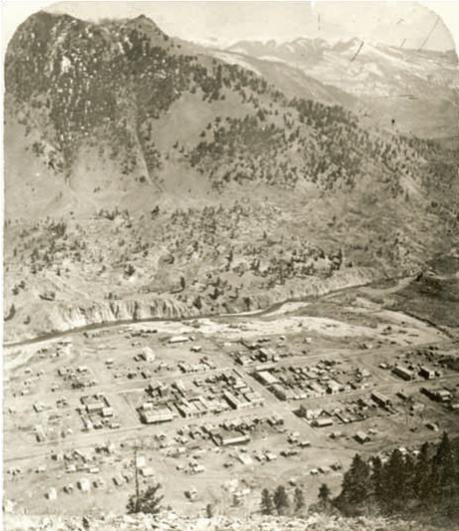


LAKE FORK RIVER RESTORATION PROJECT

LAKE FORK VALLEY CONSERVANCY

Background and History of the Lake Fork River in Lake City, CO



The Lake Fork of the Gunnison, in the vicinity of the town of Lake City, in Hinsdale County, Colorado, has undergone significant alterations as population and development pressures have increased over time. Located at an elevation of 8,690 feet, the town is situated in a narrow mountain valley at the confluence of the Lake Fork and Henson Creek, its major tributary. When the area was initially settled in the late 1870's, much of the valley was an active flood plain with the river spreading out across the valley floor. The photo above is of the town of Lake City in 1883 and shows the Henson Creek and Lake Fork confluence. This photo shows the historic, braided and dynamic character of the Lake Fork river system that often broke out of its banks and flowed over the broad floodplain.

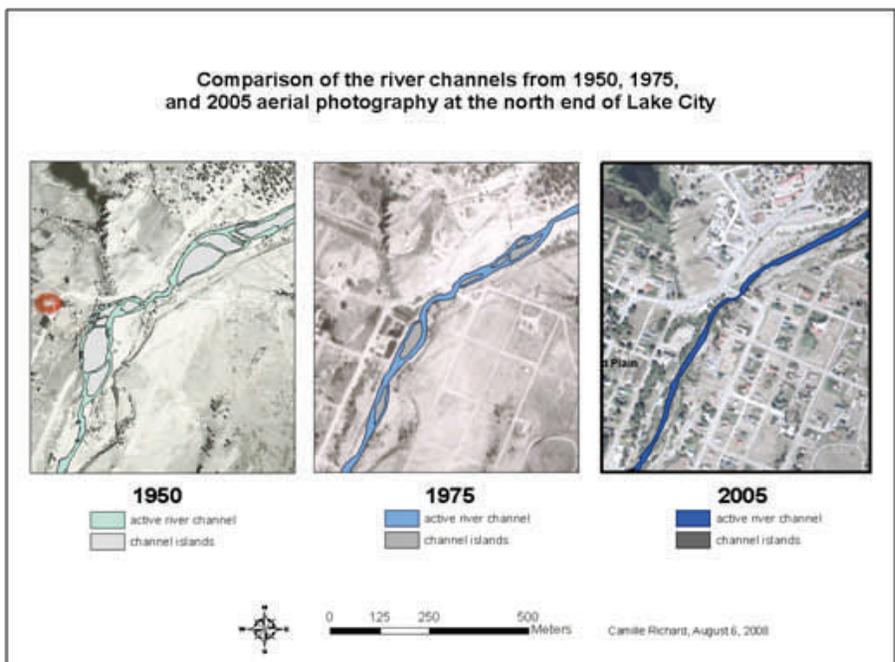
The early settlers spent much energy attempting to tame the river, but it was not until recent decades that the river was straightened and channelized to accommodate growing

residential demands for riverfront property. As a result the river has lost much of its active flood plain width and riparian habitat where cobble and gravel beds adjacent to the river were filled and built upon. The aerial photos below show the dramatic changes made to the Lake Fork in just the last few decades. The area in the picture is located near the 8½ Street bridge at the north end of Lake City. One can see that the river once crossed what is today Henson Street.

In addition to the local, channelized impacts to the river system, Treasure Dam on Henson Creek burst in the early 1970's and sent a deluge of sediment that filled Henson Creek and spilled over its banks. Henson Creek continues to contribute large quantities of sediment that can be observed accumulating at its confluence with

the Lake Fork.

Yet even more changes to the river channel took place in the late 1980's to early 1990's, when temporary gravel berms were constructed at the north end of town to divert flood waters from the highway so that the Colorado Department of Transportation could engineer the slope beneath to withstand high flows. These berms remain, but were never engineered to withstand high flood waters. To date no construction has occurred here and most of the properties in the flood plain are currently on the market. This area has great potential for restoration through the removal of the berms, channel improvements, and reestablishment of river side vegetation.



How Would a Restoration Project on the Lake Fork be of any Benefit?

The main goal of this project is to enhance the hydrologic and ecological health of the river, which has been compromised over the course of the past century out of necessity as the Lake City area has developed. While it is not possible or desirable to return the streams to their pre-development conditions, we can take steps to work with the

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existing systems to enhance their natural character and function, thereby improving fisheries and bank stability.

Residential development along the river from the Henson Creek confluence to the 8½ Street bridge has filled and built upon what was an active floodplain area. Enhancements to this reach

(and part way up Henson Creek) could include in-stream structures made of natural material (boulders) that can improve fishery habitat, stabilize the existing banks and help to transport the high sediment load in the river system. These structures will not change the flood plain width or

river level and would be constructed to look as natural as possible. They can also provide recreational benefits by creating self-maintaining pools, rapids and eddies that are favored by fish and recreationists alike.

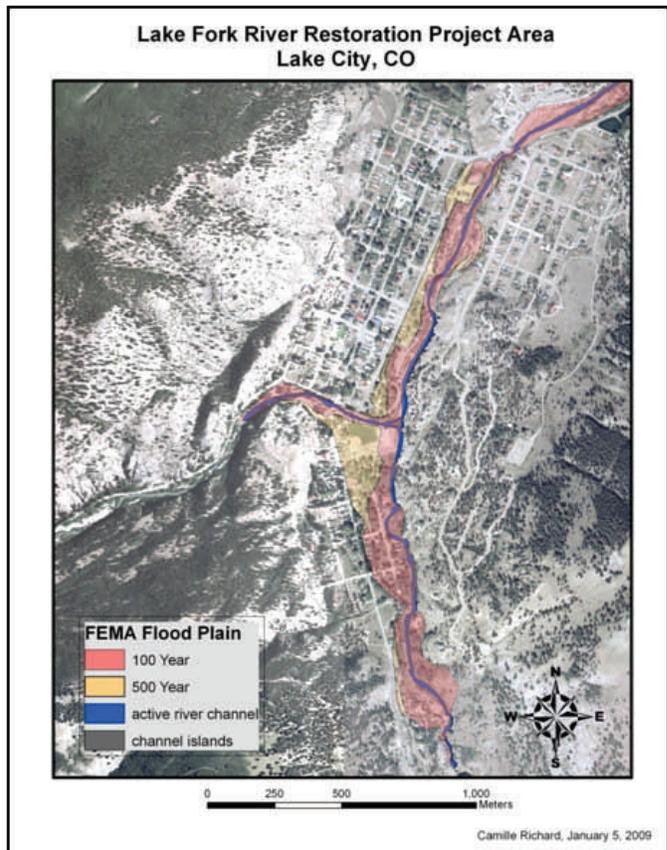
The only stretch of river that may have the potential to be restored to a pre-1980's configuration is the river below the 8½ Street bridge, which was temporarily channelized in the 1980's by CDOT and the US Army Corps of Engineers. This will only be possible with cooperation from the riverfront property owners, the Town Trustees and County Commissioners - the property owners being willing to sell or allow restoration work on their land, and the local governments being willing to take ownership. This area could then be maintained as community open space with healthy riparian areas, walking paths, and potentially good spawning ground for trout. This would provide the public with readily accessible river frontage, which is currently limited to Memorial Park, and contribute to property values adjacent to the open space.

The Lake Fork River Restoration Project

The idea for this project came about in 2008 as a group of local citizens recognized the need and opportunity for river restoration on the Lake Fork. Consequently, a community based approach to planning has taken place in town with strong support shown by many local organizations, businesses, and individuals. The current feasibility study area includes the Lake Fork from Crooks Falls down through San Juan Ranch Estates, and up Henson Creek about one mile. The actual project area will be largely dependent upon the interest of river front property owners, the desires of the local community, and funding for construction.

The specific expected outcomes of the project are the following:

- Increase fish productivity and numbers by at least 200%
- Restore natural riverbed structure and riparian vegetation where feasible
- Increase bank stability along highly developed portions of the river
- Increase the amount of public open space
- Improve recreational quality and access for fishing and kayaking
- Improve the visual appearance of the Lake Fork as it flows through town
- Increase property values



The project is divided into four overlapping phases:

1. Planning phase to complete necessary studies, design work and development of long-term management plan (2010-2011)
2. Property/easement acquisition phase to acquire property or easements, as necessary, for restoration

work (2010-2011)

3. Construction phase to complete the actual on the ground construction and re-vegetation work (2011-2012)
4. Management phase for ongoing maintenance and recreation management (2012-onwards)

Has This Been Done Before?

In 1997 a two mile reach of the lower Lake Fork at Gateview was successfully restored shortly after the Bureau of Reclamation, the Bureau of Land Management and the Conservation Fund acquired the land. The main objectives of the project were to improve habitat for Brown and Rainbow trout by reshaping the pools within the river, improve habitat for riparian dependent wildlife, visually enhance the area, and improve streambed and bank stability. The desire to create a better habitat for fish to live and reproduce was the main reason that this site was chosen for a restoration project. The river channel was unstable and subject to frequent floods causing an excess of sediment to flow in and out of the area and having an overall negative effect on the fisheries.

The restoration work that the Colorado Division of Wildlife (CDOW) and the BLM did on this portion of the Lake Fork River included reshaping the channel and placement of large boulders in order to improve the flow of water, creating pool habitat and increasing bank stability. They increased the depth of the river channel, decreased the channel width, made the riparian area larger, and added vegetation to the riparian areas.

The total fish biomass (size and population of the fish) tripled over the course of the next six years then stabilized about twice what it was pre-treatment, from approximately 40 lb/acre to over 100 lb/

acre. The CDOW criteria for Gold Medal classification is 60 lb/acre and at least 12 fish 14" or larger per acre. Overall the project was a success and anticipated objectives were indeed met.

Photographic overview of reconfiguration work at Lake Fork at Gateview



1992. Lake Fork of the Gunnison River at Gateview, looking downstream to the bridge near gaging station 09124500 prior to reconfiguration. Discharge is 270 ft³/s.



1998. Lake Fork near Cross Section 2 following reconfiguration. The cobble bar forming the left bank was constructed of material dredged from the streambed to the right. The large, partly submerged boulders in the channel were quarried off site and added to the streambed during reconfiguration. Discharge is 230 ft³/s.

What We Envision About the Process

The Lake Fork Valley Conservancy has secured grants to fund the feasibility and planning phase of this project. We do not wish to proceed unless a significant portion of the community is supportive of the design plan and can see a great benefit of the project overall. The planning process of this project will be open to all members of the community and interested persons. We will proceed

slowly and effectively. The implementation of this project will be complex due to the variety of interests and number of land owners along the river. A major portion of this planning phase will involve seeking answers to questions regarding the feasibility of such a project and addressing any issues and concerns that may arise.

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Our Vision:

The Lake Fork of the Gunnison River drainage is to be a healthy watershed that is defined by a balance of resource conservation, economic opportunity, recreational activities and community values. The health of the watershed will be sustained, protected and improved by a broad-based partnership of an educated citizenry, non-profit groups and governmental entities.

Our Mission:

The Lake Fork Valley Conservancy seeks to sustain and enhance the environmental and rural character of the Lake Fork of the Gunnison River valley through education, restoration and stewardship.

What We Envision About this Process (continued)

The following presents a list of possible issues that may need to be addressed:

- What is the existing river health and why is it the way it is today?
- Why change anything?
- Can the fishery actually be improved?
- What is the potential for private/public conflict?
- Is it worth the cost and effort?
- What are the costs/benefits?
- What are the potential risks for increased flooding caused by fishery enhancement structures installed on the river?
- What is the current grant money targeted for?
- What does each land owner desire? Can all land owners be accommodated?
- If public dollars are spent to enhance a section of river on private land, will that require the land owner to permit public access to the river on or through that land?
- Will proposed work attract undesirable consequences such as increased foot traffic, trespass issues, or altercations?
- Who will maintain liability for accidents on modified areas?
- Will property owners be indemnified/held harmless? Under what provisions and limitations?
- How much expanded recreation will practically fit in the system?

This feasibility phase includes a participatory planning process in which any project design will be shaped by the physical nature of the river itself and by the wishes of the community.