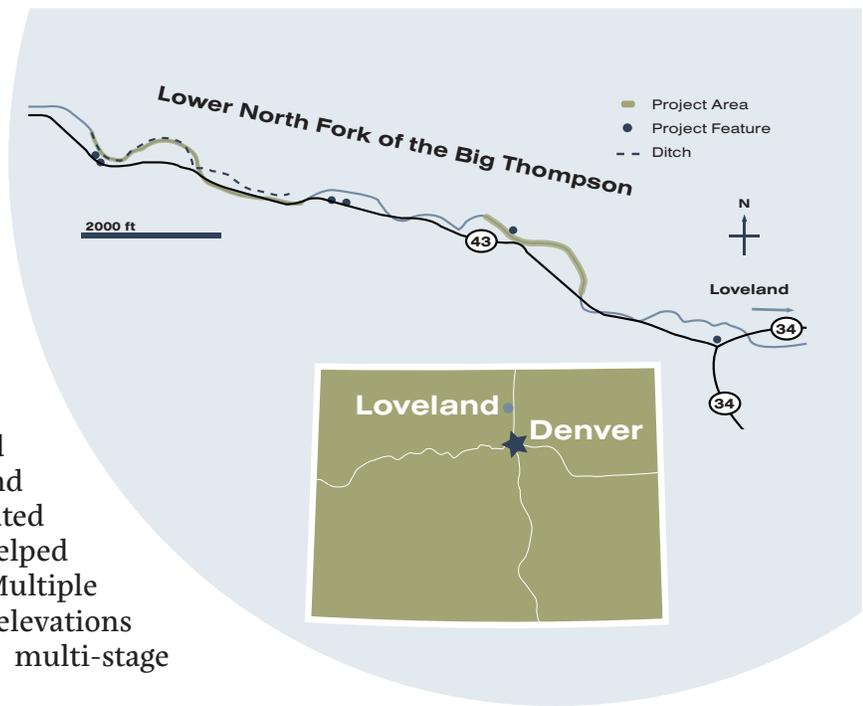
Project Cost
\$479,000



Date Complete
Fall 2016

River Channel Restoration

Along a 2.5 mile stretch of river, grade control structures, root wads and native boulders were placed in the channel to improve aquatic habitat using natural channel design, including pool-riffle sequences. Pools were deepened to provide adequate over-wintering habitat for fish, and a pronounced low flow channel was created to enhance aquatic habitat during summer and winter months. Grading the stream banks created a larger and reconnected floodplain, and helped address erosion and bank stabilization. Multiple floodplain benches were constructed at various elevations to promote riparian vegetation and allow multi-stage inundation at variable flood flows.



Watch the Video

Project designers and stakeholders share how the 2013 flood changed the North Fork of the Big Thompson, including beautiful aerial videos of the watershed. Featured: Corey Engen, Flywater; Lukas McNally, Wildlands Restoration Volunteers; Brendan Chenoweth, Local Landowner. Video: approx 3 min.



Corey Engen nears completion of the fish hatchery dam removal with a hydraulic breaker hammer. Removal of the old fish hatchery dam freed up 22.1 miles of stream for fish migration.

Dam Removal

Removal of an old diversion dam was one of the most significant accomplishments of the project, reconnecting 22.1 miles of fish habitat on the North Fork of the Big Thompson and allowing for migration of rainbow and brown trout, among others. The structure was part of a fish hatchery that was damaged by the 1976 flood, and never reopened. It sat idle for more than 40 years, although the diversion dam was never removed and remained unused. Deconstruction of the dam allowed greater fish passage and sediment transport throughout the river.

Originally, removal of this old diversion structure was not included in the budget. However, significant additional cash was raised to help remove the structure, which was deemed critical to the success of the stream rehabilitation.



An operator places rock between root wads to provide improved aquatic habitat.



Revegetation and Creation of an Onsite Nursery

More than eight acres of disturbed riparian and flood plain areas were revegetated to reduce risk of weed invasion, and enhance the wildlife habitat value of the riparian corridor. Additional revegetation is currently ongoing.

In the fall of 2014, WRV constructed an onsite nursery to grow out and also stage native plant materials for the restoration project. The nursery stock was also made available to other projects on the North Fork of the Big Thompson.

Community Volunteers and Youth Education

WRV recruited 300+ volunteers from its extensive database of thousands of active WRV volunteers as well as through collaboration with other community-based organizations. They recruited and trained dozens of volunteer leaders to lead these volunteers in river revegetation techniques. Food, tools, and insurance were provided with the goal of creating a very positive volunteer experience, which will keep those volunteers engaged for future projects. Volunteer satisfaction was surveyed and documented after each volunteer event.

FlyWater, Inc. and WRV led two youth field trips with Brentwood Middle School from Greeley, Colorado, where students learned to fly fish, worked in the plant nursery, and hiked in the Rocky Mountains. Some of the students had never hiked in the mountains before and over half of the students caught their first fish on a fly rod in the stocked pond.



In 2016, WRV also organized a field trip with another 7th grade class from the same Greeley middle school.

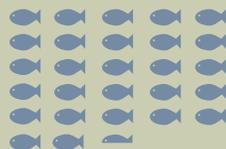
Students from a Greeley middle school work to pot containers with willows.



300+
volunteer days



22.1 miles of
reconnected
fish habitat



2.5 river miles
restored



8 acres of
revegetation



- PROJECT -

SPONSORS

A diverse group of sponsors and volunteers came together to make this cost-effective flood recovery project a success. Initiated by a grant from the Colorado Water Conservation Board, project funds were matched by a diversity of State and local businesses and organizations.

Originally, removal of the old fish hatchery dam was not included in the budget. However, significant additional cash was raised to help remove the structure, a project component deemed critical to the success of the stream rehabilitation.

The project amassed the equivalent of more 300 volunteer days. The value of those in-kind contributions, include other donated material and time, totals more than \$160,000.



A volunteer planting streambank vegetation.

Partners & Funders

Wildlands Restoration Volunteers

Colorado Water Conservation Board Grant

Colorado State Forest Service

National Fish and Wildlife Foundation

National Forest Foundation

Trout Unlimited, Embrace a Stream Program

Patagonia

RBC Wealth Management

Consultants

FlyWater, Inc.

Eco-Hydro Consulting

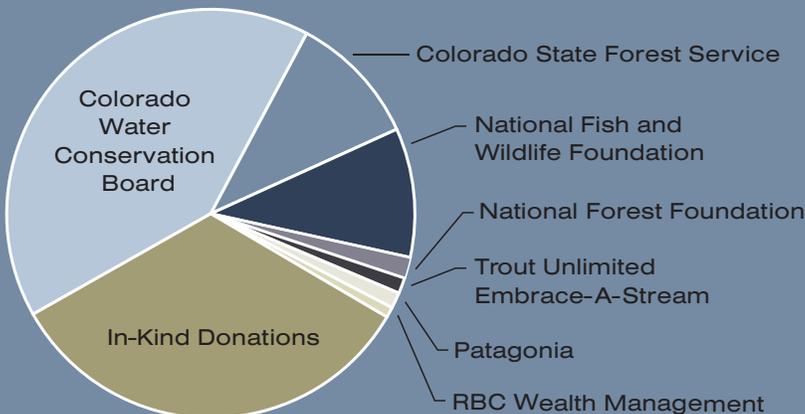
FOR MORE INFORMATION

Please contact Lukas McNally, Wildlands Restoration Volunteers, at lukas@wlr.org

BUDGET

Total: \$479,000

Income



Expense

