

PLEASANT VALLEY CREEK

Alpine County, California

2006 Stream Habitat Survey Report



Prepared By:

Carson Ranger District: Humboldt-Toiyabe National Forest

Introduction

Pleasant Valley Creek is located in Alpine County, California near the town of Markleeville. The mainstem of Pleasant Valley Creek flows in a northeasterly direction from the Sunset Lakes area to the confluence with Hot Springs Creek. The stream originates at an elevation of approximately 7359 feet and descends to an elevation of 6102 feet over a course of approximately seven miles. Pleasant Valley Creek flows through federal and private lands. The creek flows through the boundaries of the Humboldt-Toiyabe National Forest in both the upper and lower portions of the watershed. The upper reaches are also found within the Mokelumne Wilderness. The middle segment of river runs through a privately owned fly-fishing preserve, whereas the lowermost mile of stream runs through an entirely separate private parcel. (SEE MAP)

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. Pleasant Valley Creek was surveyed on June 15 and September 19, 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 Pleasant Valley 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 3.4 miles of Pleasant Valley Creek were surveyed, and the overall gradient of the surveyed section of stream is approximately 7.1 percent. Seven fish passage barriers were identified throughout the stream. Five permanent fish passage barriers were documented (Sites 8, 9, 10, 12, & 13), and two seasonal fish passage barriers were documented (Sites 2 & 7). Two tributaries were noted, including Jeff Davis Creek (Sites 11 & 15). Fish sightings were documented at two locations (Sites 17 & 18). In addition, photos were used to document stream characteristics in five locations (Sites 3, 4, 5, 6, & 14).

Discussion

Pleasant Valley Creek does not provide sustainable LCT habitat within the boundaries of the surveyed reach. The surveyed reach consists of two distinct segments: one steep section between Sites 1-13, and a lower gradient section between Site 13 and Site 19.

The section between Site 1 and Site 13 is a steep cascading reach with multiple seasonal and permanent fish barriers. Upstream of Site 13 Pleasant Valley Creek is a small and slow moving stream. Jeff Davis Creek contributes roughly 80% of the flow to Pleasant Valley Creek at Site 15, above which point Pleasant Valley Creek is nearly stagnant (September 2006).

Fish were sighted in the uppermost reaches of Pleasant Valley Creek, including in isolated pools or ponds at Site 17 and Site 18. The refugia these fish occupy are completely isolated by a dry streambed. Fish habitat in Pleasant Valley Creek is disconnected and limited in quantity. Because of the steep gradient in the lower section and low flows and ponding in the upper section, Pleasant Valley Creek should not be considered suitable for sustainable LCT habitat.

The headwaters of Pleasant Valley Creek originate at a series of reservoirs in the Sunset Lakes/Tamarack Lake area. If more water were available to flow from the headwater reservoirs/lakes in August-October, Pleasant Valley Creek would likely have sustainable and continuous fish habitat down through Site 13.

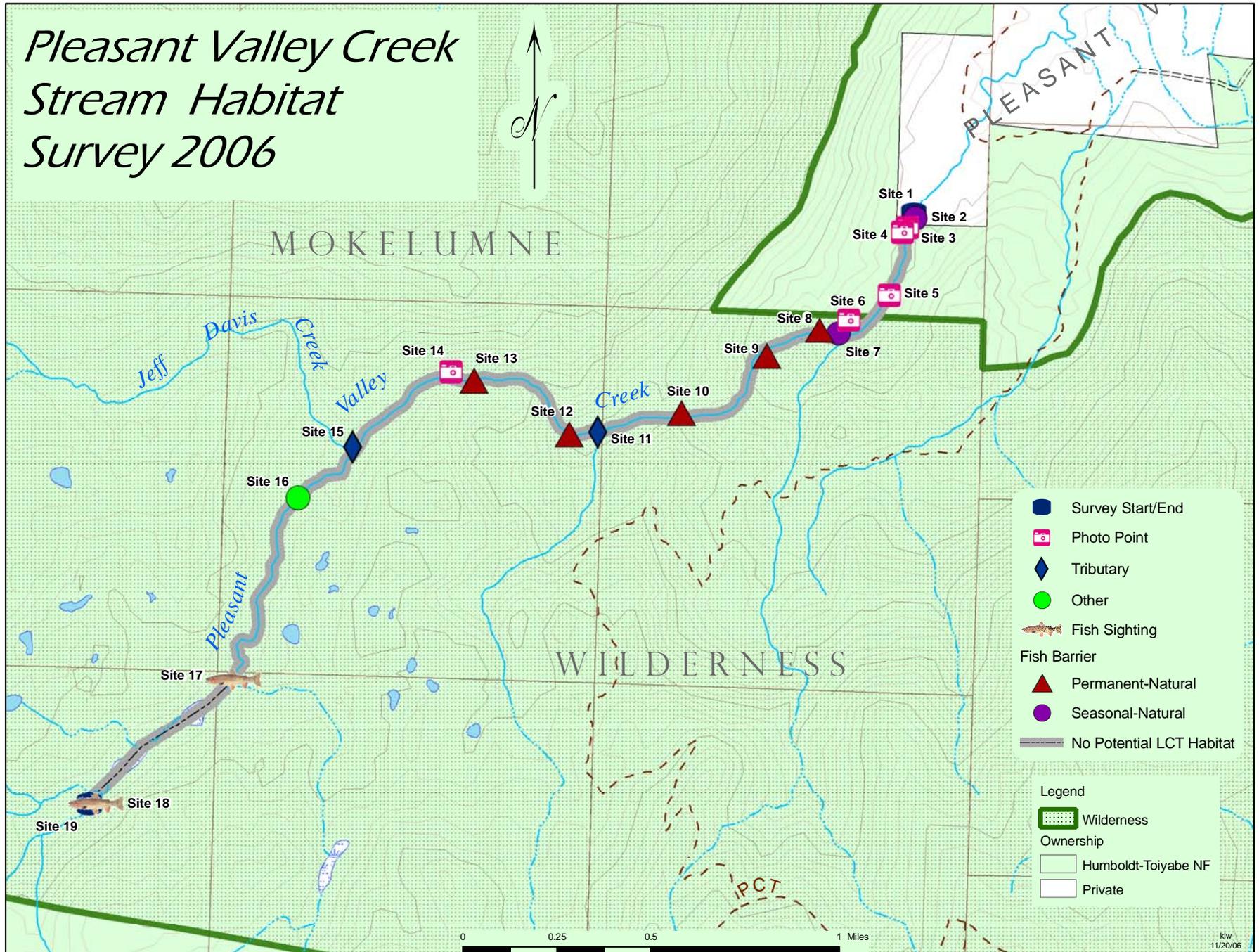
Recommendations

1. Consider the 3.4 mile section of Pleasant Valley Creek between Site 1 and Site 19 as having no potential LCT habitat. Pleasant Valley Creek probably offers approximately 6 miles of potential LCT habitat downstream of Site 1 on the privately owned fly fishing preserve. If possible, obtain permission to conduct a stream habitat survey downstream of Site 1 to verify this presumption. If 6 miles of potential LCT habitat exist downstream of Site 1, consider Pleasant Valley

Creek a high candidate for restoration. Pleasant Valley Creek could contribute towards restoring a metapopulation of LCT in the area.

2. Investigate the water management schedules for the several reservoirs in the upper part of the watershed, and investigate the possibility of allocating more water to flow into Pleasant Valley Creek during the driest part of the year.

Pleasant Valley Creek Stream Habitat Survey 2006



NOTE: Some of the barrier heights and pool depths were estimated from the stream bank to maintain safety during high flows.



Site 1: Pleasant Valley Creek, Carson Ranger District. Upstream photograph taken at the survey start point shows the cascades prevalent in this reach. This site is located at UTM: N: 4280861 & E: 253373, Elev. 6102 ft (1860 m).



Site 2: Pleasant Valley Creek, Carson Ranger District. Upstream photo showing a seasonal barrier 1.5-3.0 ft tall with a max pool depth of 1.0-3.0 ft. This site is located at UTM: N: 4280848 & E: 253319, Elev. 6083 ft (1854m).



Site 3: Pleasant Valley Creek, Carson Ranger District. Upstream photo showing a typical cascade sequence. This site is located at UTM: N: 4280801 & E: 253286, Elev. 6079 ft (1853 m).



Site 4: Pleasant Valley Creek, Carson Ranger District. Upstream photo showing more cascades and high-velocity water. This site is located at UTM: N: 4280784 & E: 253268, Elev. 6033 ft (1839 m).



Site 5: Pleasant Valley Creek, Carson Ranger District. Downstream photo of a lower gradient reach. This site is located at UTM: N: 4280512 & E: 453209, Elev. 6109 ft (1862 m).



Site 6: Pleasant Valley Creek, Carson Ranger District. Upstream photo of a braided channel. This site is located at UTM: N: 4280406 & E: 253038, Elev. 6083 ft (1854 m).



Site 7: Pleasant Valley Creek, Carson Ranger District. Upstream photo of a seasonal fish barrier formed by a series of 2-3 foot cascades, with average pool depths of 1.5-2.5 ft. (values estimated for safety). This site is located at UTM: N: 4280358 & E: 252990, Elev. 6175 ft (1882 m).



Site 8: Pleasant Valley Creek, Carson Ranger District. Upstream photo of a permanent fish barrier formed by a series of varying sized waterfalls, estimated at 2.0-10.0 ft in height. This site is located at UTM: N: 4280362 & E: 252910, Elev. 6201 ft (1890 m).



Site 9: Pleasant Valley Creek, Carson Ranger District. Upstream photo of a naturally occurring waterfall: a permanent fish barrier 16.0 ft high with a pool depth of 3-4 ft. This site is located at UTM: N: 4280269 & E: 252680, Elev. 6257 ft (1907 m).



Site 10: Pleasant Valley Creek, Carson Ranger District. A permanent fish barrier is formed by waterfalls ranging in height from 2-20 ft. This site is located at UTM: N: 4280016 & E: 252323 Elev. 6762 ft (2061 m).



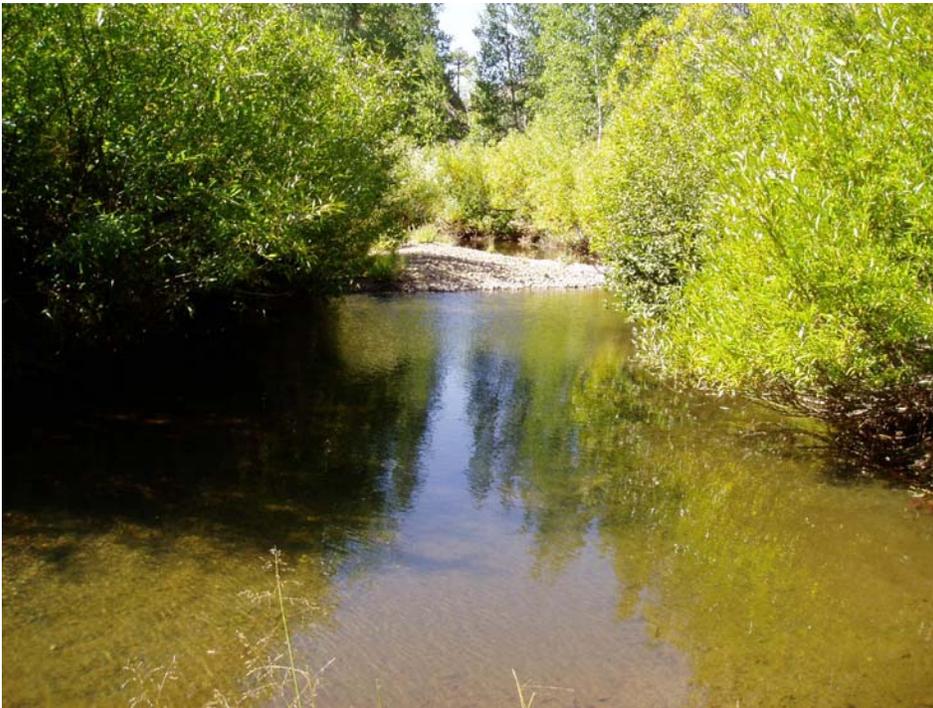
Site 11: Pleasant Valley Creek, Carson Ranger District. Cross-sectional photo of a cascading tributary that enters on river right from the Raymond Peak area (contributing 40% of flow). This site is located at UTM: N: 4279940 & E: 251964, Elev. 6837 ft (2084 m).



Site 12: Pleasant Valley Creek, Carson Ranger District. Upstream photo showing more cascades and permanent fish barriers. This site is located at UTM: N: 4279925 & E: 251846, Elev. 6870 ft (2094 m).



Site 13: Pleasant Valley Creek, Carson Ranger District. Upstream photo of a permanent fish barrier. Above this point the stream gradient is low and flows are minimal. This site is located at UTM: N: 4280156 & E: 251437, Elev. 7372 ft (2247 m).



Site 14: Pleasant Valley Creek, Carson Ranger District. Upstream photo showing stream habitat characteristic of this reach: the water is slow to stagnant. This site is located at UTM: N: 4280202 & E: 251342, Elev. 7359 ft (2243 m).



Site 15: Pleasant Valley Creek, Carson Ranger District. Upstream photo of confluence with Jeff Davis Creek, which enters river left and contributes 80% of flow to Pleasant Valley Creek. This site is located at UTM: N: 4279873 & E: 250921, Elev. 7359 ft (2243 m).



Site 16: Pleasant Valley Creek, Carson Ranger District. Above this point the stream consists of disconnected ponds and pools. This site is located at UTM: N: 4279654 & E: 250681, Elev. 7369 ft (2246 m).



Site 17: Pleasant Valley Creek, Carson Ranger District. Six small unidentified fish were sighted in this stagnant pool. This site is located at UTM: N: 4278875 & E: 250405, Elev. 7375 ft (2248 m).



Site 18: Pleasant Valley Creek, Carson Ranger District. Two 6-7 inch salmonids were sighted in this isolated pool. This site is located at UTM: N: 4278345 & E: 249822, Elev. 7388 ft (2252 m).



Site 19: Pleasant Valley Creek, Carson Ranger District. An upstream photo from the survey end point shows a dry streambed. This site is located at UTM: N: 4278344 & E: 249796, Elev. 7382 ft (2250 m).