

Hodge Creek

Alpine County, California

2006 Stream Habitat Survey Report



Prepared by

Humboldt- Toiyabe National Forest, Carson City Ranger District

Introduction

Hodge Creek is located in Alpine County, California. The mainstem of Hodge Creek flows in a northerly direction for approximately 2.0 miles from an area north of Raymond Lake to the confluence with Pleasant Valley Creek. The majority of the watershed is located within the Mokelumne Wilderness and within the boundaries of the Humboldt-Toiyabe National Forest. The lowermost half-mile of Hodge Creek flows through the privately owned Pleasant Valley Fishing Preserve.

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. Hodge Creek was surveyed on June 14 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 Hodge 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 1.3 miles of Hodge Creek were surveyed. The gradient of the surveyed reach is approximately 11.5 percent. Four permanent fish barriers were identified (Sites 2, 3, 6, & 9) and three tributaries were identified (Sites 7, 8, and 10). An erosion concern was noted at Site 11. Photo points were taken at Sites 4 and 5 to document characteristics of the stream.

Discussion

Hodge Creek offers a negligible amount of potential LCT habitat. The stream contains four permanent fish barriers in 1.3 river miles, with barrier heights ranging from 5-20 feet. The most favorable LCT habitat in Hodge Creek is located in the 0.40 mile section between Site 3 and Site 6. The longest continuous stretch of stream surveyed is roughly 0.5 miles between Site 9 and Site 12 and the distance between the waterfalls at Site 6 and Site 9 is approximately 0.28 miles. The presence of these barriers and a steep gradient make Hodge Creek unfavorable for long-term persistence of LCT. Below Site 1 Hodge Creek flows in a low gradient valley for approximately 0.5 miles before feeding into Pleasant Valley Creek; however, this section of stream lies within the privately owned Pleasant Valley Fishing Preserve and therefore was not surveyed. Above Site 12, Hodge Creek flows for approximately a quarter mile.

Recommendations

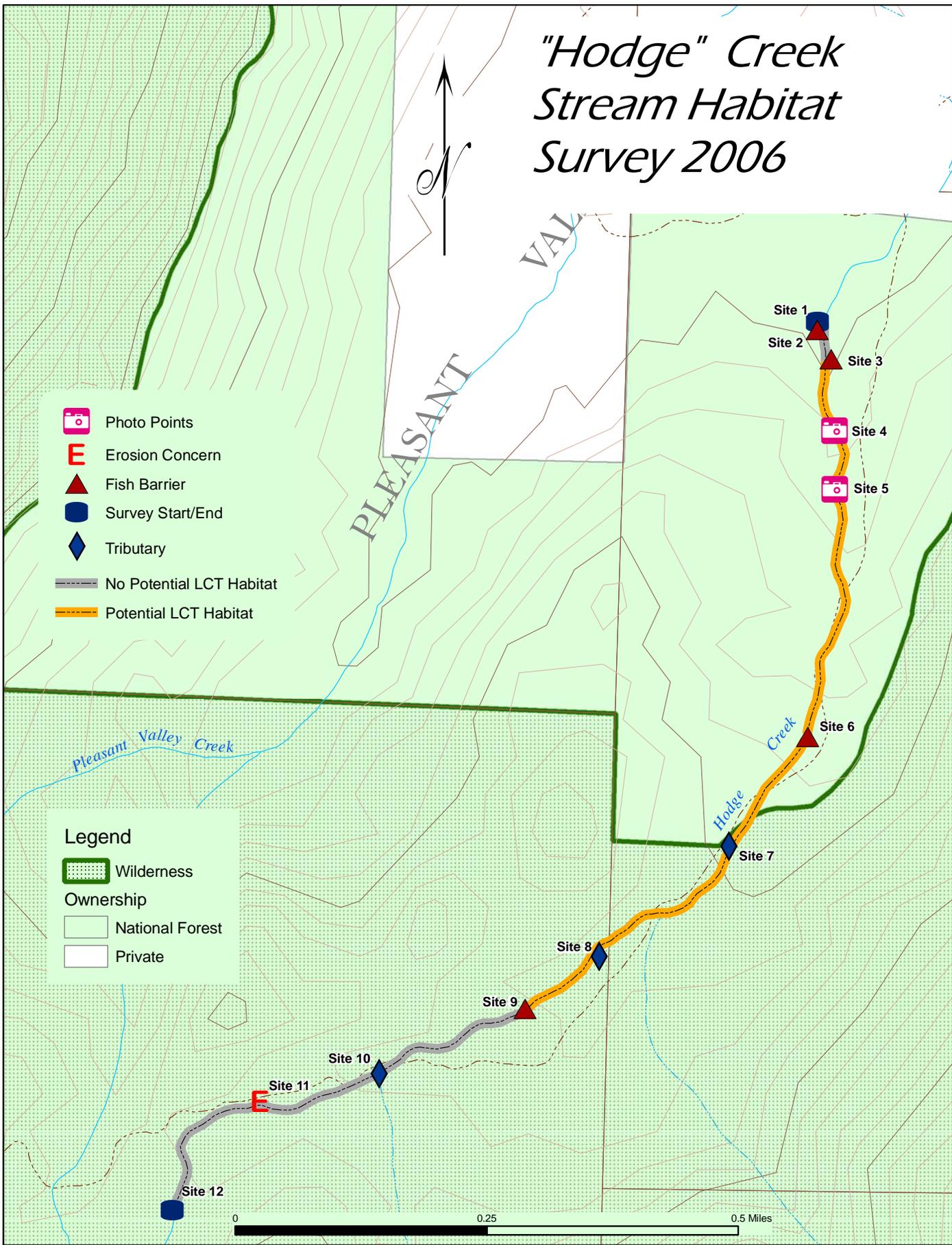
1. Consider the 0.7 mile section of Hodge Creek between Site 3 and Site 9 as providing minimal LCT habitat. The 0.40 mile section between Site 3 and Site 6 offers the most favorable habitat in Hodge Creek. Consider Hodge Creek a low candidate for restoration.

"Hodge" Creek Stream Habitat Survey 2006



-  Photo Points
-  Erosion Concern
-  Fish Barrier
-  Survey Start/End
-  Tributary
-  No Potential LCT Habitat
-  Potential LCT Habitat

- Legend**
-  Wilderness
 - Ownership**
 -  National Forest
 -  Private





Site 1: Hodge Creek, Carson Ranger District, an upstream photo from the survey start point. This site is located at UTM N: 4281032 & E: 253936, Elevation 6073 ft (1851 m).



Site 2: Hodge Creek, Carson Ranger District, an upstream photo of a permanent fish barrier located at the beginning of the survey. This waterfall is approximately 20 ft high with a pool depth of 3 ft. This site is located at UTM N: 4281026 & E: 253934, Elevation 6073 ft (1851 m).



Site 3: Hodge Creek, Carson Ranger District, An upstream photo of a permanent fish barrier caused by a 15 ft waterfall. This site is located at UTM N: 4260976 & E: 253957, elevation 6066 ft (1849 m).



Site 4: Hodge Creek, Carson Ranger District, an upstream photo point of characteristic terrain located on Hodge Creek. Note the presence of cascades. This site is located at UTM: N: 4280864 & E: 253964.



Site 5: Hodge Creek, Carson Ranger District, an upstream photo of characteristic terrain located on Hodge Creek. Note the presence of cascades. This site is located at UTM: N: 4280771 & E: 253236.



Site 6: Hodge Creek, Carson Ranger District, an upstream photo of a permanent fish barrier caused by a 7 foot naturally occurring waterfall. This site is located at UTM N: 4280356 & E: 253924, Elevation 6345 ft (1934 m).



Site 7: Hodge Creek, Carson Ranger district, a tributary enters from river right contributing 2 % of flow. This site is located at UTM N: 4280200 & E: 253796, Elevation 6430 ft (1960 m).



Site 8: Hodge Creek, Carson Ranger District, a small tributary enters from river right and contributes 5 % of flow. This site is located at UTM N: 4280029 & E: 253578, Elevation 6496 ft (1980 m).



Site 9: Hodge Creek, Carson Ranger District, an upstream photo of a permanent fish barrier caused by a naturally occurring waterfall. This site is located at UTM N: 4279928 & E: 253466, Elevation 6545 ft (1995 m).



Site 11: Hodge Creek, Carson Ranger District, an upstream view of an erosion concern located on the river right bank, this site is located at UTM N: 4279781 & E: 253049, Elevation 6680 ft (2036 m).



Site 12: Hodge Creek, Carson Ranger District, an upstream photo taken at the survey end point, notice the thick large woody debris. This site is located at UTM N: 4279615 & E: 252556, Elevation 6725 ft (2050m).