McKay Creek

Mono County, California

2007 Stream Habitat Survey Report

Prepared By:
Carson Ranger District: Humboldt-Toiyabe National Forest

Introduction

McKay Creek begins near the Mono County-Tuolumne County border in California and flows in a northeasterly direction into Mono County. The river flows approximately 2.29 miles until it connects with Sardine Creek in the Sardine Meadows area. The entire length of McKay Creek occurs on National Forest Lands, and therefore is managed by the Humboldt-Toiyabe National Forest, Bridgeport Ranger District. McKay Creek also occurs within the proposed Hoover Wilderness area. McKay Creek was surveyed until low water levels deemed it unnecessary to continue.

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 2007 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. McKay Creek was surveyed on June 30, 2007 by Joel Ingram and Kevin Rybacki of the Carson and Bridgeport Ranger Districts: Humboldt-Toiyabe National Forest.

Methods and Materials

Forest Service personnel surveyed McKay Creek by hiking the watercourse in an upstream manner. Interesting and relevant features were documented, photographed, and recorded into a GPS unit. These features included but were not limited to: road crossings, fish sightings, permanent fish barriers, seasonal fish barriers, tributaries, springs, beaver dams, areas of erosion concern, grazing impacts, 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. Some permanent barriers may actually act as seasonal barriers and some seasonal barriers may actually act as a permanent barrier.

Results

Approximately 0.94 miles of McKay Creek were surveyed from its confluence with Sardine Creek to Sardine Falls (Sites 1-10). Throughout the surveying of McKay Creek the most prevalent feature documented was tributaries which were found at Sites 4, 5, and 7. There are 2 permanent natural fish barriers found at Sites 6 and 9. There were also a couple of campsites found on McKay Creek located at Sites 3 and 8. A photo point was also taken at Site 2 to show characteristics of the stream. The average stream gradient between Sites 1 and 10 is 5.8%. The average stream gradient between Sites 1 and 6 is 2.7% which us drastically less than the 76.3% average gradient between Sites 6 and 10.

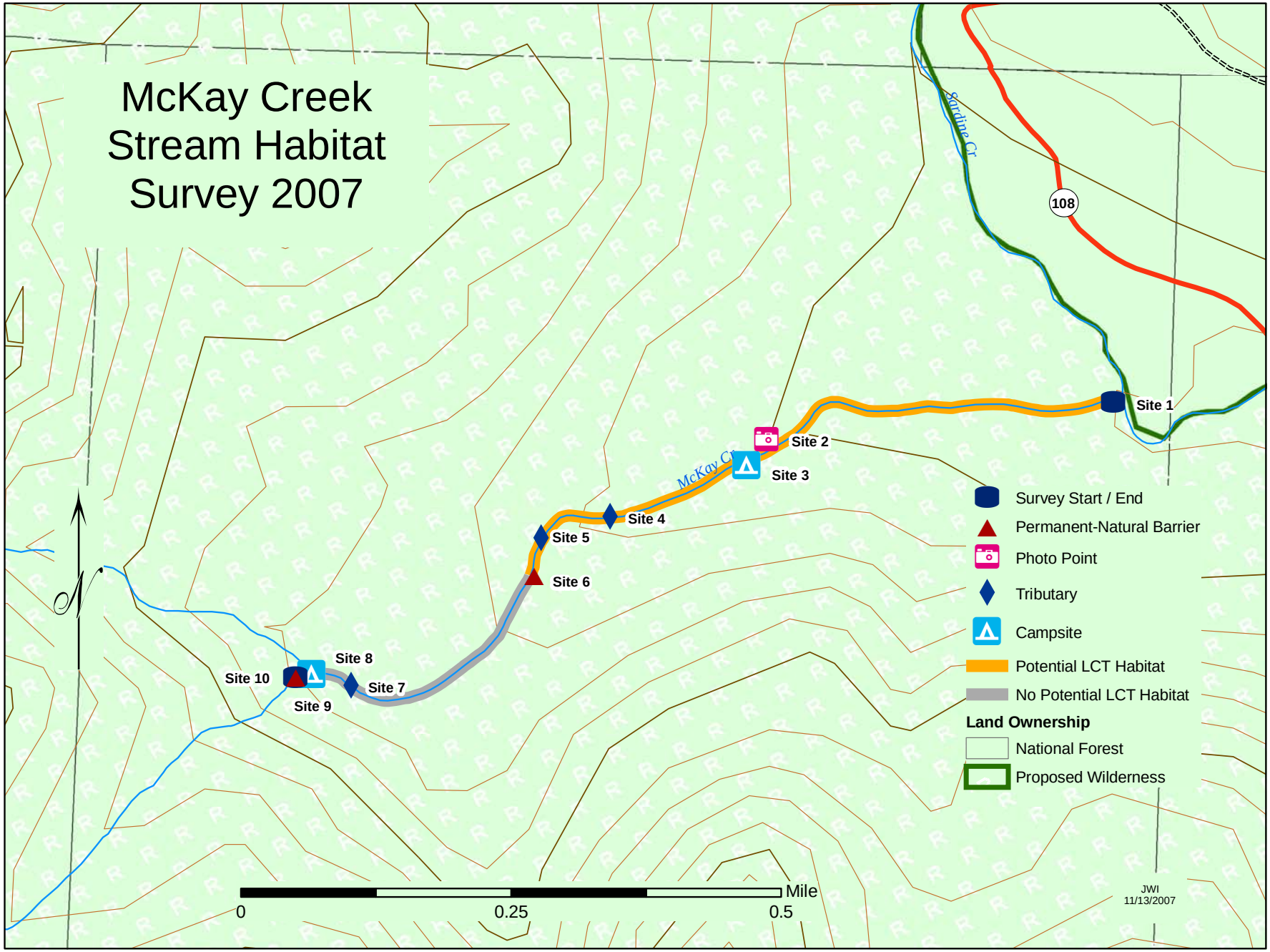
Discussion

McKay Creek is a small tributary to Sardine Creek. McKay Creek offers 0.9 miles of potential LCT habitat between Sites 1 and 6. This section of the stream is low gradient as the stream passes through Sardine Meadows. The creek passes through a combination of open meadow lands and a low lying pine forest. The area identified as potential habitat flows over a rocky stream bed with frequent pools of slower water. At Site 6 there is a large waterfall approximately 7m tall and forms a permanent fish barrier. The 0.9 mile stretch of stream between Sites 1 and 6 seemed to have little usage by the public other then the short hike up to Sardine Falls (Site 9). Even though there were two campsites located along the stream they showed no evidence of frequent use and should be considered two sites that could be easily deconstructed. The survey ended at Site 10 due to the presence of Sardine Falls at Site 9. Sardine Falls is approximately 75 feet high. The gradient also increases upstream of Site 10. Although the area between Sites 6 and 10 on a topographic map doesn't appear to be steep, the average stream gradient in that area is 76.3%; therefore, this area was classified as not having potential LCT habitat.

Recommendations

1. Consider the 0.9 miles of McKay Creek located between Sites 1 and 6 as potential LCT habitat and consider McKay Creek a low candidate for restoration.

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


McKay Creek
Stream Habitat
Survey 2007
Sardine Cr
108
McKay Cr
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7
Site 8
Site 9
Site 10
Survey Start / End
Permanent-Natural Barrier
Photo Point
Tributary
Campsite
Potential LCT Habitat
No Potential LCT Habitat
Land Ownership
National Forest
Proposed Wilderness
0
0.25
0.5
Mile
JWI
11/13/2007

Site 1: McKay Creek, Bridgeport Ranger District. Survey starts at the confluence of McKay and Sardine Creeks. The two creeks seem to be equal in water flow before they merge. This site is located at UTM: N: 4243566 & E: 272136, Elev. 2671m.

Site 2: McKay Creek, Bridgeport Ranger District. Photo point depicts the characteristics of the stream at this section. McKay Creek is a stream that runs gently down a large open meadow. Riffles are continuous with small pools and eddy sections below some of the larger runs. This site is located at UTM: N: 4243505 & E: 271618, Elev. 2701m.

Site 3: McKay Creek, Bridgeport Ranger District. This campsite is located near the stream on river left and contains a fire ring, cleared tent pads, and a full sized picnic table. A nearby road gives visitors' easy access to the site. This site is located at UTM: N: 4243474 & E: 271589, Elev. 2695m.

Site 4: McKay Creek, Bridgeport Ranger District. A small tributary enters river right and adds approx. 15% to the overall flow of the creek. This site is located at UTM: 4243396 & E: 271385, Elev. 2699m.

Site 5: McKay Creek, Bridgeport Ranger District. Looking at an extremely small tributary that enters adding less than 1% to the overall flow. This site is located at UTM: N: 4243363 & E: 271275, Elev. 2711m.

Site 6: McKay Creek, Bridgeport Ranger District. The first permanent natural barrier on the creek is this 7m high waterfall that lands in a shallow pool and can not be overcome by fish. This site is located at UTM: N: 4243282 & E: 271256, Elev. 2710m.

Site 7: McKay Creek, Bridgeport Ranger District. Tributary draining into the stream on river left contributes 15% to the overall flow of McKay Creek. This site is located at UTM: N: 4243145 & E: 271002, Elev. 2751m.

Site 8: McKay Creek, Bridgeport Ranger District. This nicely constructed campsite contains several sitting locations, a fire ring, and plenty of flat spots in the open forest. This site is located at UTM: N: 4243163 & E: 270943, Elev. 2755m.

Site 9: McKay Creek, Bridgeport Ranger District. This waterfall creates a permanent barrier as this 25m high waterfall is impossible for any fish to overcome. This site is located at UTM: N: 4243156 & E: 270919, Elev. 2755m.

Site 10: McKay Creek, Bridgeport Ranger District. Survey ends at this waterfall as the permanent barrier proves impossible to overcome. Water levels are also low at this point of the survey. This site is located at UTM: N: 4243156 & E: 270919, Elev. 2759m.