

Conservation Projects and Environmental Improvement Projects (EIPs) in the Trout-Cold Creek Community Watershed:

General Background

The Trout Creek Watershed is the second largest watershed in the Lake Tahoe Basin (it occupies 13 percent of the total land area draining to Lake Tahoe) and is located primarily in the Eastern portion of El Dorado County and partially in the Western portion of Douglas County. The area of the watershed is 41.3 square miles and contains the main hydrologic features of Saxton Creek, Cold Creek, Trout Creek, and Heavenly Valley Creek.

Trout Creek originates south of Freel Peak in the Carson Range of the Sierra Nevada. It converges with Saxon Creek in Lake Valley, with Cold Creek and Heavenly Valley Creek north of Pioneer Trail, and then enters the Truckee Marsh before finally draining into Lake Tahoe. The main channel length of Trout Creek is approximately 19.5 km long.

The watershed includes the residential areas of Al Tahoe, the Sierra Tract, Black Bartt, Montgomery Estates, Golden Bear, and Apalachee as well as the Montgomery Estates Community Watershed Planning Area. The southern portion of the watershed is primarily rural US Forest Service land, whereas the northern portion of the watershed consists of the urban city of South Lake Tahoe.

Trout creek was once one of the most productive fisheries in the Tahoe Basin and held special significance for the Washoe tribe. Trout Creek (mathOcahuwO'tha in Washoe, meaning "White Fish river") was an important fall camp for the tribe. The tribe discontinued use of the Trout and Cold Creek area in the 1940's due to the growing population in Lake Valley and continued disturbances and degradation of fish populations and habitat.

Small scale logging began in the Trout Creek area in 1859 and within the Tahoe Basin in the early 1860's to supply lumber for the silver mines in Virginia City, Nevada and the surrounding areas. Logging impacts within the Trout Creek watershed included 13 miles of railroad, 16 miles of wagon haul roads, 2 miles of "V" flume and 28 logging camps. It is noted that the highest density and most severe erosion in the South Shore occurred along Trout and Saxon Creeks.

After the decline of the logging industry in Lake Valley, extensive grazing of cattle and sheep began to take place in the headwaters and riparian areas of the watershed. A ditch system and a series of small dams were developed along the tributaries on Trout and Cold creeks to water the meadows during the summer months. By today's grazing standards, impacts from sheep and cattle would likely be considered excessive.

Today, restoration of degraded environmental conditions is paramount in the Trout/Cold Creek watersheds and in the Tahoe Basin as a whole. Much of the effort in the Trout/Cold Creek areas has focused on re-constructing the natural stream channels, re-establishing historic flood plains

and meadow areas and undoing some of the anthropogenic activities conducted in the past 100 years. In addition, fuels-thinning activities have taken place within the outskirts of the residential areas, or urban wildland interface, in an attempt to reduce the potential for a catastrophic wildfire to occur, and to restore healthy forest conditions.

The Community Watershed Partnership focus area within the Trout-Cold Creek Watershed is located in the uppermost urbanized reaches of the watershed and includes three distinct communities: Montgomery Estates, Black Bart and Golden Bear. The selection of this area is result of a rigorous prioritization process through communication and collaboration with key agency stakeholders. A needs assessment was conducted within selected sub-watershed/neighborhoods of the Trout-Cold Creek Watershed to determine existing natural resource issues and to begin the collaborative process of engaging community members.

Locations of Interest

Urban Area of City of South Lake Tahoe

Residential areas of Al Tahoe, Sierra Tract, Black Bart, Montgomery Estates, Golden bear, and Apalachee

Trout-Cold Creek Community Watershed Planning Area

Heavenly Mountain Resort, Lake Tahoe Community College, South Tahoe Middle School, South Tahoe Public Utility District, Upper Truckee Marsh, Lake Christopher, Star Lake, Hell Hole, High Meadows Wetlands

Recreational Opportunities

Hiking

Mountain Biking

Cross Country Skiing

Downhill ski/snowboarding

Fishing

Physical and Natural Characteristics

Watershed Area: 41.3 square miles

Hydrologic Features: Heavenly Valley Creek, Cold Creek, Trout Creek, Saxton Creek

Topography

Percent Impervious Surface: information coming soon ...

Range of Slopes: Percent slopes range from approximately zero in the lower reach near Lake Tahoe, to 50 at higher altitudes.

Geology: The geology of the Trout creek watersheds can be characterized by lake and glacial deposits at lower altitudes, flatlands, and low-lying hills; and by granitic formations at mountain peaks and on steep high elevation slopes.

Climate: In the Trout Creek watershed, precipitation (which falls primarily as snow in the winter) ranges from nearly 20 in. to about 40 in. with a general decrease from southwest to northeast

Wildlife and Habitat

As listed in the 2011 "Plant Community Characterization and Rankings of Fens in the Lake Tahoe Basin, California and Nevada," produced by the California Native Plant Society in cooperation with the USDA Forest Service Lake Tahoe Basin Management Unit, 13 individual fens (peat-forming wetlands that are among the most sensitive habitat types in the Sierra Nevada) were located within the watershed.

The upper watershed is noted to provide habitat for the spotted owl, pine marten, and Tahoe draba (a rare plant), and Heavenly Valley Creek supports a population of the threatened Lahontan cutthroat trout.

Land Use Characteristics

Prehistoric/Pre-Euro-American: 17 sites identified

Out of a list of the 10 most desirable watersheds in descending order of resource value, Washoe Testimony from the Washoe Land Claims Case ranks the Trout Creek Watershed as the sixth most valuable watershed in the Lake Tahoe Basin.

Conservation Projects and Environmental Improvement Projects (EIPs)

Trout Creek Restoration Wildlife Enhancement and Stream Restoration Project (CTC)

The primary goal of the project was to restore the stream to its historic conditions. The new channel was designed to be smaller and more sinuous. Restoration actions will increase flood frequency and duration, raise groundwater levels, improve vegetation, and enhance wildlife habitat.

High Meadows Restoration Project (USFS)

Restoration of the High Meadows will be carried out through the following project goals:

1. Re-establish stream channels to historic configuration in hopes to revitalize functional meadow systems and restore past drainage patterns.

2. Remove heavy concentrations of dead and dying conifers in order to restore area to a healthy and productive forest ecosystem. Maintain and expand existing aspen groves by removing encroaching conifers.
3. Re-configure existing trails and roadways to reduce potential for erosion and to minimize impacts on identified sensitive land and habitat areas.

EIP # 00993: Highway 50 Meyers to the "Y" (CALTRANS)

Hwy 50 from SR 89 intersection in Meyers to the South Tahoe Wye. Installation of road runoff treatment facilities and erosion control features is needed along the remaining road segments primarily between Meyers and airport, airport to "Wye".

EIP # 00989: Trout Creek SEZ Restoration, Phase II (CTC)

Restoration of SEZ floodplain and stream bank stabilization between Martin Drv. and Hwy 50.

EIP # 00990: Trout Creek SEZ Restoration Phase 3 (CTC)

Revegetate and stabilize banks of Trout Creek in Barton Meadow between Highway 50 and Lake Tahoe.

EIP # 00023: Trout Creek Watershed - Meeks SEZ Restoration (CTC)

Restore the SEZ at the Meeks Lumber; approximately 3 acres. Restoration options include relocation of Meeks Lumber to a different site. Relocate bike trail and create vista site.

EIP # 00385: Trout Creek – Community Plan SEZ Restoration (CSLT)

The CTC, EPA/SWRC/DWRUSRP and CSLT will restore 1 acre of SEZ around the US 50/Trout Creek bridge area in addition to Meeks.

EIP # 00693: Sierra Tract Residential (CSLT)

Erosion source controls and stormwater treatment facilities associated with grantees roadways. Improvements will include re-vegetation. of disturbed soils (e.g. paved gutters, rock lined channels), infiltration and sedimentation facilities (e.g. veg. treatment ponds and various sediment traps).

EIP # 00696: AI Tahoe BMP (CSLT)

CTC has identified conveyance, treatment, and revegetation needs in the AI Tahoe subdivision which includes San Francisco Avenue and Lakeview Avenue. Rock lined ditches, curb, gutter, sediment basins, retain walls, storm drains, and re-vegetation needed.

EIP # 00904: Habitat Restoration – Trout/Pioneer to Martin Phase 1 (CTC)

Reestablish the natural channel, re-contouring where incisement has occurred and changing the elevation of the creek bed, improve shade canopy, stabilize banks, improve streambed substrates. Develop a beaver management plan for this tributary.

EIP # 00188: Tahoe Paradise Washoan (El Dorado)

CTC has identified six CIPs in this PA which all need various BMP measures 1) Pioneer Trail ii 2) Jicarilla 3) Glen Eagles 4) Washoan 5) Muskwaki 6) Apalachee.

EIP # 00401: Cold Creek Pioneer Trail Phase 1 – Stream Habitat Restoration (CTC)

Modify culvert at Pioneer Trail and Cold Creek by baffling, replacing with a bottomless culvert or replacing with abridge (CTC). Stabilize adjacent banks (CTC).1 mile of stream habitat improvement (USFS).

EIP # 00701: Montgomery Estates Erosion Control Project (El Dorado)

CTC has identified 3 CIPs: Marshall, High Meadows, and Del Notre. TRPA identified additional conveyance and treatment needs within this subdivision. CTC DESCRIPTION--Erosion source controls and stormwater treatment facilities associated with the grantees roadways. Improvements will include re-vegetation of disturbed soils, drainage stabilization (e.g., paved gutters, rock lined channels), infiltration and sedimentation facilities (e.g., veg. treatment ponds and various sediment traps).

EIP # 00400: Cold Creek/High Meadows Phase 1 – Stream Restoration (USFS)

Cold Creek bank stabilization through High Meadows (revegetation of banks), reconstruct and restore stream channels at trail crossings, and restore trails through meadow.

EIP # 00962: Heavenly CWE Implementation Phase 4 (USFS)

Heavenly and USFS will remove and revegetate 2.02 acres of road or install BMPs.

EIP # 00964: Heavenly CWE Implementation Phase 5 (USFS)

Heavenly ski area and USFS will remove and revegetate 1.45 acres of roads or install BMPs.

Research and Monitoring Data

Hell Hole Road Water Quality Improvement Project Monitoring Report

The purpose of this analysis is to evaluate the impacts of this road on the water quality of the adjacent Trout Creek Tributary before and after implementation of a road improvement project in 1992.

Effect of Geomorphic Channel Restoration on Streamflow and Groundwater in a Snowmelt-Dominated Watershed

Trout Creek, near Lake Tahoe, California, was reengineered to reestablish hydrologic connectivity between the stream and its former floodplain. Gauges located above and below the site, along with groundwater well measurements, were used to analyze prerestoration and postrestoration hydrology. Results show that restoration has a seasonal impact with statistically significant increases in streamflow during the summer recession period and decreased groundwater table depths across a wide range of streamflow conditions.

Trout Creek Restoration Monitoring: Changing Benthic Invertebrate Indicators in a Reconstructed Channel

Bio-assessment monitoring of the stream invertebrate community of Trout Creek was undertaken as part of the data collected to evaluate the success of channel reconstruction in two sections of this creek: (1) a completely reconstructed channel section above the confluence with Cold Creek, and (2) a partially reconstructed channel (including segments of existing channel where the stream had not been channelized) below the Cold Creek confluence.

Heavenly Creek SEZ Demonstration Project 2007 Soil Monitoring Report

The 21-acre Heavenly Creek SEZ Fuels Reduction Project, completed in late summer of 2007, represented the first use of low-ground-pressure CTL forwarder/harvester technology to treat overstocked fuels within lands classified in the Tahoe Basin as stream environment zone (SEZ). Project impacts were evaluated through a monitoring program designed to measure changes in soil quality (hydraulic conductivity, bulk density/soil porosity, and soil cover) that affect the capacity of the land to maintain healthy vegetation communities and resistance to erosion.

Qualification and Characterization of Trout Creek Restoration Effectiveness; Focused Development of a Stream Load Reduction Methodology

Goals:

1. Characterize the “desired condition” analog of stream morphology and function in the Lake Tahoe Basin (Trout Creek) by directly applying techniques developed by 2NDNATURE for Lake Tahoe streams.
2. Create a simple empirical methodology to quantify the water quality benefit of stream restoration, using reaches of Trout Creek and Upper Truckee River as tangible examples.