POISON CREEK

Alpine County, California

2006 Stream Habitat Survey Report

Prepared by

Carson Ranger District: Humboldt-Toiyabe National Forest

Introduction

Poison Creek is located in Alpine County, California. The mainstem of Poison Creek flows for approximately 3.0 miles in a northerly direction from an elevation of 7800 feet down to an elevation of 6410 feet at the confluence with Mountaineer Creek. Poison Creek contributes 30 percent of the flow in Mountaineer Creek. Poison Creek is located entirely within the boundaries of the Humboldt-Toiyabe National Forest.

Purpose and Need

The 1995 Lahontan Cutthroat Trout Recovery Plan requires that ecosystem management plans be developed for the Truckee and Walker River basins in order to both determine objectives for the future desired conditions of these watersheds, and to create strategies for achieving these objectives. Similar management plans are recommended for the Carson and Humboldt River basins. In 1998 Truckee and Walker River Basin Recovery Implementation Teams were organized to develop strategies for Lahontan cutthroat trout (LCT) restoration and recovery efforts in the Truckee and Walker River basins. In August 2003 both recovery teams completed Short-Term Action Plans for Lahontan Cutthroat Trout Recovery in the Truckee and Walker River Basins. The short-term action plans outline specific tasks to be completed within five years. Many of the short-term tasks identified in the Truckee and Walker River Basin Short-Term Action Plans are similar to one another and are applicable to recovery of LCT in the Carson River basin. The Carson Ranger District adopted some of the short-term tasks identified in the Truckee and Walker River Basin Short-Term Action Plans and began implementing these actions under an informal plan for the Carson River basin. These tasks include: (1) identifying and evaluating fish passage and existing barriers within the Carson River basin, (2) developing a watershed analysis of the physical components of the Carson River basin, and (3) initiating habitat surveys to evaluate potential LCT introduction streams and validating against existing LCT inhabited streams.

The Carson River watershed historically provided an estimated 405 miles of stream habitat (Kling and Mellison 2008) 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.

At present, no self-sustaining populations of genetically pure LCT are known to occupy historic habitat within the Carson River basin and since all of the drainage has been surveyed it is doubtful that any such populations remain to be discovered. The introduction of nonnative trout before the turn of the century is believed to be largely responsible for the extirpation of LCT within the Carson River drainage.

Although naturally occurring Lahontan cutthroat trout populations have been eliminated from the Carson River drainage, small populations have been established

in the formerly fishless headwaters of the East Fork Carson River above Carson Falls and in the tributaries Murray Canyon Creek, Golden Canyon Creek, and Poison Flat Creeks above impassible barriers. Pure populations of LCT also occur in Red Lake, Heenan Lake, Heenan Creek, and possibly in Raymond Meadows Creek. Hybridized populations of LCT occur in Jeff Davis Creek and in Leviathan Creek upstream of Leviathan Mine. The artificially established pure populations of LCT in the East Fork Carson River watershed occupy about 17 miles of stream habitat: approximately 4.2% 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; and 4) introductions of non-native fish species. The Carson River watershed downstream of Carson Falls is primarily inhabited by non-indigenous salmonids which include, but are not limited to: rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta)*. These competitive and aggressive introduced fishes have displaced the endemic Lahontan cutthroat trout.

Long term survival and recovery of LCT within the Carson River watershed 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 Carson 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 re-introduce LCT, these surveys can provide baseline information for future management of the fishery. Poison Creek was surveyed on May 24, 2006 by members of the Carson Ranger District of the Humboldt-Toiyabe National Forest. The surveyors were Brian Hodge and Robert Omann.

Materials and Methods

Forest Service personnel surveyed Poison Creek by hiking the watercourse 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 1.8 miles of Poison Creek were surveyed. The gradient of the stream is approximately 9.0 percent. At the confluence of Mountaineer and Poison Creeks, the discharge of Poison Creek on (May 24, 2006) was approximately 0.58 cfs (cubic feet/second) and the water temperature was 10º C. Seven seasonal fish barriers were identified (Sites 3, 4, 5, 6, 7, 11, & 12). One permanent fish barrier was located at Site 13 (a 5-foot naturally occurring waterfall). Non-native salmonids (brook trout) were seen throughout the stream (Sites 2, 8, 10, 14) and one tributary was documented (Site 15). In addition, one photo was taken to capture prevalent stream characteristics (Site 9).

Discussion

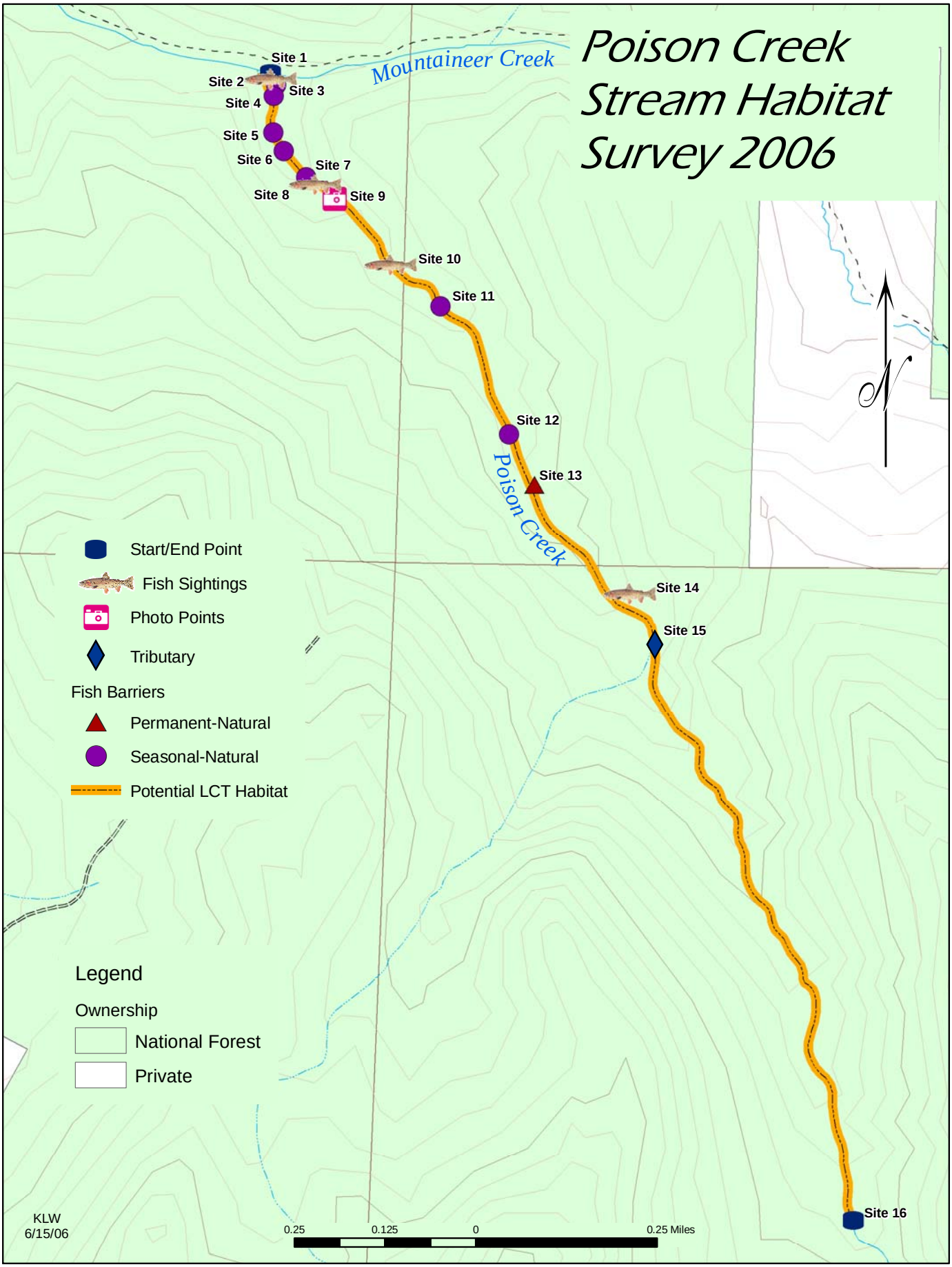
Approximately 1.8 miles of Poison Creek provide potential LCT habitat. Large numbers of pools, riffles, and woody debris provide favorable habitat complexity. A moderate number of brook trout were sighted, supporting the theory that native salmonids such as LCT could inhabit Poison Creek.

The 9.0 percent gradient is representative of the entire surveyed reach, as no one section of stream is particularly steep nor particularly flat. The permanent barrier at Site 13 effectively divides the drainage into two halves. The lower reach contains 7 seasonal barriers. Due to the limited length of potential LCT habitat and existence of the eight fish passage barriers, Poison Creek fails to provide an ideal location for the long-term persistence of a fish population.

As a side note, a large amount of the seasonal fish barriers located on Poison Creek are formed by large woody debris. The Poison Creek Canyon seems to exhibit an unnatural amount of dead and downed trees when compared to the rest of the forests in the immediate area.

Recommendations

1. Consider the 1.8 mile section of Poison Creek between Site 1 and Site 16 as potential LCT habitat and consider Poison Creek a high candidate for restoration. Poison Creek could contribute towards restoring a small metapopulation of LCT in the area (See 2008 Carson River Summary Report).
2. Assess the soil and water conditions in Poison Creek Canyon in response to the unusually large number of dead trees found in the middle and upper portions of the surveyed reach.


Poison Creek
Stream Habitat
Survey 2006
Mountaineer Creek
Poison Creek
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
N
Start/End Point
Fish Sightings
Photo Points
Tributary
Fish Barriers
Permanent-Natural
Seasonal-Natural
Potential LCT Habitat
Legend
Ownership
National Forest
Private
KLW
6/15/06
0.25
0.125
0
0.25 Miles

Site 1: Poison Creek, Carson Ranger District, looking up Poison Creek at the confluence with Mountaineer. This site is located at UTM: N 4289956 & E: 271043, Elev. 6411 ft (1954m).

Site 2: Poison Creek, Carson Ranger District, looking at a brook trout swimming just above the confluence with Mountaineer Creek. This site is located at UTM: N: 4289944 & E: 271041, Elev. 6411 ft (1954 M).

Site 3: Poison Creek, Carson Ranger District, looking upstream at a fish barrier formed by the characteristic logs and root wads in Poison Creek. The combined height of the barrier is 3.0 feet, with a max pool depth of 1.0 foot. This site is located at UTM: N: 4289931 & E: 271057, Elev. 6437 ft (1962m).

Site 4: Poison Creek, Carson Ranger District, looking upstream at a natural seasonal fish barrier caused by downed logs. The overall height of the barrier is 2.0 ft with a pool depth of 1.15 ft. This site is located at UTM: N: 4289901 & E: 271042, Elev. 6381 ft (1945m).

Site 5: Poison Creek, Carson Ranger District, looking upstream at a seasonal fish barrier. The maximum height of the barrier is 2.60 ft with a pool depth of 1.0 foot. This site is located at UTM: N: 4289822 & E: 271053.

Site 6: Poison Creek, Carson Ranger District, looking upstream at a seasonal fish barrier. Cascade sequences and fish barriers are prevalent throughout this section of stream. This site is located at UTM: N: 4289781 & E: 271076.

Site 7: Poison Creek, Carson Ranger District, looking downstream at a seasonal fish barrier. The maximum height of the waterfall is 2.6 feet, with a pool depth of 1.6 feet. This site is located at UTM: N: 4289722 & E: 271121, Elev. 6512 ft (1985m).

Site 8: Poison Creek, Carson Ranger District, looking cross-stream at the location of a salmonid sighting. This site is located at UTM: N: 4289709 & E: 271142, Elev. 6509 ft (1984m).

Site 9: Poison Creek, Carson Ranger District, an upstream photo point looking at potential LCT habitat. This site is located at UTM: N: 4289670 & E: 271189, Elev. 6493 ft (1979m).

Site 10: Poison Creek, Carson Ranger District. A small salmonid was observed in the pool pictured. This site is located at UTM: N: 4289531 & E: 271310, Elev. 6581 ft (2006m).

Site 11: Poison Creek, Carson Ranger District. Cross-sectional view of a seasonal fish barrier. This site is located at UTM: N: 4289343 & E: 271504, Elev. 6667 ft (2032m).

Site 12: Poison Creek, Carson Ranger District, looking upstream at a seasonal fish barrier. The height of the barrier is 2.7 feet with a pool depth of 0.6 feet. This site is located at UTM: N: 4289150 & E: 271573, Elev. 6709 ft (2045m).

Site 13: Poison Creek, Carson Ranger District, looking upstream at a naturally occurring, permanent fish barrier. The maximum height of this waterfall is 5.0 feet, with a pool depth of 0.7 feet. This site is located at UTM: N: 4289042 & E: 271627, Elev. 6739 ft (2054m).

Site 15: Poison Creek, Carson Ranger District, looking at a small tributary that enters river left. This unnamed tributary contributes 7-10% of flow to Poison Creek. When surveyed, the stream dimensions were 1 foot wide and .3 feet deep. This site is located at UTM: N: 4288614 & E: 271871, Elev. 6939 ft (2115m).

Site 16: Poison Creek, Carson Ranger District, looking upstream at the survey endpoint. This photo is characteristic of the upper part of the Poison Creek drainage. The stream becomes high gradient and engulfed in an uncharacteristic amount of dead vegetation and trees. This site is located at UTM: N: 4287400 & E: 272342.