

FORESTDALE CREEK

Alpine County, CA

2006 Stream Habitat Survey Report



Prepared by

Carson Ranger District, Humboldt-Toiyabe National Forest

Introduction

Forestdale Creek is located in Alpine County, California and flows for approximately 2.7 miles in an easterly direction before feeding into the headwaters of the West Fork Carson River. Water from small lakes as high as 8650 feet merge to form the mainstem of Forestdale Creek, which descends to an elevation of 7574 feet at the confluence with the West Fork Carson River. The Forestdale Creek watershed is found on state lands as well as within the boundaries of the Humboldt-Toiyabe National Forest. One small section of Forestdale Creek runs through the Mokelumne Wilderness. (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 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. In accordance with this short-term action plan, 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 Lahontan Cutthroat Trout (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 restoration efforts be made to re-introduce LCT, these surveys can provide baseline information for future management of the fishery. Forestdale Creek was surveyed on August 1, 2006 by Brian Hodge of the Carson Ranger District: Humboldt-Toiyabe National Forest.

Materials and Methods

Forest Service personnel surveyed Forestdale 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 2.0 miles of Forestdale Creek were surveyed between Site 1 and Site 17. Six fish barriers were identified: two seasonal barriers and four permanent barriers (Sites 3 & 5, and Sites 6, 9, 10, & 16, respectively). Three tributaries were noted (Sites 4, 7, & 8). One road-stream crossing was documented where Forest Service Road 146 crosses Forestdale Creek (Site 11). A campsite was documented at Site 12 to reference a location where multiple campsites exist. One pond with the possibility of beaver activity was noted (Site 14). Two random photo points were documented where a picture was useful in capturing stream characteristics (Sites 2 & 15). One fish sighting was documented (Site 13), though a fish was seen in a pool below the barrier at Site 5. The overall gradient of the surveyed reach is approximately 5.4 percent.

Discussion

Nearly the entire 2.0 mile section of surveyed stream provides potential LCT habitat, with the exception of a short steep section near the survey end point (Sites 16-17). The cool water and complexity of habitat offer sources of refuge and foraging. In addition, salmonids were sighted at Site 13 and in several pools upstream of Site 13, supporting the idea that native salmonids such as LCT could inhabit Forestdale Creek.

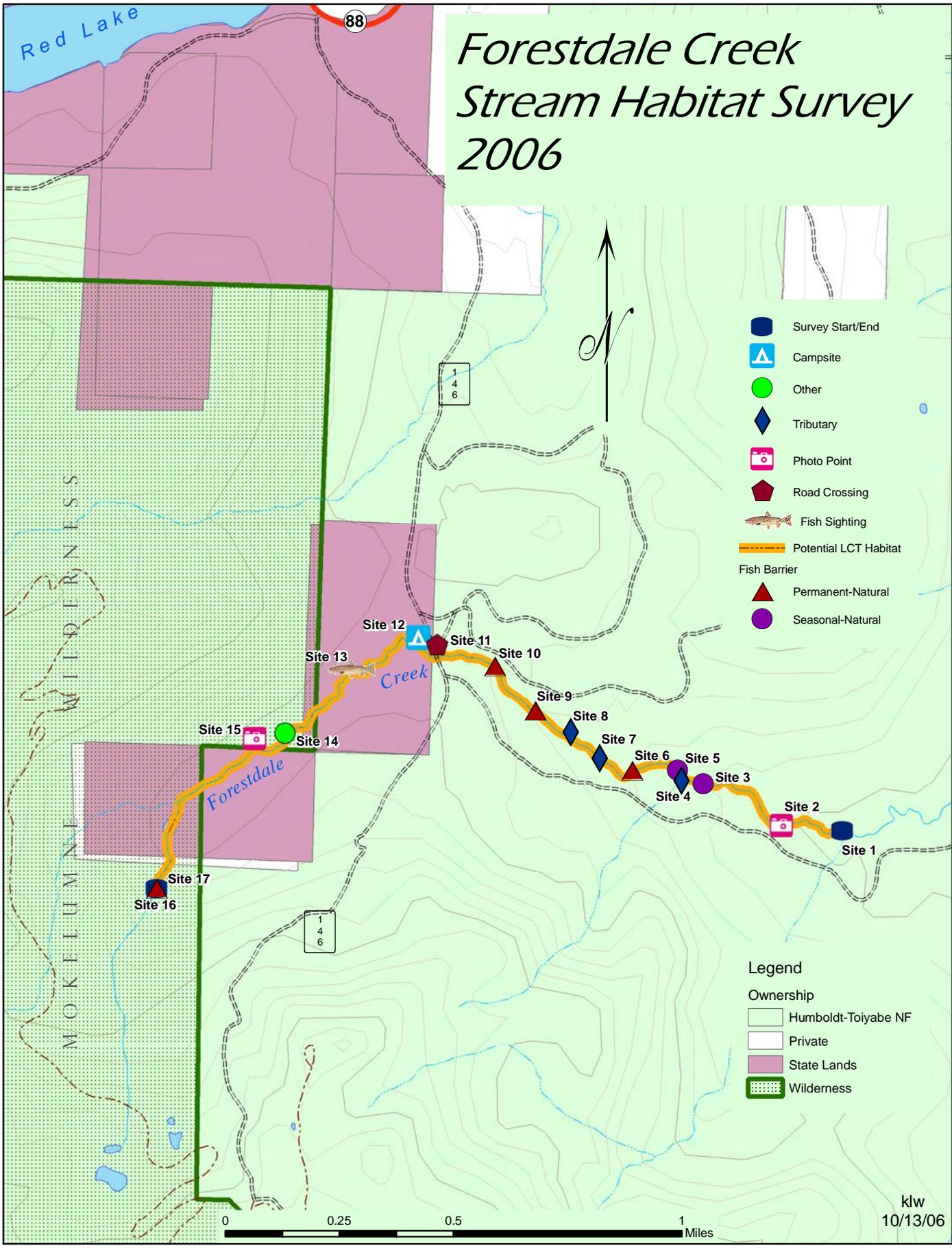
The 1.9 mile (approximate) stretch of potential LCT habitat is discontinuous due to the presence of six fish passage barriers, four of which are permanent barriers. The longest continuous stretch of stream is a 1.0 mile reach located between Sites 10 and 16. The barrier at Site 16 consists of several waterfalls (15-20 feet in height) and fish passage is impossible. Below Site 10 all of the barriers are naturally occurring, and the largest barrier (Site 10), is a rocky waterfall with a height of approximately 8.0 feet. The other four barriers range in height from 2.5 to 5.5 feet, with maximum pool depths of 2.0-5.0 feet.

Human impact from camping and vehicle use was noticeable on Forestdale Creek between Site 10 and Site 13. Between Sites 10 & 11 trash such as toilet paper and beer cans were abundant. Between Sites 11 & 13 many people occupied the camping spaces on the south side of the stream. RV's and tents were present, and in several instances tents were placed within 1-2 meters of the water's edge. The bridge at Site 11 allows vehicles to cross over Forestdale Creek; however, people are still using a ford crossing just downstream of the bridge.

Recommendations

1. Consider the 1.9 mile section of Forestdale Creek between Site 1 and Site 16 as potential LCT habitat and consider Forestdale Creek a high candidate for restoration. The lower section of Forestdale Creek could contribute towards restoring a metapopulation of LCT in the West Fork Carson River watershed (See 2008 Carson River Summary Report).
2. Work with state personnel/agencies to prevent ford crossings just below Site 11

3. Cooperate with state personnel/agencies to designate camping areas at least 100 feet from waterways.
4. Consider the construction or placement of a toilet in a central location near Site 11 or Site 12.
5. Utilize signs to remind recreational users of Leave-No-Trace principles.





Site 1: Forestdale Creek, Carson Ranger District. Upstream view of Forestdale Creek just above the confluence with West Fork Carson River. This site is located at UTM: N: 4284480 & E: 243974, Elev. 2309m.



Site 1: Forestdale Creek, Carson Ranger District. Downstream view of the confluence with West Fork Carson River. This site is located at UTM: N: 4284480 & E: 243974, Elev. 2309m.



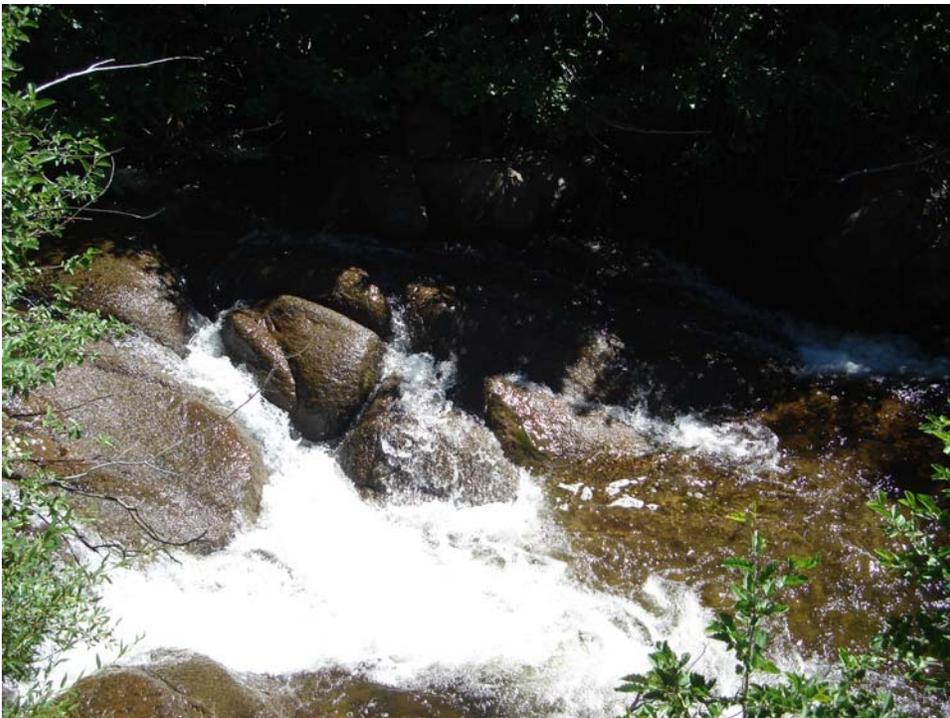
Site 2: Forestdale creek, Carson Ranger District. Upstream view of stream. Note the presence of willows and a run/riffle sequence. This site is located at UTM: N: 4284497 & E: 243761, Elev. 2314m.



Site 3: Forestdale Creek, Carson Ranger District. Upstream photo of a seasonal fish barrier. Barrier height is 3.2 feet, with a maximum pool depth of 2.0 feet. This barrier is located at UTM: N: 4284645 & E: 243489, Elev. 2326m.



Site 4: Forestdale Creek, Carson Ranger District. A small (2% contribution to flow) tributary enters river right. This site is located at UTM: N: 4284660 & E: 243411, Elev. 2321m.



Site 5: Forestdale Creek, Carson Ranger District. Photo shows a small seasonal barrier measuring 2.5 feet tall. A fish was sighted in the pool below the barrier. This site is located at UTM: N: 4284690 & E: 243399, Elev. 2320m.



Site 6: Forestdale Creek, Carson Ranger District. Downstream view of a permanent fish passage barrier. This jagged rocky waterfall measures 5.5 vertical feet and 20-25 feet long. This site is located at UTM: N: 4284690 & E: 243236, Elev. 2357m.



Site 7: Forestdale Creek, Carson Ranger District. A very small tributary enters on river right. This site is located at UTM: N: 4284734 & E: 243121, Elev. 2363m.



Site 8: Forestdale Creek, Carson Ranger District. Downstream view of main stem just below a location where a small tributary enters on river right. This site is located at UTM: N: 4284822 & E: 243028, Elev. 2383.



Site 9: Forestdale Creek, Carson Ranger District. Upstream view of a permanent fish barrier. The waterfall is approximately 5.2 feet high, with a max. pool depth of 5.0 feet. The falls are preceded by a rocky slide. This site is located at UTM: N: 4284902 & E: 242894, Elev. 2385m.



Site 9: Forestdale Creek, Carson Ranger District. Upstream view of the stream above the barrier. Note the sequence of runs and high gradient riffles. This site is located at UTM: N: 4284902 & E: 242894, Elev. 2385m.



Site 10: Forestdale Creek, Carson Ranger District. A long rocky waterfall (8.0 feet) creates a permanent fish passage barrier. This site is located at UTM: N: 4285068 & E: 242751, Elev. 2384m.



Site 11: Forestdale Creek, Carson Ranger District. Downstream photo of a ford crossing located less than 10 meters from a bridge. This site is located at UTM: N: 4285140 & E: 242537, Elev. 2435m.



Site 11: Forestdale Creek, Carson Ranger District. Upstream view from the bridge where FS road 146 crosses the stream. This site is located at UTM: N: 4285140 & E: 242537, Elev. 2435m.



Site 12: Forestdale Creek, Carson Ranger District. Photo shows one of many campers staked along river right. This site is located at UTM: N: 4285161 & E: 242483, Elev. 2410m.



Site 12: Forestdale Creek, Carson Ranger District. Tent campers have pitched camp as close as 1-2 meters from the waterway. This site is located at UTM: N: 4285161 & E: 242483, Elev. 2410m.



Site 13: Forestdale Creek, Carson Ranger District. At least five salmonids were sighted in the pool in this photo. This site is located at UTM: N: 4285054 & E: 242248, Elev. 2432m.



Site 14: Forestdale Creek, Carson Ranger District. A small earthen dam retains water, though does not prevent fish passage. This site is located at UTM: N: 4284827 & E: 242014, Elev. 2416m.



Site 14: Forestdale Creek, Carson Ranger District. The pond may or may not be the result of beaver activity. Fish are abundant in the stream above and below dam This Site is located at UTM: N: 4284827 & E: 242014, Elev. 2416m.



Site 15: Forestdale Creek, Carson Ranger District. Photo shows a view of a marshy meadow where headwater streams join Forestdale Creek on flat ground. This site is located at UTM: N: 4284788 & E: 241906, Elev. 2431m.



Site 16: Forestdale Creek, Carson Ranger District. Multiple waterfalls create permanent fish barriers above the meadow. The barrier heights are 15-20 feet. This site is located at UTM: N: 4284282 & E: 241562, Elev. 2469m.



Site 17: Forestdale Creek, Carson Ranger District. The prevalence of barriers and lack of habitat marked the survey end point. This site is located at UTM: N: 4284273 & E: 241564, Elev. 2473m.



Site 17: Forestdale Creek, Carson Ranger District. Viewpoint looking downstream from the survey endpoint. This site is located at UTM: N: 4284273 & E: 241564, Elev. 2473m.