

# SYLVAN DALE REACH

Big Thompson Watershed

## 2013 Colorado Flood Recovery



**COLORADO**  
Department of Local Affairs  
Community Development Block Grant –  
Disaster Recovery



**BIG THOMPSON**  
WATERSHED COALITION

### Multiple Benefits

- **Protect life, property, and infrastructure**
- **Mitigate flood risk**
- **Enhance ecosystem structure & function**
- **Protect public facilities**
- **Preserve historic structures**
- **Enrich tourism and recreational opportunities**

The Sylvan Dale Guest Ranch (SDGR) and the City of Loveland Water Treatment Plant (WTP), both located within the river corridor at the mouth of the Big Thompson canyon, were severely damaged by the massive September 2013 flood event. High water deposited tons of sediment and scoured existing natural features. The flood resulted in loss of the Ranch's main lodge and several cabins, severe impacts to the WTP's infrastructure and operations, and significant damage to several county roads.

The purpose of the restoration activities conducted at the Sylvan Dale Guest Ranch and the City of Loveland Water Treatment Plant was to implement several techniques at a small scale, and use the project as a demonstration to showcase this diverse suite of methods utilized in a project designed to satisfy multiple objectives.

The Big Thompson Watershed Coalition (BTWC) formed in the wake of the 2013 flood to facilitate the long-term recovery of the Big Thompson River corridor. The first effort of the Coalition was to develop a Master Plan to assess river conditions and prioritize work. The reaches adjacent to the SDGR and WTP were identified in the Master Plan as high priorities for restoration due to the risk of damage in future events and potential improvement to ecological value for plant and wildlife habitat.

An aerial view of the Big Thompson River at the Sylvan Dale Ranch Reach in 2013. The force of the flood waters and excessive sediment deposition severely damaged ranch infrastructure and nearby county roads.



**Watershed**  
Big Thompson



**Locale**  
Larimer County



**Local Sponsor**  
Big Thompson  
Watershed Coalition



**Property Ownership**  
33% public  
67% private



**Project Cost**  
\$341,791



**Construction Dates**  
Mar 16 - May 5, 2017  
(50 days)



## Big Thompson River Sylvan Dale Reach



# River Corridor Rehabilitation

The Coalition improved the resiliency of 3,300 linear feet of the Big Thompson River through this early flood recovery demonstration project. In addition to protecting critical infrastructure like the City of Loveland WTP, the project also helps to preserve historic structures at the Sylvan Dale Guest Ranch.

At both project reaches, restoration activities included defining a low-flow channel to concentrate water in the river for aquatic organisms during dry times, and replicating natural bedforms by constructing pools, riffles, glides, and point bars. Clusters of boulders were placed in the active river channel to enhance pools and improve aquatic habitat. The point bars and river banks were seeded with native grasses and plants, and willows were planted along the existing rock stabilization

features on the banks. Grading activities throughout the reaches helped to reconnect the main channel with its floodplain in order to improve conveyance of future flood waters and sediment. At the Sylvan Dale Guest Ranch, the channel was graded at a constriction point for improved floodplain access as well, and a side channel habitat feature was created. At the City of Loveland WTP site, the split flow at the water intake plant was reconstructed into a single thread meandering channel with ample room for flooding over the constructed point bar.



Students collect benthic macroinvertebrate samples from the river through a program at Heart J Center, a non-profit that focuses on education.

*Photos: Kirsten Brown (left) & Bob Campagna (right)*

## Project Objectives

- Demonstrate river restoration techniques at a small scale
- Reconnect floodplain and increase floodplain capacity through sediment removal and grading
- Enhance riparian and aquatic habitat
- Stabilize streambanks to protect against additional damage to existing infrastructure
- Establish cover on critically eroding land

### BY THE NUMBERS

project length:  
3,300 linear feet



9 in-stream  
structures

400 willow & cottonwood  
live stakes

1,150 linear feet  
of bioengineered  
streambanks



0.6 acres seeded

# Before



# After



## Loveland Water Treatment Plant

Before the project, this section of the river was wide and straight, and had a riprapped bank that limited the river's access to the floodplain.

The project reconstructed the island into a low point bar on the inside bend of the channel, improving sinuosity, enhancing aquatic habitat, and revegetating the banks and point bar with native grasses and willows.



## Sylvan Dale Ranch Main Channel

Before the project, the channel in this section was wide, shallow, and homogenous, with few natural features and limited aquatic habitat.

The project consolidated flows along the bedrock, regraded the floodplain to provide additional capacity for higher flows, and added boulder clusters to enhance aquatic habitat.

# PROJECT TEAM

This project was made possible by funding from the Colorado Department of Local Affairs (DOLA); a collaborative planning process led by the BTWC; and successful partnerships among the Coalition, the Sylvan Dale Guest Ranch, the City of Loveland, and other private property owners within the project area.

The BTWC is planning to continue monitoring conditions, in partnership with the property owners, along these two stretches of the Big Thompson River. Continued monitoring will help the Coalition assess the performance and functionality of the river restoration treatments, as well as their contribution to the long-term resilience of the river corridor over time.

## Partners

Private landowners  
 Sylvan Dale Guest Ranch  
 City of Loveland  
 Colorado Department of Local Affairs (DOLA)

## Contractors

Ecological Resource Consultants, Inc  
 Tezak Heavy Equipment

### FOR MORE INFORMATION

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[www.BigThompson.co](http://www.BigThompson.co)

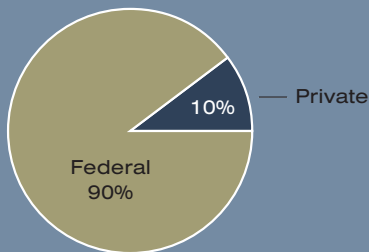


Channel realignment and point bar construction at City of Loveland water intake plant.

## BUDGET

**TOTAL: \$341,791**

### Project Funding by Source



### Project Cost Breakdown

