Leavitt Creek

Mono County, California

2006 Stream Habitat Survey Report

Prepared By:

Humboldt-Toiyabe National Forest, Bridgeport Ranger District

Introduction

Leavitt Creek is located in Mono County, California. The mainstem of Leavitt Creek flows for approximately 6.1 miles in a northeasterly direction to its two confluences with the West Walker River in Leavitt Meadows off Highway 108. Except for one small private parcel near Leavitt Meadows Pack Station, the entire Leavitt Creek watershed occurs on National Forest lands. All 6.1 miles of Leavitt Creek were surveyed between its two confluences with the West Walker River (Sites 1 and 24, 2176m) and Leavitt Lake (Site 23, 2924m).

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. Leavitt Creek was surveyed on August 12-13, 2006 by Joel Ingram and Harrison Davis of the Bridgeport Ranger District: Humboldt-Toiyabe National Forest.

Methodology

Forest Service personnel surveyed Leavitt 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 6.1 miles of Leavitt Creek were surveyed between its two confluences with the West Walker River (Sites 1 and 24) and Leavitt Lake (Site 23). Approximately 0.6 miles of Leavitt Creek between Sites 1 and 5 and approximately 0.5 miles between Sites 24 and 5 provide potential LCT habitat. One seasonal fish barrier was documented at Site 9. Seven permanent fish barriers were documented at Sites 5, 6, 7, 10, 16, 17, and 21. Four tributaries were noted at Sites 11, 15, 18, and 19. Three road-stream crossings were documented at Sites 3, 22, and 27. A trail crossing was documented at Site 25. A campsite was recorded at Site 14 and two areas of erosion concern were noted at Sites 2 and 20. Photo points were taken at Sites 8, 12, and 13. Site 4 shows the location where Leavitt Creek forks into two separate channels before reaching the West Walker River. Site 24 represents the starting point for the second fork entering the West Walker River. Site 26 is an irrigation diversion used by the Leavitt Meadows Pack Station.

Discussion

Approximately 0.6 miles of Leavitt Creek between Sites 1 and 5 and approximately 0.5 miles between Sites 24 and 5 provide potential LCT habitat. Between Sites 5 and 23 eight different fish passage barriers were documented. The barrier at Site 7, known as Leavitt Falls, is a naturally occurring permanent fish passage barrier that is approximately 115-131 feet high. The section of stream between Sites 5 and 23 does not provide potential LCT habitat because of the high gradient, and the large number of barriers would cause LCT to be physically and genetically isolated. The average stream gradient between Sites 5 and 23 is 8.5%. Lahontan cutthroat trout within this section of stream would not be able to persist long-term. Leavitt Lake is a popular location for camping and recreational fishing. Leavitt Lake is airily stocked with non-native fishes. These fish are able to swim downstream and occupy small isolated pools, but are unable to migrate back upstream to the lake.

Leavitt Creek has three road-stream crossings at Sites 3, 22, and 27, two of which are ford crossings. Leavitt Creek also has a trail crossing at Site 25. These road-stream crossings and the trail crossing are likely sources of sediment input into Leavitt Creek.

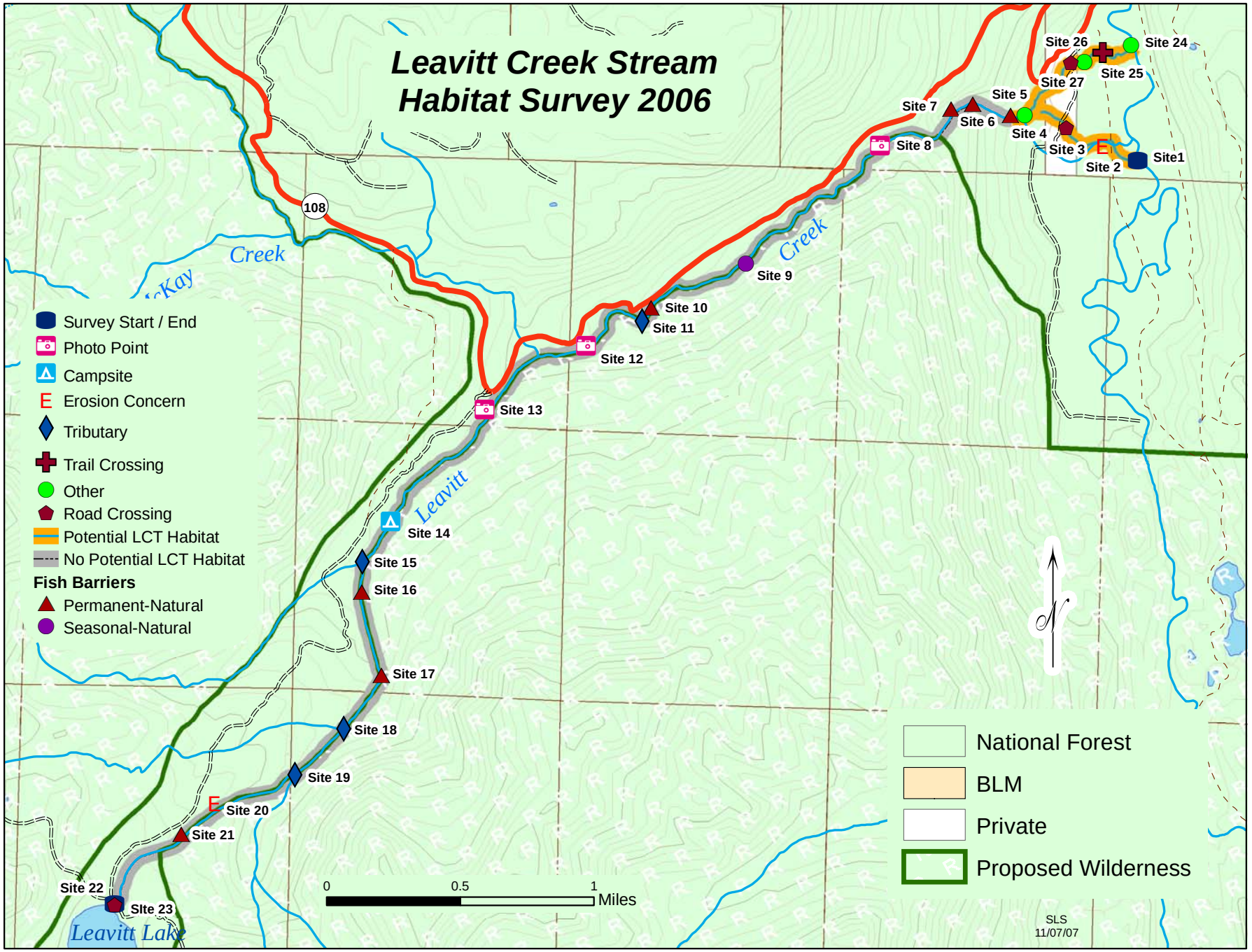
Recommendations

1. Consider the 0.6 miles of Leavitt Creek located between Sites 1 and 5 and the 0.5 miles located between Sites 24 and 5 as potential LCT habitat. Consider Leavitt Creek a low candidate for restoration.

2. Increase public awareness of Leave-No-Trace principles along Leavitt Creek, (i.e.) more signs at Leavitt Lake.

3. Close and decommission all dispersed campsites within 100 feet of Leavitt Creek. Only allow camping to occur more than 100 feet away from the streams edge.

4. Investigate the impacts of the irrigation diversion located at Site 26. Ensure that fish are not subject to terminal trips towards Leavitt Meadows Pack Station, and similarly ensure that the water users are staying within the confines of their adjudicated rights.


Leavitt Creek Stream
Habitat Survey 2006
Survey Start / End
Photo Point
Campsite
Erosion Concern
Tributary
Trail Crossing
Other
Road Crossing
Potential LCT Habitat
No Potential LCT Habitat
Fish Barriers
Permanent-Natural
Seasonal-Natural
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7
Site 8
Site 9
Site 10
Site 11
Site 12
Site 13
Site 14
Site 15
Site 16
Site 17
Site 18
Site 19
Site 20
Site 21
Site 22
Site 23
Site 24
Site 25
Site 26
Site 27
108
Creek
Leavitt
Leavitt Lake
0
0.5
1
Miles
National Forest
BLM
Private
Proposed Wilderness
SLS
11/07/07

Site 1: Leavitt Creek, Bridgeport Ranger District, looking upstream from the survey start point. This is one of two confluences Leavitt Creek has with the West Walker River. At this point Leavitt Creek is contributing approximately 20% of the overall flow in the West Walker River. This site is located at UTM: N: 4244015 & E: 277237, Elevation 2179m.

Site 1 continued: Leavitt Creek, Bridgeport Ranger District, looking downstream at the confluence with the West Walker River. This site is located at UTM: N: 4244015 & E: 277237, Elevation 2179m.

Site 2: Leavitt Creek, Bridgeport Ranger District, photo point. Just upstream from the confluence with the West Walker River, Leavitt Creek meanders heavily and has noticeable erosion on the outsides of virtually all the bends. This particular section of erosion is approximately 2m high and 30m long. This site is located at UTM: N: 4244106 & E: 277024, Elevation 2177m.

Site 3: Leavitt Creek, Bridgeport Ranger District, looking upstream at a road-stream crossing. This bridge appears to be on private property. There are several RV sites on this property and this area appears to be heavily used. Also, this is the spot where the stream begins to leave the valley floor and starts to gain elevation. This site is located at UTM: N: 4244216 & E: 276806, Elevation 2204m.

Site 4: Leavitt Creek, Bridgeport Ranger District, looking at where Leavitt Creek forks into two separate channels that do not reconnect. In this photo, the stream going to the north seems to be carrying more water then the stream going to the south (the one currently being surveyed) This site is located at UTM: N: 4244301 & E: 276557, Elevation 2250m.

Site 4 continued: Leavitt Creek, Bridgeport Ranger District, view looking down the north fork. This site is located at UTM: N: 4244301 & E: 276557, Elevation 2250m.

Site 5: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. The barrier is a two-staged waterfall with an overall drop measuring about 3m (9.8ft) high. This site is located at UTM: N: 4244286 & E: 276470, Elevation 2241m.

Site 6: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. The barrier is just over 2m (6.6ft) high. This site is located at UTM: N: 4244355 & E: 276246.

Site 6 continued: Leavitt Creek, Bridgeport Ranger District, looking upstream at some more small drops and fast water. This site is located at UTM: N: 4244355 & E: 276246.

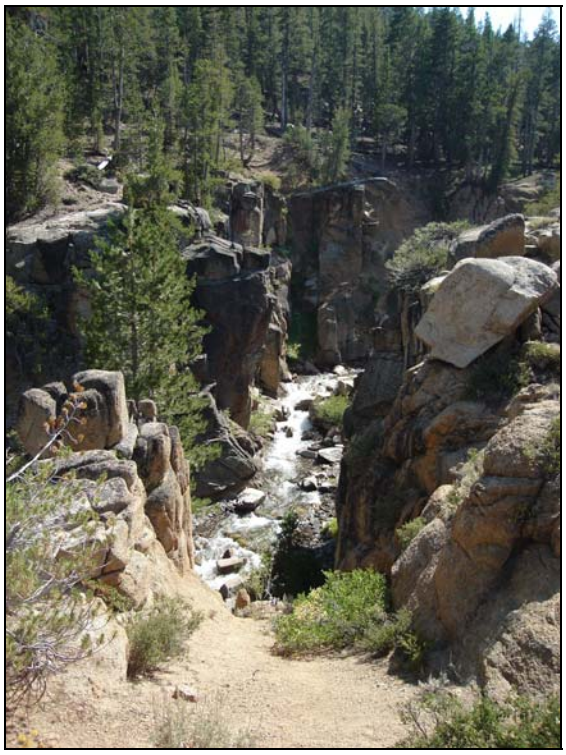
Site 7: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. This is Leavitt Falls as indicated on the map. The falls are approximately 35-40m (115-131ft) in height. This site is located at UTM: N: 4244327 & E: 276114, Elevation 2289m.

Site 8: Leavitt Creek, Bridgeport Ranger District, a photo point just upstream of the Leavitt Falls area. The stream is wide and flows over medium to small sized rocks and is creating a good combination of fast water and eddied pools. This site is located at UTM: N: 4244109 & E: 275687, Elevation 2400m.

Site 9: Leavitt Creek, Bridgeport Ranger District, looking upstream at a seasonal fish barrier. The height of the barrier is approximately 1m (3.3ft) high. This site is located at UTM: N: 4243396 & E: 274881, Elevation 2459m.

Site 10: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. The height of the barrier is 1.7m (5.6ft) high. This site is located at UTM: N: 4243128 & E: 274307, Elevation 2475m.

Site 11: Leavitt Creek, Bridgeport Ranger District, looking upstream at a tributary. At this point two tributaries enter Leavitt Creek on the river right bank. As they enter they fall over exposed rock and do not add any potential LCT habitat. This site is located at UTM: N: 4243051 & E: 274253, Elevation 2496m.



Site 12: Leavitt Creek, Bridgeport Ranger District, an upstream view of Leavitt Creek flowing swiftly through an extremely steep and narrow canyon that does not provide favorable LCT habitat. This site is located at UTM: N: 4242900 & E: 273918, Elevation 2525m.

Site 13: Leavitt Creek, Bridgeport Ranger District, a view of Leavitt Creek at the top of the steep canyon mentioned at Site 12. This site is located at UTM: N: 4242517 & E: 273308, Elevation 2584m

Site 14: Leavitt Creek, Bridgeport Ranger District, a view of a campsite close to the stream. At this location there is a road that comes down to a flat area next to the river. On this flat spot there are two separate campsites that are within 10m of the stream. Both campsites have fire rings and flat areas for tents and parking. This site is located at UTM: N: 4241841 & E: 272741, Elevation 2622m.

Site 14 continued: Leavitt Creek, Bridgeport Ranger District, a view of the second campsite. This site is located at UTM: N: 4241841 & E: 272741, Elevation 2622m.

Site 15: Leavitt Creek, Bridgeport Ranger District, looking upstream at a tributary that enters the creek on the river left side. This tributary looks like it would provide habitat for LCT but as it leaves Leavitt Creek it begins to gain elevation quickly. This site is located at UTM: N: 4241602 & E: 272571, Elevation 2634m.

Site 16: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. The height of the barrier is 1.7m (5.6ft) high. This fish barrier was created when a large tree fell across the stream. Over the years debris and rocks filled in the area above the tree and now forces the water to fall over the downed tree. This site is located at UTM: N: 4241416 & E: 272565, Elevation 2644m.

Site 17: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. This barrier is approximately 10m (33ft) high and divides into several separate channels as it comes down over the rock. This site is located at UTM: N: 4240918 & E: 272686, Elevation 2698m.

Site 18: Leavitt Creek, Bridgeport Ranger District, looking upstream at a tributary. This tributary contributes approximately 40% of the overall flow in Leavitt Creek. From the photo this tributary appears to provide LCT habitat; however, this tributary gains elevation extremely quickly. This site is located at UTM: N: 4240592 & E: 272456, Elevation 2731m.

Site 18 continued: Leavitt Creek, Bridgeport Ranger District, a downstream view of the tributary entering Leavitt Creek. This site is located at UTM: N: 4240592 & E: 272456, Elevation 2731m.

Site 19: Leavitt Creek, Bridgeport Ranger District, looking upstream at a tributary that enters on the river right side. This tributary contributes approximately 50% of the overall flow in Leavitt Creek. This site is located at UTM: N: 4240317 & E: 272165, Elevation 2752m.

Site 20: Leavitt Creek, Bridgeport Ranger District, looking downstream at an erosion concern. This section of the stream has very steep eroding slopes. The stream canyon is of loose debris and dirt which has several rivulets caused by summer thunderstorm drainage and snowmelt. This natural erosion probably contributes a lot of sediment to the stream. This site is located at UTM: N: 4240146 & E: 271682, Elevation 2850m.

Site 21: Leavitt Creek, Bridgeport Ranger District, looking upstream at a permanent fish barrier. This is a series of fish barriers that are one after the other. The first barrier is about 2m (6.6ft) high and the second barrier is water cascading over bedrock. This site is located at UTM: N: 4239958 & E: 271434, Elevation 2875m.

Site 22: Leavitt Creek, Bridgeport Ranger District, a cross-section view of a road-stream crossing near Leavitt Lake. The crossing has caused some stream widening and is also a source of sediment input to the stream. This crossing appears to be heavily used. This site is located at UTM: N: 4239537 & E: 271083, Elevation 2924m.

Site 23: Leavitt Creek, Bridgeport Ranger District, a view of Leavitt Lake from the survey end point. Leavitt Lake is a heavy use area. Near the lake there are several flat areas to camp and additional roads not marked on the map. This site is located at UTM: N: 4239537 & E: 271083, Elevation 2924m.

Site 24: Leavitt Creek, Bridgeport Ranger District, looking upstream at the second confluence with the West Walker River. Through the surveying process we discovered that Leavitt Creek forks and enters the West Walker River at two different locations. The first entry point is recorded at Site 1, and the second entry is marked here. At this site Leavitt Creek is contributing approximately 15% of the overall flow in the West Walker River. This site is located at UTM: N: 4244709 & E: 277197, Elevation 2176m.

Site 24: Leavitt Creek, Bridgeport Ranger District, other continued, view looking upstream at the West Walker River from the Leavitt Creek confluence. This site is located at UTM: N: 4244709 & E: 277197 E, Elevation 2176m.

Site 25: Leavitt Creek, Bridgeport Ranger District, a cross-section view of a trail crossing. This is a trail that originates near Leavitt Meadows Pack Station and shows signs of heavy usage by people and horses. This site is located at UTM: N: 4244670 & E: 277018, Elevation 2178m.

Site 26: Leavitt Creek, Bridgeport Ranger District, a cross-section view of a diversion. This diversion is a channel that is dug out and allows water from the creek to drain towards the Leavitt Meadows Pack Station in order to supply their horses with water. This site is located at UTM: N: 4244607 & E: 276916, Elevation 2185m.

Site 27: Leavitt Creek, Bridgeport Ranger District, looking upstream at a road-stream crossing. This small bridge crosses the creek to gain access to private land and RV sites as indicated at Site 3. This site is located at UTM: N: 4244607 & E: 276835, Elevation 2185m.