

FRYINGPAN CREEK

Mono County, California

2006 Stream Habitat Survey Report



Prepared By:

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Introduction

Fryingpan Creek is located in Mono County, California. The mainstem of Fryingpan Creek flows for approximately 4.7 miles in an easterly direction from its headwaters near Star City to its confluence with the East Walker River near the California-Nevada state boundary. The majority of the Fryingpan Creek watershed occurs on National Forest Lands. Fryingpan Creek also flows through a few private parcels of property. All 4.7 miles of Fryingpan Creek were surveyed between the Fryingpan Creek-East Walker River confluence (Site 1, 1829m) and a point approximately 1 mile directly south of Star City (Site 16, 2519m).

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. Fryingpan Creek was surveyed on July 6-7, 2006 by Joel Ingram and Harrison Davis of the Bridgeport Ranger District: Humboldt-Toiyabe National Forest.

Materials and Methods

Forest Service personnel surveyed Fryingpan 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 4.7 miles of Fryingpan Creek were surveyed between the Fryingpan Creek-East Walker River confluence (Site 1) and a point approximately 1 mile directly south of Star City (Site 16). Approximately 3.6 miles of Fryingpan Creek between Site 1 and Site 12 provide potential LCT habitat. One naturally occurring permanent fish barrier was identified at Site 15 and one artificial seasonal fish barrier was identified at Site 2. Site 2 also consists of a paved bridge crossing. There is also one naturally occurring seasonal barrier that is located at Site 12. Tributaries were

documented at Sites 3, 6, 11, 14, and 16. A photo point was taken at Site 13. Site 5 has an ATV bridge crossing and road-stream crossings via fords occur at Sites 7, 8, 9, and 10. Most of the documented road-stream crossings appear to be used by mostly cattle and ATV's. An irrigation diversion was documented at Site 4. While conducting this survey no fish were sighted in Fryingpan Creek. The average stream gradient between Site 1 and Site 16 is 9.1%. The stream gradient between Site 1 and Site 12 is approximately 7.7%.

Discussion

Fryingpan Creek provides 3.6 miles of potential LCT habitat between Sites 1 and 12. This section of the stream has lower gradient and has good complexity of pools and riffles. The stream does flow through a few meadows that are used for grazing. As a result of the grazing, several cattle and ATV stream crossings were documented (Sites 5, 7, 8, 9, and 10). All of these stream crossings are likely sources of sediment input to the stream.

At Site 2 a 4.3 foot artificial seasonal fish barrier prevents upstream movement of fish from the East Walker River into Fryingpan Creek. This 4.3 foot feature may also very likely be a permanent fish barrier. The barrier at Site 2 may allow for a restoration project of LCT upstream of Site 2. Although those LCT would be physically and genetically isolated, they would also be protected from the non-native fish downstream in the East Walker River. If LCT were restored to Fryingpan Creek upstream of Site 2 at anytime in the future those LCT could be reconnected with the rest of the East Walker River watershed by altering the artificial structure at Site 2 to allow fish passage.

The section of stream upstream of Site 12 was not considered potential LCT habitat because of the streams increased gradient, the channel narrows, and this section of stream consisted of mostly high gradient riffles with very few pools.

Recommendations

1. Consider Fryingpan Creek to provide 3.6 miles of potential LCT habitat between Sites 1 and 12 and consider Fryingpan Creek a low candidate for restoration.
2. Further evaluate the artificial fish barrier at Site 2 to determine if it's a seasonal or permanent fish barrier. Also evaluate how reasonable/difficult would it be to restore fish passage at that Site.
3. Investigate the destination and impacts of the diversion at Site 4. 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.

Fryingpan Creek Stream Habitat Survey 2006

-  Survey Start / End
 -  Photo Point
 -  Road Crossing
 -  Tributary
 -  Other
 -  Potential LCT Habitat
 -  No Potential LCT Habitat
- Fish Barriers**
-  Permanent-Artificial
 -  Permanent-Natural
 -  Seasonal-Natural



SLS
10/30/07



Site 1: Fryingpan Creek, Bridgeport Ranger District, looking downstream at the survey start point; the confluence of Fryingpan Creek with the East Walker River. Where Fryingpan Creek enters the East Walker River the creek is approximately 15ft. wide and 2ft. deep. This site is located at UTM: N: 4253179 & E: 310658, Elevation 1829m.



Site 1 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream from the survey start point. This site is located at UTM: N: 4253179 & E: 310658, Elevation 1829m.



Site 2: Fryingpan Creek, Bridgeport Ranger District, looking upstream at a road-stream crossing. Water flows over bare concrete before falling approximately 1.3m (4.3ft) into the stream bed. The single fall makes it extremely difficult for fish to swim upstream. This site is classified as an artificial permanent fish barrier. Upstream of the culvert there is also a steep section of concrete. This site is located at UTM: N: 4253164 & E: 310617 Elevation 1831m.



Site 2 continued: Fryingpan Creek, Bridgeport Ranger District, cross section view of water flowing over bare concrete before falling approximately 1.3m (4.3ft) into the stream bed. This site is located at UTM: N: 4253164 & E: 310617 Elevation 1831m.



Site 3: Fryingpan Creek, Bridgeport Ranger District, looking at a small tributary that enters the stream, river right. This tributary may be an irrigation channel that re-enters the creek at this site. This site is located at UTM: N: 4253141 & E: 310394, Elevation 1843m.



Site 3 continued: Fryingpan Creek, Bridgeport Ranger District, a cross-section view of a small tributary that enters on the river right side. This site is located at UTM: N: 4253141 & E: 310394, Elevation 1843m.



Site 4: Fryingpan Creek, Bridgeport Ranger District, looking upstream at an irrigation diversion that cuts the flow in half. The diversion is used to irrigate a cow grazing pasture. This site is located at UTM: N: 4253242 & E: 310132, Elevation 1862m.



Site 4 continued: Fryingpan Creek, Bridgeport Ranger District, looking downstream at Fryingpan Creek from the diversion. This site is located at UTM: N: 4253242 & E: 310132, Elevation 1862m.



Site 5: Fryingpan Creek, Bridgeport Ranger District, looking upstream at a small ATV bridge crossing the stream. This site is located at UTM: N: 4253351 & E: 309804, Elevation 1881m.



Site 5 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream from the ATV bridge. This site is located at UTM: N: 4253351 & E: 309804, Elevation 1881m.



Site 5 continued: Fryingpan Creek, Bridgeport Ranger District, looking downstream from the ATV bridge. This site is located at UTM: N: 4253351 & E: 309804, Elevation 1881m.



Site 6: Fryingpan Creek, Bridgeport Ranger District, a small tributary enters the main channel on the north side of the creek. This tributary contributes approximately 15% of the overall flow in Fryingpan Creek. This site is located at UTM: N: 4253372 & E: 309390, Elevation 1912m.



Site 6 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream at Fryingpan Creek from the tributary. This site is located at UTM: N: 4253372 & E: 309390, Elevation 1912m.



Site 6 continued: Fryingpan Creek, Bridgeport Ranger District, looking downstream at Fryingpan Creek from the tributary. This site is located at UTM: N: 4253372 & E: 309390, Elevation 1912m.



Site 7: Fryingpan Creek, Bridgeport Ranger District, cross-section view of a road crossing. This crossing has steep banks, and the heavy animal traffic has made a definite trail which during heavy rains would wash large amounts of sediment into the stream. This site is located at UTM: N: 4253351 & E: 309177, Elevation 1936m.



Site 7 continued: Fryingpan Creek, Bridgeport Ranger District, looking downstream from the road and cattle crossing. This site is located at UTM: N: 4253351 & E: 309177, Elevation 1936m.



Site 8: Fryingpan Creek, Bridgeport Ranger District, cross-section view of an ATV crossing. This site is located at UTM: N: 4253337 & E: 308899, Elevation 1953m.



Site 9: Fryingpan Creek, Bridgeport Ranger District, cross-section view of a ford road crossing. Some stream widening and erosion accompanying the crossing is evident. This site is located at UTM: N: 4253406 & E: 308427, Elevation 1988m.



Site 9 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream from the ford road crossing. This site is located at UTM: N: 4253406 & E: 308427, Elevation 1988m.



Site 9 continued: Fryingpan Creek, Bridgeport Ranger District, looking downstream from the ford road crossing. This site is located at UTM: N: 4253406 & E: 308427, Elevation 1988m.



Site 10: Fryingpan Creek, Bridgeport Ranger District, cross-section view of a ford road crossing. This site is located at UTM: N: 4253345 & E: 307906, Elevation 2033m.



Site 10 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream from the ford road crossing. This site is located at UTM: N: 4253345 & E: 307906, Elevation 2033m.



Site 11: Fryingpan Creek, Bridgeport Ranger District, looking at a small tributary that enters Fryingpan Creek. This tributary contributes approximately 10% of the overall flow in Fryingpan Creek. This site is located at UTM: N: 4253330 & E: 305611, Elevation 2223m.



Site 12: Fryingpan Creek, Bridgeport Ranger District, looking upstream at a seasonal fish barrier. The main drop is approximately 1m (3.3ft) high, but several other minor falls are associated with it. This site is located at UTM: N: 4253049 & E: 305303, Elevation 2276m.



Site 12 continued: Fryingpan Creek, Bridgeport Ranger District, looking upstream from the seasonal fish barrier. This site is located at UTM: N: 4253049 & E: 305303, Elevation 2276m.



Site 13: Fryingpan Creek, Bridgeport Ranger District, looking upstream at the stream characteristics typical for this section of stream. This site is located at UTM: N: 4252623 & E: 304988, Elevation 2334m.

Site 14: Fryingpan Creek, Bridgeport Ranger District, a small tributary enters at this site. This tributary contributes approximately 10% of the overall flow in Fryingpan Creek. This site is located at UTM: N: 4252452& E: 304383, Elevation 2398m. Picture is not available.



Site 15: Fryingpan Creek, Bridgeport Ranger District, looking upstream at a permanent fish passage barrier. This site has a series of waterfalls with the largest measuring approximately 3m (9.8ft) high. This site is located at UTM: N: 4252534 & E: 304135, Elevation 2454m.



Site 16: Fryingpan Creek, Bridgeport Ranger District, looking upstream at a tributary. This tributary contributes approximately 40% of the overall flow in Fryingpan Creek. This site is located at UTM: N: 4252537 & E: 303773, Elevation 2519m.