

Little Walker River

Mono County, California

2006 Stream Habitat Survey Report



Prepared By:

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Introduction

The Little Walker River is located in Mono County, California. The mainstem of the Little Walker River flows for approximately 15 miles in a northerly direction from Ink Rocks in the Hoover Wilderness to the confluence with the West Walker River near Sonora Junction. Most of the Little Walker River is located within the boundaries of the Humboldt-Toiyabe National Forest, with the upper reaches in the Hoover Wilderness. The stream flows through a few private parcels in the lower half of the watershed. Approximately 10.4 miles of the Little Walker River were surveyed between the private property-National Forest boundary (Site 1, 2141 meters) located near the Little Walker River–Cowcamp Creek confluence, and Site 21 located in the Hoover Wilderness near the top of Burt Canyon (2824 meters).

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 595 miles of stream habitat (Kling and Mellison 2008) and 49,400 acres of lake habitat for the native Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*). Populations of these salmonids within the watershed were interactive and interconnected, and therefore these metapopulations likely had high genetic diversity and were capable of long-term persistence through adverse conditions.

Within the Walker River basin, LCT currently occupy one stream that is within their historic range; By-Day Creek. Lahontan cutthroat trout have also been introduced into the formerly fishless headwaters of five other Walker River basin streams; Wolf Creek, Silver Creek, Mill Creek, Slinkard Creek, and Murphy Creek. Together, LCT within these 6 streams occupy approximately 17 miles of stream habitat, approximately 2.9% of the total miles that LCT presumably occupied historically.

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. The Little Walker River was surveyed between June 7, and June 14, 2006 by Joel Ingram of the Bridgeport Ranger District.

Methods and Materials

Forest Service personnel surveyed the Little Walker River 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 10.4 miles of the Little Walker River were surveyed (Sites 1-21). The survey began approximately 3 miles upstream from its confluence with the West Walker River due to a section of private property. Throughout the survey three permanent fish barriers were identified at Sites 14, 15 and 17. One road-stream crossing was documented at the Burt Canyon Trailhead (Site 7), and one erosion concern was noted at Site 10. Several photos were taken during the survey to document general stream characteristics (Sites 3, 4, 5, 8, 9, 16, 19, and 20). Three tributaries were documented at Sites 6, 18, and 21, and three areas with beaver activity were noted at Sites 11, 12, and

13. An inactive irrigation diversion was noted at Site 2. The average stream gradient of the Little Walker River between Site 1 and Site 21 is 4.1%.

Discussion

All 10.4 miles of the Little Walker River between Site 1 and Site 21 provide potential LCT habitat. Permanent fish barriers occur at Sites 14, 15, and 17; however, upstream of Site 17 the Little Walker River flows through Burt Canyon which offers some good slow water, meandering habitat (Site 19). The reach between Site 1 and Site 13 also offers some excellent habitat and a good combination of fast water and deep pools. Between Sites 8 and 13 the Little Walker River meanders for several miles through large meadows at Willow Flats. The reach in Willow Flats offers varying water depth and speed, cut banks, beaver ponds (Site 13), and adequate in-stream cover. The beaver ponds included active dam sites and lodges at Sites 11, 12, & 13.

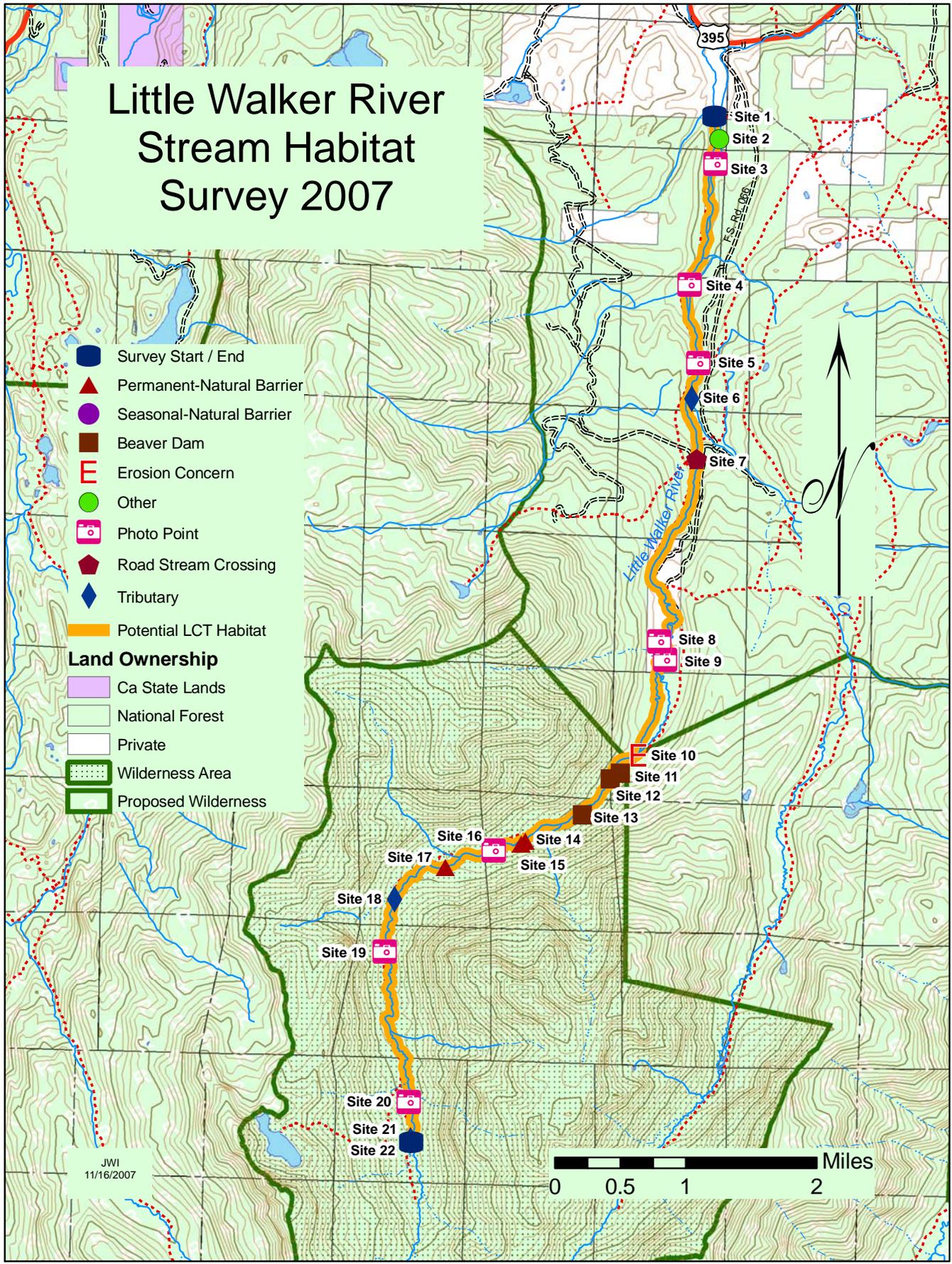
An additional 3 miles of potential LCT habitat may exist on private land between the West Walker River-Little Walker River confluence and Site 1 and up to an additional 1.6 miles of potential LCT habitat may exist directly upstream of Site 21. The area upstream of Site 21 was not surveyed due to the abundance and depth of snow at the time of the survey.

The tributary identified at Site 6 is Molybdenite Creek, which was also surveyed in 2006. Molybdenite Creek offers an additional 7.1 miles of potential LCT habitat and it allows for the possibility of restoring a metapopulation of LCT within the Little Walker River and Molybdenite Creek watersheds

Recommendations

1. Consider the 10.4 mile section of the Little Walker River located between Site 1 and Site 21 as potential LCT habitat and consider the Little Walker River a high candidate for restoration. The Little Walker River has three tributaries (Cowcamp, Poison and Molybdenite Creeks) that also provide potential LCT habitat; therefore, making the Little Walker River watershed a high candidate for restoring a metapopulation of LCT.
2. If permission can be obtained, conduct a stream habitat survey on the 3 miles of the Little Walker River directly downstream of Site 1 to determine if additional LCT habitat exists. At a different time of year when the snow has melted, also consider doing a stream habitat survey on the 1.6 miles of the Little Walker River directly upstream of Site 21 to determine if additional LCT habitat exists.
3. Work with the California Department of Fish and Game to determine past stocking efforts in the Little Walker River and to get an idea of present populations of fish in the river system.
4. Remove the abandoned culverts located at Site 4.

Little Walker River Stream Habitat Survey 2007



- Survey Start / End
 - ▲ Permanent-Natural Barrier
 - Seasonal-Natural Barrier
 - Beaver Dam
 - E Erosion Concern
 - Other
 - ◻ Photo Point
 - ⬠ Road Stream Crossing
 - ◆ Tributary
 - ▬ Potential LCT Habitat
- Land Ownership**
- ▭ Ca State Lands
 - ▭ National Forest
 - ▭ Private
 - ▭ Wilderness Area
 - ▭ Proposed Wilderness

JWI
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Site 1: Little Walker River, Bridgeport Ranger District, looking upstream at the survey start point and the private property-Forest Service boundary. This picture is also taken directly south of the Little Walker-Cowcamp Creek confluence. Note the turbidity on river left and high flows that have spilled over the stream banks. This site is located at UTM N: N: 4245549 & E: 286006, Elevation 2141m.



Site 1 continued: Little Walker River, Bridgeport Ranger District, looking north towards the private property. This site is located at UTM N: 4245549 & E: 286006, Elevation 2141m.



Site 2: Little Walker River, Bridgeport Ranger District, looking at an inactive irrigation channel located upstream of the Little Walker-Cowcamp Creek confluence. This site is located at UTM: N: 4245256 & E: 286066, Elevation 2141m.



Site 2 continued: Little Walker River, Bridgeport Ranger District, another picture of the irrigation channel. This picture is taken from the river side of the diversion. This site is located at UTM N: 4245256 & E: 286066, Elevation 2141m.



Site 3: Little Walker River, Bridgeport Ranger District, looking at the high flows during spring runoff. This site is located at UTM N: 4245078 & E: 286058, Elevation 2151m.



Site 4: Little Walker River, Bridgeport Ranger District, looking upstream at a braid in the stream that enters on the river left side. This photo also shows several large abandoned pipes on both banks. This site is located at UTM: N: 4243474 & E: 285699, Elevation 2189m.



Site 4 continued: Little Walker River, Bridgeport Ranger District, a cross-sectional view of a culvert lying across the main stem of the river. This site is located at UTM: N: 4243474 & E: 285699, Elevation 2189m.



Site 5: Little Walker River, Bridgeport Ranger District, a cross-sectional photo of a large pine tree that slightly restricts flow. This site is located at UTM N: 4242503 & E: 285804, Elevation 2256m.



Site 6: Little Walker River, Bridgeport Ranger District, looking upstream at the confluence of Molybdenite Creek and the Little Walker River. This site is located at UTM N: 4242066 & E: 285725, Elevation 2294m.



Site 6 continued: Little Walker River, Bridgeport Ranger District, looking upstream at Molybdenite Creek from its confluence with the Little Walker River. This site is located at UTM N: 4242066 & E: 285725, Elevation 2294m.



Site 7: Little Walker River, Bridgeport Ranger District, looking upstream at a road-stream crossing located just past the Burt Canyon Trailhead Parking Lot. The bridge is a solid wooden structure that does not restrict flow. This site is located at UTM N: 4241321 & E: 285782, Elevation 2346m.



Site 7 continued: Little Walker River, Bridgeport Ranger District, looking downstream from atop the bridge. This site is located at UTM: N: 4241321 & E: 285782, Elevation 2346m.



Site 8: Little Walker River, Bridgeport Ranger District, a cross-sectional photo of a meadow at Willow Flats where the stream meanders and water clarity is improved. This site is located at UTM N: 4239078 & E: 285395, Elevation 2490m.



Site 9: Little Walker River, Bridgeport Ranger District, looking upstream at the southern end of the private property-Forest Service boundary in the Willow Flats area. The rocky river bed and slow meander bends look to be good fish habitat. This site is located at UTM N: 4238912 & E: 285374, Elevation 2486m.



Site 10: Little Walker River, Bridgeport Ranger District, looking upstream at an eroding bank typical of the Willow Flat's meadow. This exposed bank is 25 m long and 1.5-2.0m tall. This site is located at UTM N: 4237669 & E: 285066, Elevation 2509m.



Site 11: Little Walker River, Bridgeport Ranger District, looking upstream at a remnant beaver lodge on a dry stream bank, which marks the downstream end of beaver activity. The lodge lies just upstream of the Hoover Wilderness Boundary. This site is located at UTM N: 4237449 & E: 284844, Elevation 2514m.



Site 11 continued: Little Walker River, Bridgeport Ranger District, cross-sectional photo of a beaver dam. This site is located at UTM: N: 4237449 & E: 284844, Elevation 2514m.



Site 11 continued: Little Walker River, Bridgeport Ranger District. Photo shows sheared Aspen trees. This site is located at UTM N: 4237449 & E: 284844, Elevation 2514m.



Site 12: Little Walker River, Bridgeport Ranger District, cross-sectional photo of a recently constructed beaver dam that still forces water to flow river left. This site is located at UTM N: 4237381 & E: 284724, Elevation 2528m.



Site 12 continued: Little Walker River, Bridgeport Ranger District. Photo of a newer beaver lodge. This site is located at UTM N: 4237381 & E: 284724, Elevation 2528m.



Site 13: Little Walker River, Bridgeport Ranger District, looking at the largest of several active beaver ponds. The mainstem flows to the far river left and the dams are located on river right. This site is located at UTM N: 4236937 & E: 284382, Elevation 2544m.



Site 14: Little Walker River, Bridgeport Ranger District, looking upstream at a 2.0m (6.6ft) high waterfall that may still allow seasonal fish passage under ideal conditions. For consistency, this site was documented as a permanent fish barrier. This site is located at UTM N: 4236616 & E: 283670, Elevation 2588m.



Site 14 continued: Little Walker River, Bridgeport Ranger District, looking downstream from the bottom of the fish barrier. This site is located at UTM N: 4236616 & E: 283670, Elevation 2588m.



Site 15: Little Walker River, Bridgeport Ranger District, looking upstream at a 3m (9.8 ft) high waterfall, which creates a permanent fish passage barrier. This site is located at UTM N: 4236581 & E: 283626, Elevation 2609m.



Site 15 continued: Little Walker River, Bridgeport Ranger District, looking downstream from the bottom of the barrier. This site is located at UTM N: 4236581 & E: 283626, Elevation 2609m.



Site 16: Little Walker River, Bridgeport Ranger District, cross-sectional photo of the stream characteristics typical of this area. This site is located at UTM N: 4236502 & E: 283290, Elevation 2631m.



Site 16 continued: Little Walker River, Bridgeport Ranger District, looking downstream at the stream characteristics typical of this area. This site is located at UTM N: 4236502 & E: 283290, Elevation 2631m.



Site 17: Little Walker River, Bridgeport Ranger District, looking upstream at a 2m (6.6ft) high waterfall that may still allow seasonal fish passage on river right as a series of cascading steps under lower flow conditions. For consistency, this site was documented as a permanent fish barrier. This site is located at UTM N: 4236288 & E: 282691, Elevation 2657m.



Site 17 continued: Little Walker River, Bridgeport Ranger District, looking downstream from the permanent fish barrier. This site is located at UTM N: 4236288 & E: 282691, Elevation 2657m.



Site 18: Little Walker River, Bridgeport Ranger District, looking upstream at a medium sized tributary that enters on river left. This site is located at UTM N: 4235895 & E: 282064, Elevation 2719m.



Site 18 continued: Little Walker River, Bridgeport Ranger District. View looking up the tributary. This site is located at UTM N: 4235895 & E: 282064, Elevation 2719m.



Site 19: Little Walker River, Bridgeport Ranger District, looking upstream at a wet meadow that the stream meanders through. This site is located at UTM N: 4235253 & E: 281948, Elevation 2747m.



Site 19 continued: Little Walker River, Bridgeport Ranger District, view looking downstream. This site is located at UTM N: 4235253 & E: 281948, Elevation 2747m.



Site 20: Little Walker River, Bridgeport Ranger District, cross-sectional photo of the stream emerging from a snow tunnel. Upstream of this site the survey was difficult due to the presence of snow. This site is located at UTM N: 4233399 & E: 282242, Elevation 2805m.



Site 21: Little Walker River, Bridgeport Ranger District, looking upstream at the survey end point, where a medium sized tributary enters the river. This site is located at UTM N: 4232922 & E: 282262, Elevation 2824m.

22: Little Walker River, Bridgeport Ranger District. Survey was ended at a tributary (Site 21) due to the abundance and depth of snow. This site is located at UTM: N: 4232922 & E: 282262.