

POISON FLAT CREEK

Alpine County, California

2006 Stream Habitat Survey Report



Prepared by:

Carson Ranger District: Humboldt-Toiyabe National Forest

Introduction

Poison Flat Creek is located in Alpine County, California and flows for approximately 3.5 miles in a horseshoe shape to an ultimately westerly direction to the confluence with Poison Creek. The stream originates at an elevation of approximately 8054 feet, and descends to 6900 feet upon the convergence with Poison Creek. Poison Flat Creek lies entirely within the boundaries of the Carson-Iceberg Wilderness and the Humboldt-Toiyabe National Forest (SEE MAP). Poison Flat Creek is a tributary to the East Fork Carson River.

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. As of 1995, approximately 1.0 mile of Poison Flat Creek was occupied by a population of 100-500 LCT. The 2006 habitat surveys are only visual assessments and therefore fish sightings only confirm the presence of the specified number of fish, and cannot be interpreted as an evaluation of population viability. Poison Flat Creek was surveyed on September 8, 2006 by members of the Carson Ranger District: Humboldt-Toiyabe National Forest. The surveyors were Brian Hodge and Robert Omann.

Materials and Methods

Forest Service personnel surveyed Poison Flat 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 2.43 miles of Poison Flat Creek were surveyed (Sites 1-19). The overall gradient of the surveyed reach is approximately 9.0 percent. Eight fish passage barriers were identified throughout the stream. Four seasonal barriers were documented (Sites 7, 10, 14, & 17), and four permanent fish passage barriers were documented (Sites 2, 3, 4, & 8). Tributaries were documented at Sites 15 and 18. Fish, presumably all LCT, were sighted at five separate locations (Sites 6, 9, & 12). In addition, a fish was sighted below the barrier at Site 8 and in the meadow at Site 11. Photos were taken to document stream characteristics in four locations (Sites 5, 11, 13, & 16).

Discussion

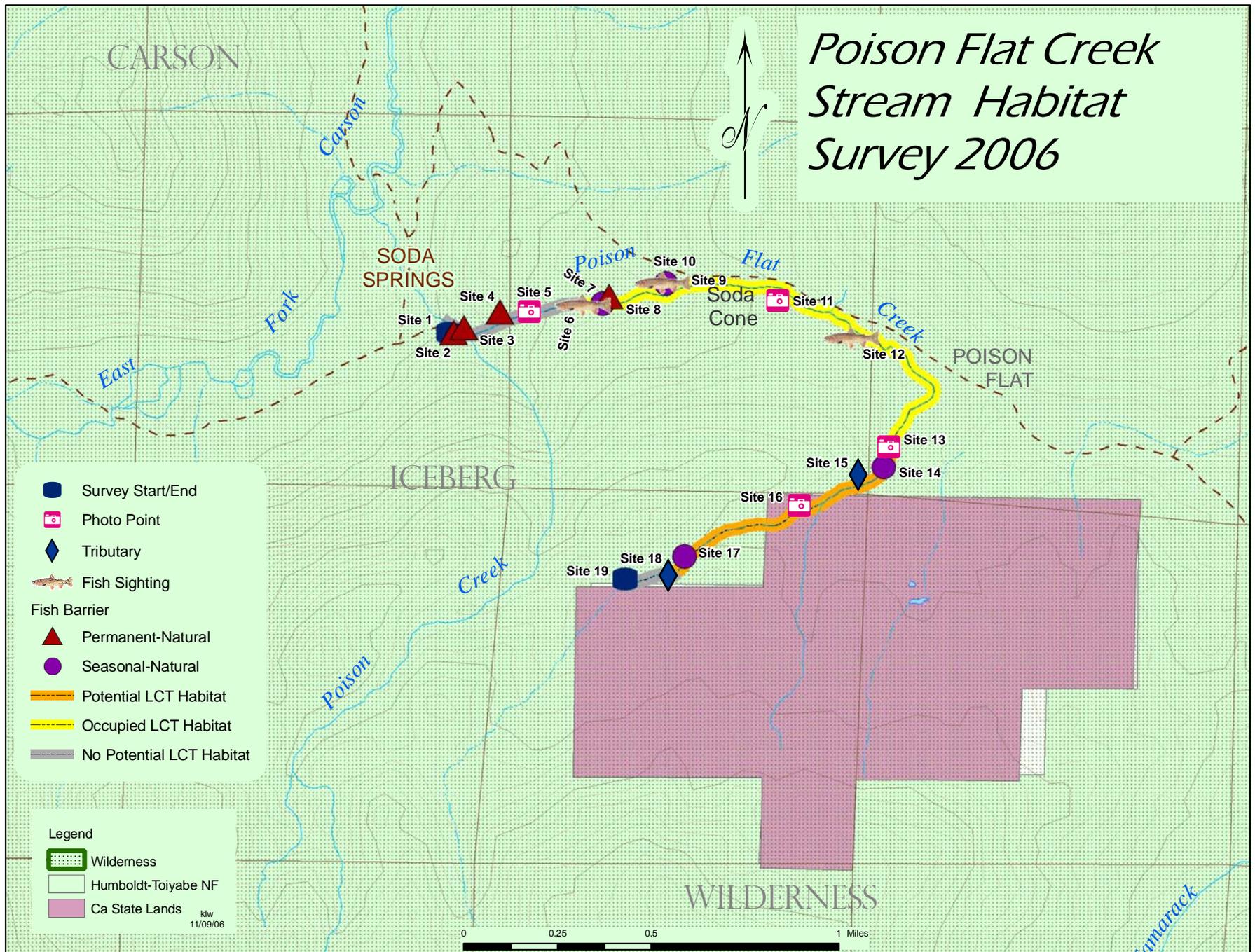
Approximately 1.30 miles of Poison Flat Creek are occupied by LCT (Sites 6-13). Fish were sighted at Site 6 and Site 12: two locations separated by a distance of 0.80 miles. The absence of barriers in that reach makes it very likely that LCT occupy an additional 0.50 miles upstream to Site 13. The fish noted at Site 6 and Site 8 were juvenile LCT, whereas the fish sighted at Site 9 and Site 11 were relatively large adults. Most of these fish occupied small plunge pools, though the LCT at Site 11 was in the thalweg of a meander bend. Several small juvenile LCT were seen near Site 12, where the low gradient meadow and absence of barriers allows connectivity. An interbreeding population of LCT likely occupies this reach between Sites 6 and 13.

The section of stream between Sites 1 and 5 is a steep cascading reach, containing multiple permanent fish barriers, including one 10-foot and one 15-foot waterfall. The section between Sites 5 and 11 is a moderate gradient reach with pools, riffles, and small cascades. A 6.5-foot waterfall creates discontinuity in this reach (Site 8). Below Site 11, and specifically below Site 8, fish movement is almost exclusively limited to downstream migration and a finite amount of mobility between barriers. Upstream of Site 19 the flows are minimal and the stream does not offer sustainable habitat for fish.

Recommendations

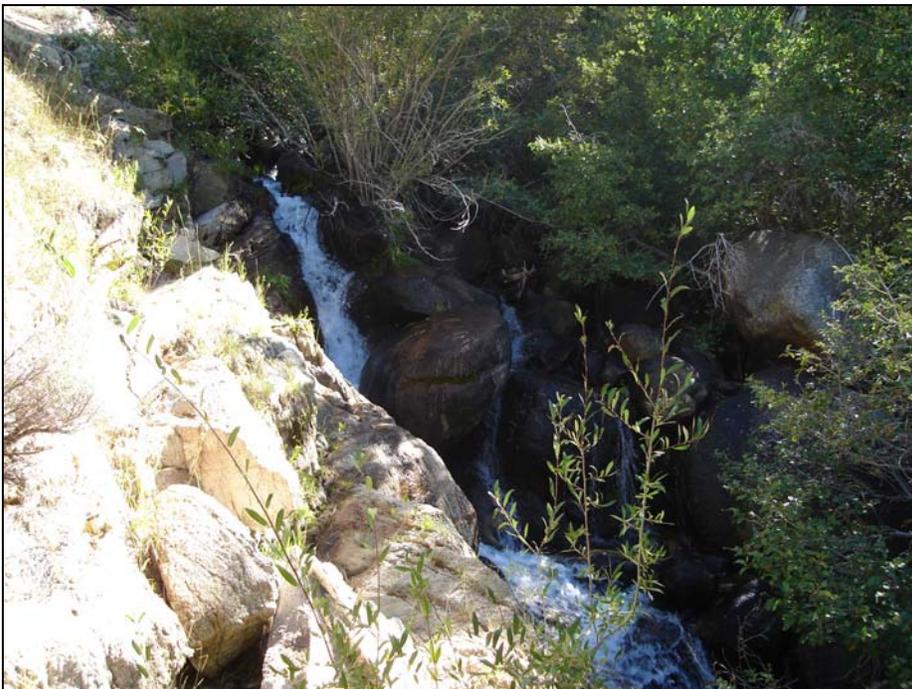
1. Consider the 1.3 mile section of Poison Flat Creek between Site 6 and Site 13 as occupied LCT habitat, and consider Poison Flat Creek between Site 13 and Site 17 as potential LCT habitat. Consider moving LCT from below Site 13 to upstream of Site 13.
2. Work with the California Department of Fish and Game to enact a closure or strict limitations on fishing in Poison Flat Creek. Make these regulations visible through posted signs and by publication in the annual California Department of Fish and Game fishing regulations handbook.

3. Coordinate with the California Department of Fish and Game to conduct an LCT density and distribution survey in Poison Flat Creek.
4. Establish the Poison Flat Creek watershed as a Critical Aquatic Refuge, as described in the 2004 Sierra Nevada Forest Plan Amendment.





Site 1: Poison Flat Creek, Carson Ranger District. An upstream photo at the survey start point showing the step gradient of Poison Flat Creek. This site is located at UTM: N: 4265342 & E: 269038, Elev. 6900 ft (2103 m).



Site 2: Poison Flat Creek, Carson Ranger District. An upstream photo showing a permanent fish barrier formed by a 15-foot waterfall (maximum pool depth is 2.0 ft). This is one of many consecutive barriers. This site is located at UTM: N: 4265347 N & E: 269063, Elev. 6886 ft (2099 m).



Site 3: Poison Flat Creek, Carson Ranger District. Upstream photo showing a permanent fish barrier formed by several seasonal barriers in succession. This site is located at UTM: N: 4265372 & E: 269114, Elev. 6926 ft (2111 m).



Site 4: Poison Flat Creek, Carson Ranger District. An upstream photo of a permanent fish barrier. The barrier is 10 ft tall with a maximum pool depth of 1.0 foot. This site is located at UTM: N: 4265438 N & E: 269261, Elev. 7133 ft (2174 m).



Site 5: Poison Flat Creek, Carson Ranger District. An upstream photo, showing a point where the stream gradient changes from moderate (upstream) to steep (downstream). This site is located at UTM: N: 4265428 & E: 269298.



Site 7: Poison Flat Creek, Carson Ranger District. Upstream photo showing a small seasonal barrier that is 3.2 ft high with a max pool depth of 0.8 feet. This site is located at UTM: N: 4265480 & E: 269699, Elev. 7303 ft (2226 m).



Site 8: Poison Flat Creek, Carson Ranger District. A permanent barrier formed by a 6.5 ft tall rocky waterfall with a maximum pool depth of 1.1 ft. A small salmonid was sighted in the pool below the barrier. This site is located at UTM: N: 4265530 & E: 269728, Elev. 7329 ft (2234 m).



Site 9: Poison Flat Creek, Carson Ranger District. An upstream photo showing the pool where a large LCT was observed. This fish, as well as the other fish in this region seem to be restricted to small pools, without freedom of movement. This site is located at UTM: N: 4265564 & E: 269960, Elev. 7438 ft (2267 m).



Site 11: Poison Flat Creek, Carson Ranger District. An upstream photo of the low-gradient reach within the meadow at Poison Flat. This site is located at UTM: N: 4265486 & E: 270456, Elev. 7651 ft (2332 m).



Site 12: Poison Flat Creek, Carson Ranger District. A small LCT sighted in a pool. The meadow area that this fish was seen in is exceptionally good fish habitat. This site is located at UTM: N: 4265322 & E: 270769, Elev. 7720 ft (2353 m).



Site 13: Poison Flat Creek, Carson Ranger District. Upstream photo showing the slight decrease in gradient, as the stream leaves the woods and enters a meadow. This site is located at UTM: N: 4264882 & E: 270845, Elev. 7776 ft (2370 m).



Site 14: Poison Flat Creek, Carson Ranger District. Upstream photo of a seasonal fish barrier measuring 3.3 ft high, with a pool depth of 1.8 ft. This site is located at UTM: N: 4264803 & E: 270830, Elev. 7818 ft (2383 m).



Site 15: Poison Flat Creek. Upstream photo showing a tributary entering on river right, and contributing 30% of flow to Poison Flat Creek. The branch contributing 70% was surveyed above this point. This site is located at UTM: N: 4264723 & E: 270803, Elev. 7858 ft (2395 m).



Site 16: Upstream photo showing habitat characteristic to this reach. This site is located at UTM: N: 4264603 & E: 270553, 7858 ft (2400 m).



Site 17: Poison Flat Creek, Carson Ranger District. Photo of a seasonal fish barrier formed by a 2.75 ft rocky cascade. The maximum pool depth is 0.5 ft. This site is located at UTM: N: 4264481 & E: 270091, Elev. 7995 ft (2437 m).



Site 18: Poison Flat Creek, Carson Ranger District. A small tributary enters on the right bank and contributes 40% of flow to Poison Flat Creek. This site is located at UTM: N: 4264306 & E: 269597.

Site 19: Poison Flat Creek, Carson Ranger District. The stream does not provide sustainable habitat upstream of this point. This site is located at UTM: N: 4264280 & E: 269799, Elev. 8054 ft (2455 m). The picture for this site is not available.