

Rough Creek

Mono County, California

2006 Stream Habitat Survey Report



Prepared By:

Humboldt-Toiyabe National Forest, Bridgeport Ranger District

Introduction

Rough Creek is located in Mineral County, Nevada and Mono County, California. The mainstem of Rough Creek flows in a northwesterly direction for approximately 22 miles to its confluence with the East Walker River. Rough Creek is located on private land, and lands managed by the Bureau of Land Management (BLM), and lands managed by the Humboldt-Toiyabe National Forest (HTNF), Bridgeport Ranger District. Approximately 10.5 miles of Rough Creek were surveyed between the Rough Creek-East Walker River confluence (1700 meters) (Site 1), and the California-Nevada state boundary (2192 meters) (Site 22).

Purpose and Need

The 1995 Lahontan Cutthroat Trout Recovery Plan recommended that an ecosystem management plan be developed for the Walker River Basin in order to both determine objectives for the future desired conditions of the watershed, and to create strategies for achieving these objectives. In 1998 a Walker River Basin Recovery Implementation Team was organized to develop strategies for Lahontan Cutthroat Trout (LCT) restoration and recovery efforts in the Walker River Basin. In August 2003 the recovery team completed a Short-Term Action Plan for Lahontan Cutthroat Trout Recovery in the Walker River Basin. The short-term action plan outlines specific tasks to be completed within five years. Some of the tasks that were identified include: (1) identifying and evaluating fish passage and existing barriers within the Walker River Basin, (2) developing a watershed analysis of the physical components of the Walker River Basin, and (3) initiating habitat surveys to evaluate potential LCT introduction streams and validating against existing LCT inhabited streams.

The Walker River Basin historically provided an estimated 360 miles of stream habitat and 49,400 acres of lake habitat for the native Lahontan Cutthroat Trout (*Oncorhynchus clarki*). Populations of these salmonids within the watershed were interactive and interconnected, and therefore these metapopulations had high genetic diversity and were capable of long-term persistence through adverse conditions.

Currently native LCT occupy only one stream within the entire Walker River basin; however, five additional streams within the Walker River basin have had LCT introduced. Together, LCT within these 6 streams occupy approximately 17 miles of stream habitat, approximately 4.7% of their historical range.

The primary causes for the decline of LCT include: (1) reduction and alteration of stream discharge, (2) alteration of stream channels and morphology, (3) degradation of water quality, (4) reduction of lake levels and concentrated chemical components in natural lakes, and (5) introductions of non-native fish species. The Walker River Basin is primarily inhabited by non-native salmonid species that include but are not limited to: Rainbow Trout (*Oncorhynchus mykiss*), Brook Trout (*Salvelinus fontinalis*), and Brown Trout (*Salmo trutta*). These competitive and aggressive introduced fish have displaced the endemic LCT. A small native population of LCT can be found in By-Day Creek part of the East Walker River system.

Long term survival and recovery of LCT with the Walker River Basin will require sustained cooperation and effort from multiple federal and state agencies, including the Forest Service and personnel of the Humboldt-Toiyabe National Forest. Gaining information through immediate action can aid in prioritizing future objectives for the restoration of LCT. The 2006 Walker River watershed surveys are being conducted to gain information about streams in the basin, and furthermore to provide an inventory of potential fish habitat for LCT. The surveys include the tasks of identifying potential fish passage barriers and evaluating physical characteristics that pertain to the success of the native LCT. Should recommendations be made to reintroduce LCT, these surveys can provide baseline information for future management of the fishery. Rough Creek was surveyed on May 24-30, 2006 by Joel Ingram of the Bridgeport Ranger District: Humboldt-Toiyabe National Forest.

Materials and Methods

Forest Service personnel surveyed Rough Creek by hiking the stream in an upstream manner. Interesting and relevant features were documented, photographed, and recorded into a Trimble GPS unit. These features included but were not limited to: road crossings, trail crossings, fish sightings, permanent fish barriers, seasonal fish barriers, tributaries, springs, beaver dams, areas of erosion concern, grazing impacts, dispersed campsites, etc.

Fish passage barriers were noted and categorized into one of four categories: natural-permanent, natural-seasonal, artificial-permanent, and artificial-seasonal. A permanent barrier is categorized as an obstacle, waterfall, or drop in excess of 5ft that would prevent passage of fish year-round (specifically LCT). A stadia rod was used to measure barriers where applicable. Barriers categorized as permanent barriers may actually be seasonal barriers, and some seasonal barriers may actually act as a permanent barrier.

Results

Approximately 10.5 miles of Rough Creek on National Forest Lands were surveyed between the Rough Creek-East Walker River confluence and the California-Nevada state boundary (Sites 1-22). A 4 mile section of Rough Creek on Nine Mile Ranch was not surveyed. A 7.5 mile section of Rough Creek directly upstream of the California-Nevada state line was also not surveyed because the creek flows through privately owned land and lands managed by the BLM. One seasonal fish barrier was documented at Site 17. Past beaver activity was noted at Sites 4 and 5. Erosion concerns were documented at Sites 3 and 6, and three road-stream crossings causing erosion were documented at Sites 2, 12, and 14. One tributary was noted at Site 19, and two dispersed campsites were located at Sites 10 and 15. In addition to the campsite, an adjacent road impact was also documented at Site 10. An irrigation diversion canal was marked as a point of interest at Site 9. Eight photo points were used to document different types of stream vegetation and fish habitat (Sites 7, 8, 11, 13, 16, 18, 20, and 21). The overall gradient of Rough Creek between Site 1 and Site 22, including the 4 miles on Nine Mile Ranch, is approximately 2.1%.

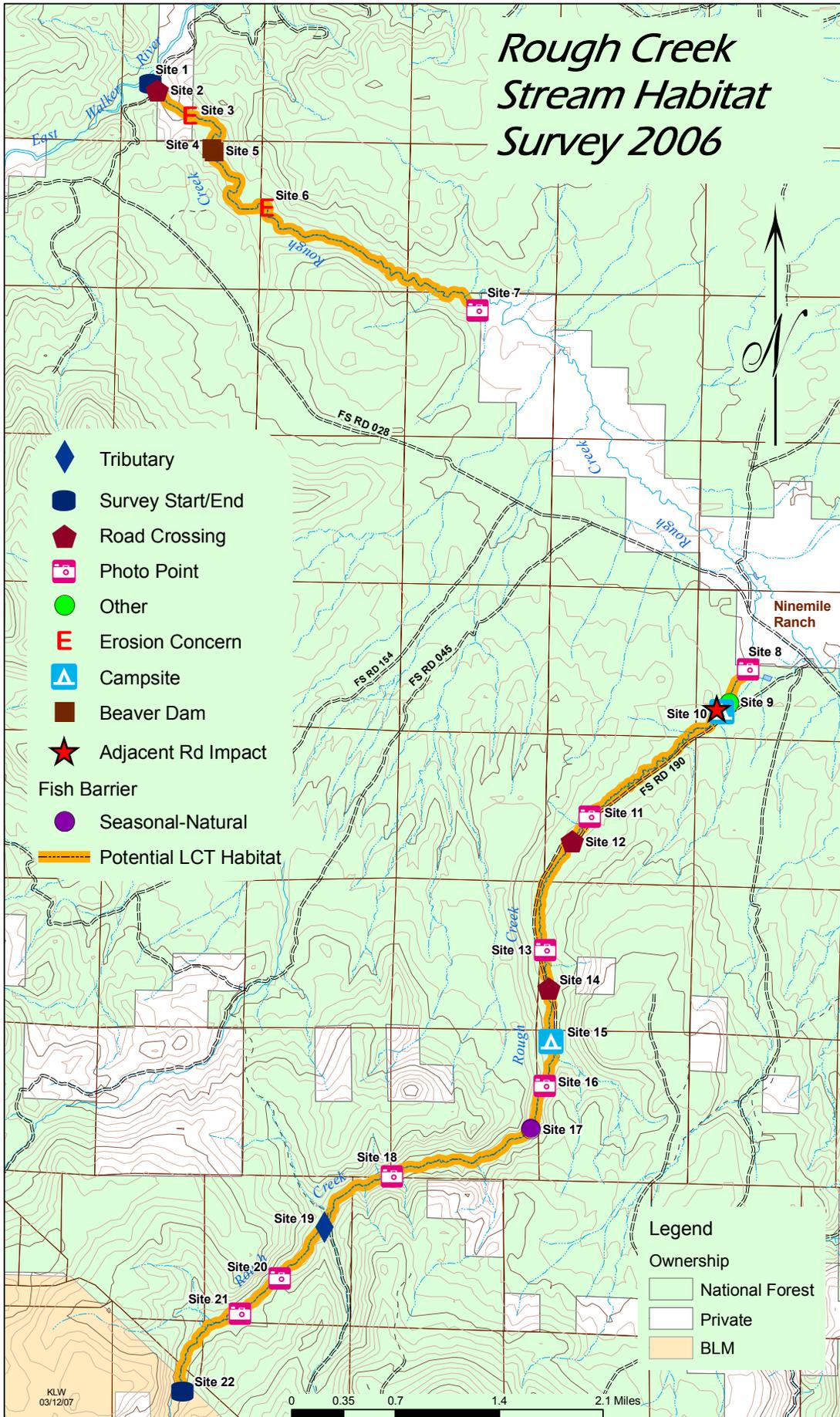
Discussion

Rough Creek provides approximately 10.5 miles of potential LCT habitat (Sites 1-22) with a 4.7-mile section of especially favorable habitat located between Sites 13 and 22. Rough Creek may offer up to an additional 4 miles of potential LCT habitat on the privately owned Nine Mile Ranch. Up to an additional 7.5 miles of potential LCT habitat may also occur directly upstream of the California-Nevada state line on privately owned land and lands managed by the BLM. Between Sites 13 and 22 the stream has been less disturbed by cattle and human activity, and thus provides more vegetative cover to keep the stream cool during the hot summer months. The only fish barrier documented is a seasonal barrier located at Site 17. Rough Creek offers a lot of varied terrain and contains several areas of riffles, cut banks, heavy vegetation, slow moving pools, and some deep pools. The section of stream between Site 1 and Site 13 provides potential LCT habitat; however, within this section two road-stream crossings and two areas of high erosion concern are sources of sediment contribution to the stream. Cattle have had a noticeable impact on the downstream reach of Rough Creek (Sites 1 -13), and modifying grazing practices may benefit the aquatic habitat within this section of stream.

Recommendations

1. Consider Rough Creek to have 10.5 miles of potential LCT habitat located between Sites 1 and 22 (excluding Nine Mile Ranch private property). Consider the 4.7 mile section of stream between Site 13 and Site 22 to offer the most favorable habitat. When future review/assessments are conducted to determine which streams within the Walker River watershed are suitable for LCT restoration, consider Rough Creek a high-priority candidate. Bodie Creek is a tributary to Rough Creek, and Bodie Creek is also recommended as a high-priority candidate for restoration.
2. Investigate the destination and impacts of the diversion located at Site 9. Ensure that fish are not subject to terminal trips into irrigated pasture, and similarly ensure that water users are staying within the confines of their adjudicated rights.
3. Decommission and or relocated the campsites at Sites 10 and 15 to a point further away from the stream.

Rough Creek Stream Habitat Survey 2006



- Tributary
- Survey Start/End
- Road Crossing
- Photo Point
- Other
- Erosion Concern
- Campsite
- Beaver Dam
- Adjacent Rd Impact
- Fish Barrier**
- Seasonal-Natural
- Potential LCT Habitat

- Legend**
- Ownership
- National Forest
 - Private
 - BLM

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Site 1: Rough Creek, Bridgeport Ranger District, looking downstream towards the confluence of Rough Creek with the East Walker River. The stream in this area widens considerably and forms a large wetland area. Rough Creek is approximately 6m wide and 0.5m deep at this site. This site is located at UTM: N: 4255757 & E: 324428, Elevation 1700m.



Site 1 continued: Rough Creek, Bridgeport Ranger District, looking upstream at Rough Creek from near the East Walker River. This site is located at UTM: N: 4255757 & E: 324428, Elevation 1700m.



Site 2: Rough Creek, Bridgeport Ranger District. Picture of a road-stream crossing on Rough Creek. Note the large amount of sediment from the road. This section of stream is surrounded by private land and fences. This site is located at UTM: N: 4255686 & E: 324494, Elevation 1700m.



Site 3: Rough Creek, Bridgeport Ranger District. The stream banks show signs of heavy grazing and erosion due to the presence of cattle. This site is located at UTM: N: 4255415 & E: 324851, Elevation 1702m.



Site 4: Rough Creek, Bridgeport Ranger District, looking upstream at a beaver dam crossing the entire stream. The beaver dam height where water flows is 0.4m. This site is located at UTM: N: 4255048 & E: 325087, Elevation 1711m.



Site 4 continued: Rough Creek, Bridgeport Ranger District, another view of the beaver dam. This site is located at UTM: N: 4255048 & E: 325087, Elevation 1711m.



Site 5: Rough Creek, Bridgeport Ranger District. Another beaver dam located approximately 50m upstream from the beaver dam at Site 4. This beaver dam creates a large pool upstream. This site is located at UTM: N: 4255017 & E: 325114, Elevation 1711m.



Site 5 continued: Rough Creek, Bridgeport Ranger District, looking upstream from the beaver dam at the backed up water. This site is located at UTM: N: 4255017 & E: 325114, Elevation 1711m.



Site 6: Rough Creek, Bridgeport Ranger District. A steep 5-6m high bank with signs of heavy erosion along a 100m long section on the outside of a meander bend. This site is located at UTM: N: 4254416 & E: 325687, Elevation 1726m.



Site 7: Rough Creek, Bridgeport Ranger District, looking upstream at the Forest Service-Nine Mile Ranch property boundary. Through Nine Mile Ranch Rough Creek flows through a large valley and the stream bed is deeply cut into the valley floor. This site is located at UTM: N: 4253300 & E: 327977, Elevation 1760m.



Site 8: Rough Creek, Bridgeport Ranger District, looking downstream from the Forest Service-Nine Mile Ranch property boundary. The stream depth at this site is 0.5m and the width is 2.5m. This site is located at UTM: N: 4249396 & E: 330922, Elevation 1827m.



Site 8 continued: Rough Creek, Bridgeport Ranger District, looking upstream from the Forest Service-Nine Mile Ranch property boundary. This site is located at UTM: N: 4249396 & E: 330922, Elevation 1827m.



Site 9: Rough Creek, Bridgeport Ranger District. A point where the stream is diverted by an irrigation canal to allow a rancher water to flood irrigate a field for grazing. (Note the two diverging lines of willow. This site is located at UTM: N: 4249024 & E: 330716, Elevation 1830m.



Site 10: Rough Creek, Bridgeport Ranger District, looking at an adjacent road impact. A campsite, ATV tracks, and trash were also documented at this site. This site is located at UTM: N: 4249010 & E: 330727, Elevation 1825m.



Site 11: Rough Creek, Bridgeport Ranger District, looking upstream at some good fish habitat with undercut banks. The stream at this point runs swiftly in a channel that is 2.5m wide and 0.5m deep. This site is located at UTM: N: 4247795 & E: 329201, Elevation 1870m.



Site 12: Rough Creek, Bridgeport Ranger District, cross-sectional view of a road-stream crossing where bank erosion and vehicle ruts are present. This site is located at UTM: N: 4247530 & E: 329006, Elevation 1881m.



Site 13: Rough Creek, Bridgeport Ranger District, looking upstream at a section of stream that has good fish habitat. This site is located at UTM: N: 4246341 & E: 328717, Elevation 1912m.



Site 13 continued: Rough Creek, Bridgeport Ranger District, looking downstream at a section of stream that has good fish habitat. This site is located at UTM: N: 4246341 & E: 328717, Elevation 1912m.



Site 14: Rough Creek, Bridgeport Ranger District, cross section view of a road-stream crossing. This site is located at UTM: N: 4245928 & E: 328749, Elevation 1928m.



Site 15: Rough Creek, Bridgeport Ranger District. A campsite located directly on the bank of the stream. This campsite also marks the end of the road that had crossed the stream several times. A fire ring and random garbage were present at the campsite. This site is located at UTM: N: 4245348 & E: 328774, Elevation 1942m.



Site 15 continued: Rough Creek, Bridgeport Ranger District, looking upstream from campsite. This site is located at UTM: N: 4245348 & E: 328774, Elevation 1942m.



Site 15 continued: Rough Creek, Bridgeport Ranger District, looking downstream from campsite. This site is located at UTM: N: 4245348 & E: 328774, Elevation 1942m.



Site 16: Rough Creek, Bridgeport Ranger District, looking upstream at where the topography begins to change. Upstream of this point the stream flows from a steep canyon and downstream of this point the stream flows into a large valley. This site is located at UTM: N: 4244812 & E: 328671, Elevation 1970m.



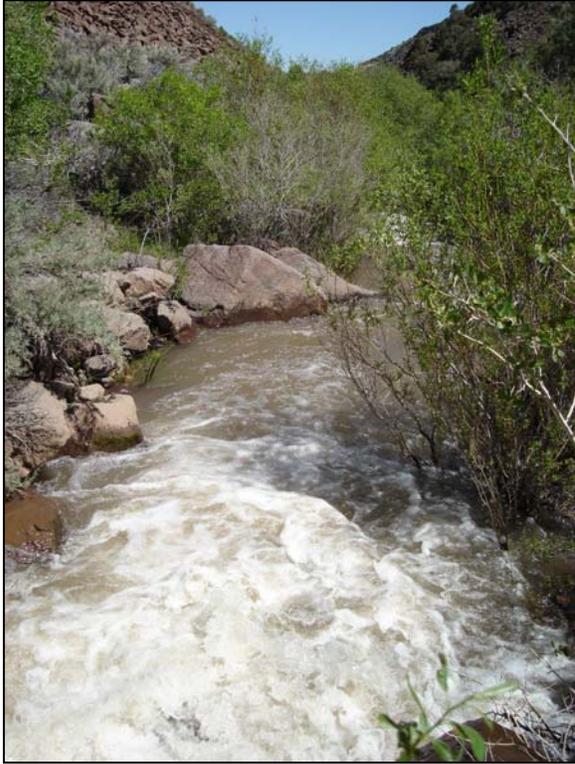
Site 16 continued: Rough Creek, Bridgeport Ranger District, looking downstream toward the valley. This site is located at UTM: N: 4244812 & E: 328671, Elevation 1970m.



Site 17: Rough Creek, Bridgeport Ranger District, looking upstream at a seasonal fish barrier. The height of this waterfall is 1.2m (3.9 ft); however, with the high water levels at the time of the survey, there were several side routes that fish would be able to navigate through to get around the barrier. As the water levels drop those side routes may become impassable. This site is located at UTM: N: 4244396 & E: 328556, Elevation 1990m.



Site 17 continued: Rough Creek, Bridgeport Ranger District, another view looking upstream towards the seasonal fish barrier. This site is located at UTM: N: 4244396 & E: 328556, Elevation 1990m.



Site 17 continued: Rough Creek, Bridgeport Ranger District, looking downstream from the seasonal fish barrier. This site is located at UTM: N: 4244396 & E: 328556, Elevation 1990m.



Site 18: Rough Creek, Bridgeport Ranger District. A series of photos showing the typical stream vegetation in this reach. This site is located at UTM: N: 4243883 & E: 327049, Elevation 2060m.



Site 18 continued: Rough Creek, Bridgeport Ranger District, viewpoint looking downstream. This site is located at UTM: N: 4243883 & E: 327049, Elevation 2060m.



Site 19: Rough Creek, Bridgeport Ranger District. A small tributary enters Rough Creek on the river right side and contributes a very small amount to the overall total flow in Rough Creek. The confluence of the tributary and Rough Creek was not visible due to the heavy vegetation in the area. This site is located at UTM: N: 4243331 & E: 326310, Elevation 2099m.



Site 20: Rough Creek, Bridgeport Ranger District, looking upstream at the typical vegetation and stream flow within this section of stream. This site is located at UTM: N: 4242778 & E: 325826, Elevation 2128m.



Site 20 continued: Rough Creek, Bridgeport Ranger District, looking downstream at the typical vegetation and stream flow within this section of stream. This site is located at UTM: N: 4242778 & E: 325826, Elevation 2128m.



Site 21: Rough Creek, Bridgeport Ranger District, looking upstream at a point on Rough Creek where the canyon opens up and the stream appears to have been meandering through a small meadow before reaching this point. This site is located at UTM: N: 4242389 & E: 325397, Elevation 2154m.



Site 22: Rough Creek, Bridgeport Ranger District, looking upstream at the survey end point near the California-Nevada state line. Upstream of this site the stream is located on private lands and lands managed by the BLM. Note the presence of willows and aspens. This site is located at UTM: N: 4241549 & E: 324775, Elevation 2192m.



Site 22 continued: Rough Creek, Bridgeport Ranger District, looking downstream from the California-Nevada state line. This site is located at UTM: N: 4241549 & E: 324775, Elevation 2192m.



Site 22 continued: Rough Creek, Bridgeport Ranger District, looking down the drainage from the survey end point at the California-Nevada state line. This site is located at UTM: N: 4241549 & E: 324775, Elevation 2192m.