

# Poison Creek

Mono County, California

## 2007 Stream Habitat Survey Report



Prepared by:

Carson Ranger District: Humboldt-Toiyabe National Forest

## **Introduction**

Poison Creek occurs in Mono County, California and originates near Emma Lake. Poison Creek flows in a northeasterly manner for approximately 4.16 miles until it flows into the Little Walker River. The entire length of Poison Creek occurs on National Forest Lands managed by the Humboldt-Toiyabe National Forest, Bridgeport Ranger District. The survey for this stream started at the confluence with the Little Walker River and continued upstream until water levels and the lack of potential fish habitat 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. Poison Creek was surveyed on September 19<sup>th</sup> and 20<sup>th</sup>, 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 Poison 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 2.84 miles of Poison Creek were surveyed from its confluence with the Little Walker River to a point near Emma Lake. Throughout the survey of Poison Creek the most prevalent features documented were road crossings, seasonal fish barriers, and tributaries. Tributaries entering Poison Creek were found at Sites 8 and 10, while stream crossings were noted at Sites 5 and 7. Site 7 was a road crossing and Site 5 seemed to see more foot traffic as well as some use from ATVs and cattle. Three seasonal fish barriers can be found at Sites 4, 7 and 9. Sites 4 and 9 are natural barriers while Site 7 is an artificial barrier. Other notable features are a series of beaver dams found at Site 2 and an erosion concern at Site 6. No campsites were found on the creek and fish were seen at Site 3. Poison Creek between Sites 1 and 11 has an average stream gradient of 10.9%.

## **Discussion**

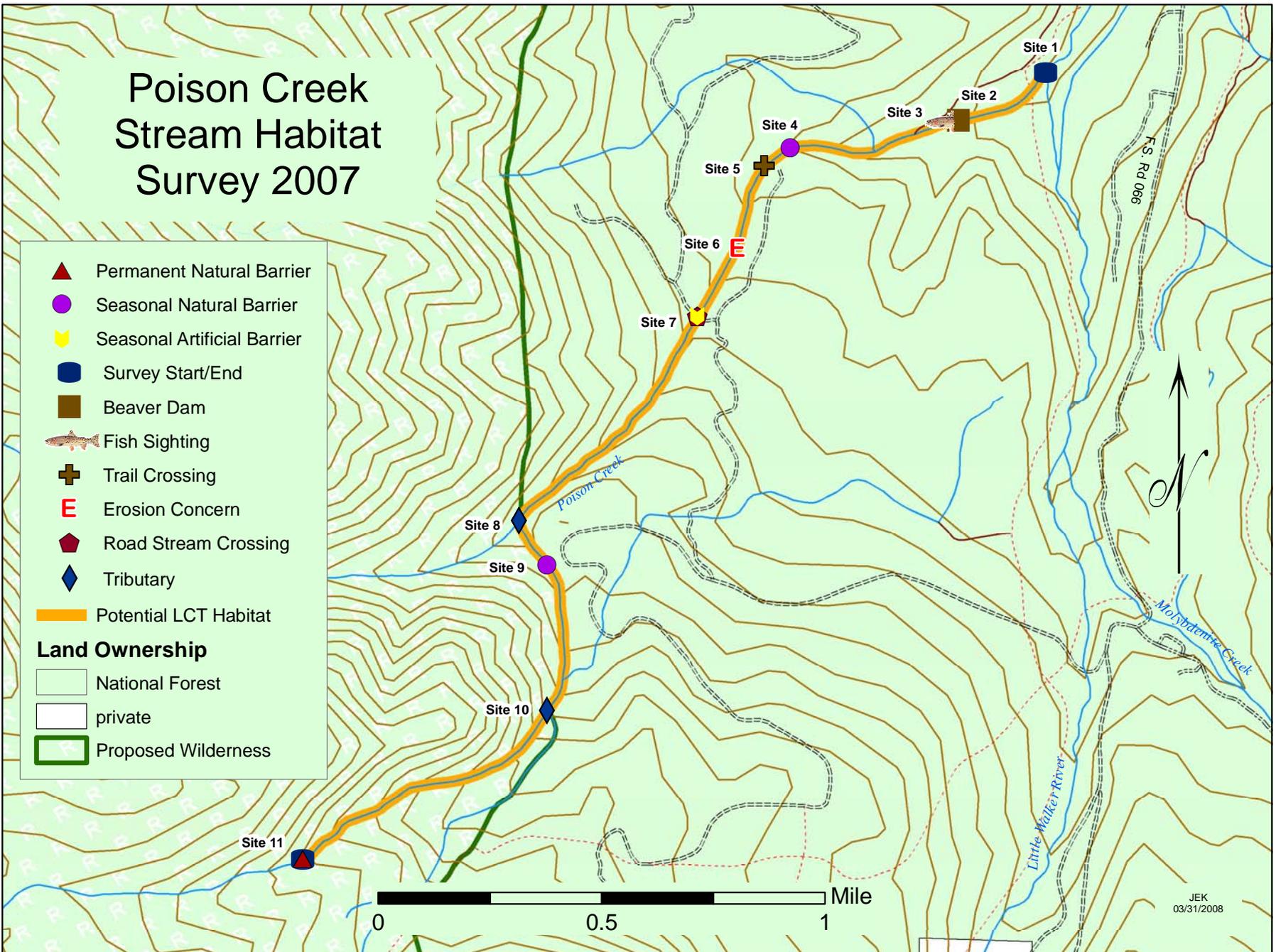
The entire 2.84 mile stretch of Poison Creek between Sites 1 and 11 should be considered potential LCT habitat. The area upstream of Site 11 is considered unsuitable habitat for LCT due to the lack of sufficient pools and the steep gradient of the creek. Although there are two natural barriers found on the stream, both are listed as seasonal and therefore should provide fish passage at high water volumes. The culvert road crossing at Site 7 may be inhibiting fish passage seasonally. The creek is crossed twice by roads that are moderately used. The lack of campsites along the stream is due to its difficult accessibility from the established Obsidian Campground nearby. Although small in size, many fish were seen at Site 3.

## **Recommendations**

1. Consider the 2.84 mile section of Poison Creek between Sites 1 and 11 as potential LCT habitat and consider Poison Creek a high candidate for restoration. In addition to the Little Walker River, Molybdenite Creek and Cowcamp Creek, Poison Creek could also contribute towards restoring a metapopulation of LCT in that area.
2. Investigate the culvert at Site 7 to determine if the culvert is inhibiting fish passage seasonally. If the culvert is inhibiting fish passage, alter the site to accommodate fish passage.

# Poison Creek Stream Habitat Survey 2007

	Permanent Natural Barrier
	Seasonal Natural Barrier
	Seasonal Artificial Barrier
	Survey Start/End
	Beaver Dam
	Fish Sighting
	Trail Crossing
	Erosion Concern
	Road Stream Crossing
	Tributary
	Potential LCT Habitat
<b>Land Ownership</b>	
	National Forest
	private
	Proposed Wilderness



JEK  
03/31/2008



**Site 1:** Poison Creek, Bridgeport Ranger District. The survey starts as Poison Creek drains into the Little Walker River adding 30% to its overall flow. Poison Creek drains into the Little Walker River on the river left side. This site is located at UTM: N: 4243467 & E: 285646.



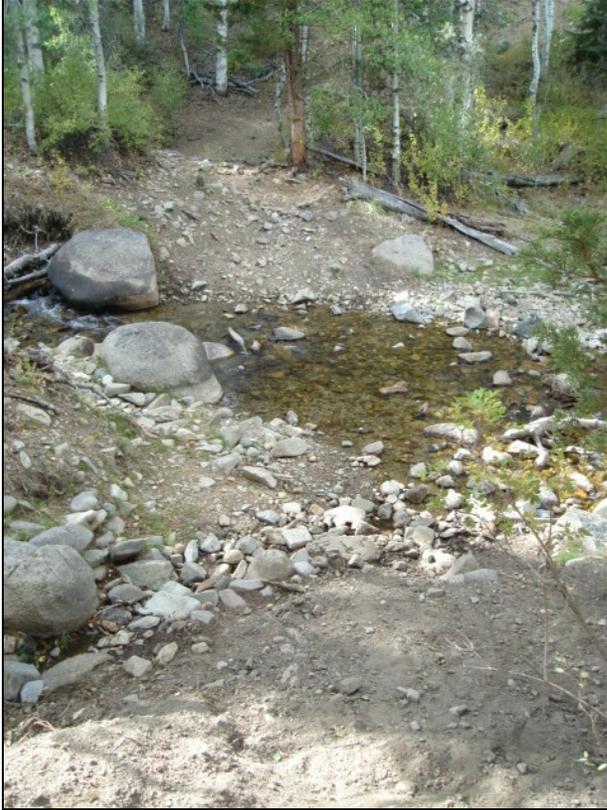
**Site 2:** Poison Creek, Bridgeport Ranger District. Photo depicts one of a series of beaver dams located on the stream. The largest dam measures approx. 2.25ft tall with a maximum pool depth of 3.5ft. This site is located at UTM: N: 4243294 & E: 285331, Elev. 2195m.



**Site 3:** Poison Creek, Bridgeport Ranger District. Several small fish were seen swimming in the ponds formed by the beaver dams on Poison Creek. This site is located at UTM: N: 4243290 & E: 285312, Elev. 2216m.



**Site 4:** Poison Creek, Bridgeport Ranger District, looking upstream at a seasonal fish barrier that has several falls measuring from 2 to 4ft tall with a maximum plunge pool depth of 1.5ft. Higher water levels will create more options for fish passage. This site is located at UTM: N: 4243196 & E: 284725, Elev. 2264m.



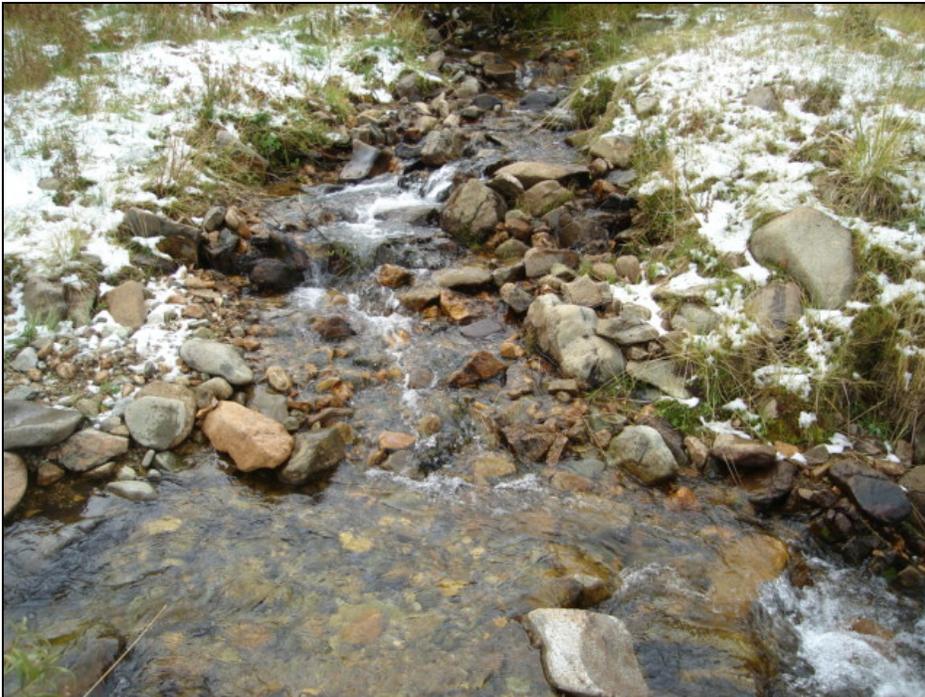
**Site 5:** Poison Creek, Bridgeport Ranger District. The trail crossing here creates stream channel widening and erosion of the stream banks. This route appears to serve as a cattle crossing as well as a path for ATV's and pedestrians. This site is located at UTM: N: 4243131 & E: 284632, Elev. 2283m.



**Site 6:** Poison Creek, Bridgeport Ranger District. Massive erosion characterizes this section as this eroded stream bank measures approx. 35m in length and 12m at peak height. This site is located at UTM: N: 4242835 & E: 284534.



**Site 7:** Poison Creek, Bridgeport Ranger District. Photo shows a culvert at this road stream crossing. A small fall of 1.5ft high enters a pool of 2.5ft deep and therefore probably acts as an artificial seasonal fish barrier. This site is located at UTM: N: 4242587 & E: 284391, Elev. 2383m.



**Site 8:** Poison Creek, Bridgeport Ranger District. A small tributary enters the stream on river left and contributes 30% to the overall flow of the creek. This site is located at UTM: N: 4241851 & E: 283747, Elev. 2423m.



**Site 9:** Poison Creek, Bridgeport Ranger District. A small waterfall is created by the roots of two trees on both sides of the stream. This seasonal fish barrier measures to be 3ft tall with a shallow pool of 6 inches deep. This site is located at UTM: N: 4241690 & E: 283849, Elev. 2458m.



**Site 10:** Poison Creek, Bridgeport Ranger District. A moderately sized tributary enters the creek on river right and adds 50% to the overall flow. Although the tributary adds plenty of water, its gradient is too steep for fish to occupy and therefore does not add potential fish habitat. This site is located at UTM: 4241166 & E: 283849, Elev. 2541m.



**Site 11:** Poison Creek, Bridgeport Ranger District. The survey ends due to steep terrain and the lack of pools to create fish habitat. This site is located at UTM: N: 4240629 & E: 282969, Elev. 2694m.