

Slinkard Creek 2009 Summary Report

October 27, 2009

State of California Natural Resources Agency

Department of Fish and Game

Heritage and Wild Trout Program



Prepared by Jeff Weaver and Stephanie Mehalick

Introduction:

Slinkard Creek (Mono County) is an east-slope Sierra Nevada stream in Slinkard Valley west of Topaz, CA (Figure 1). Slinkard Valley is a California Department of Fish Game (DFG) Wildlife Area surrounded by lands managed by the Bureau of Land Management and Humboldt-Toiyabe National Forest. Tributary to the West Walker River, Slinkard Creek is in the historic range of Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*); and currently flows into a series of agricultural diversion ditches before entering the West Walker River. From 1986 to 1987, a joint project between the DFG and the United States Forest Service constructed a rock gabion fish barrier on Slinkard Creek as part of a restoration effort for Lahontan cutthroat trout and to limit head-cut erosion that was occurring. In 1987 and 1988, approximately 1.5 miles of Slinkard Creek upstream of this barrier was chemically treated to remove non-native brook trout (*Salvelinus fontinalis*). Lahontan cutthroat trout from By Day Creek (near Bridgeport, California) were translocated to Slinkard Creek following the treatment. This project was the first Walker River-strain Lahontan cutthroat trout restoration in California (Becker, pers. comm. 2009). In 2000, Slinkard Creek and tributaries upstream from the DFG cable crossing located about 2.7 miles south of a point on Highway 89 two miles west of its junction with Highway 395 (approximately 600 feet downstream of the fish barrier) was opened to angling; current regulations allow fishing from August 1st through November 15th with a zero trout limit and gear restricted to artificial flies with barbless hooks only. Slinkard Creek downstream of the cable crossing is open to fishing following the Sierra District General Regulations (open from the last Saturday in April through November 15th with a daily bag limit of five fish and a possession limit of ten fish).

In 2009, the DFG Heritage and Wild Trout Program (HWTP) conducted single-pass electrofishing in Slinkard Valley to determine the presence or absence of fish, species composition, and size class structure downstream of the barrier (Figure 2).

Methods:

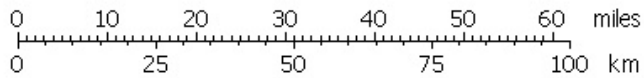
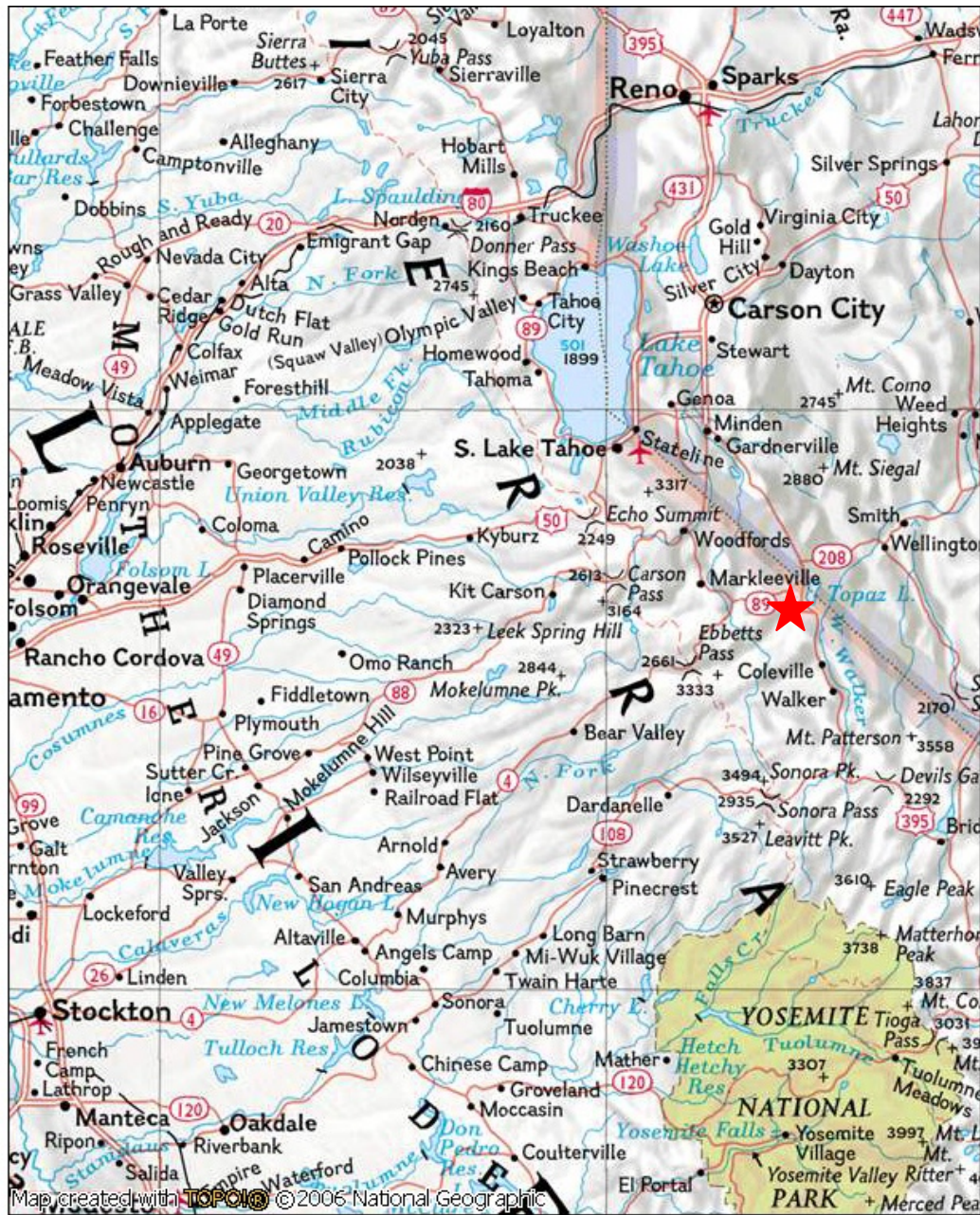
On October 27, 2009 HTWP personnel conducted single-pass electrofishing on Slinkard Creek using Smith Root backpack electroshockers. The survey area, from the fish barrier (located in Upper Slinkard Valley) downstream

approximately four miles, was divided into three sections based on access locations. Three teams of two surveyors were utilized to electrofish the three sections on the main-stem (Sections 109-309) (Figure 2). There is an overlap of Sections 109 and 209 due to a miscalculation in survey timing. In addition to the three main-stem sections, an unnamed tributary to Slinkard Creek was also surveyed via single pass electrofishing.

GPS coordinates of the section boundaries were recorded and water temperature was measured prior to starting the electrofishing effort. Teams consisted of one shocker and one netter (Section 209 had an additional staff member to help measure and record data).

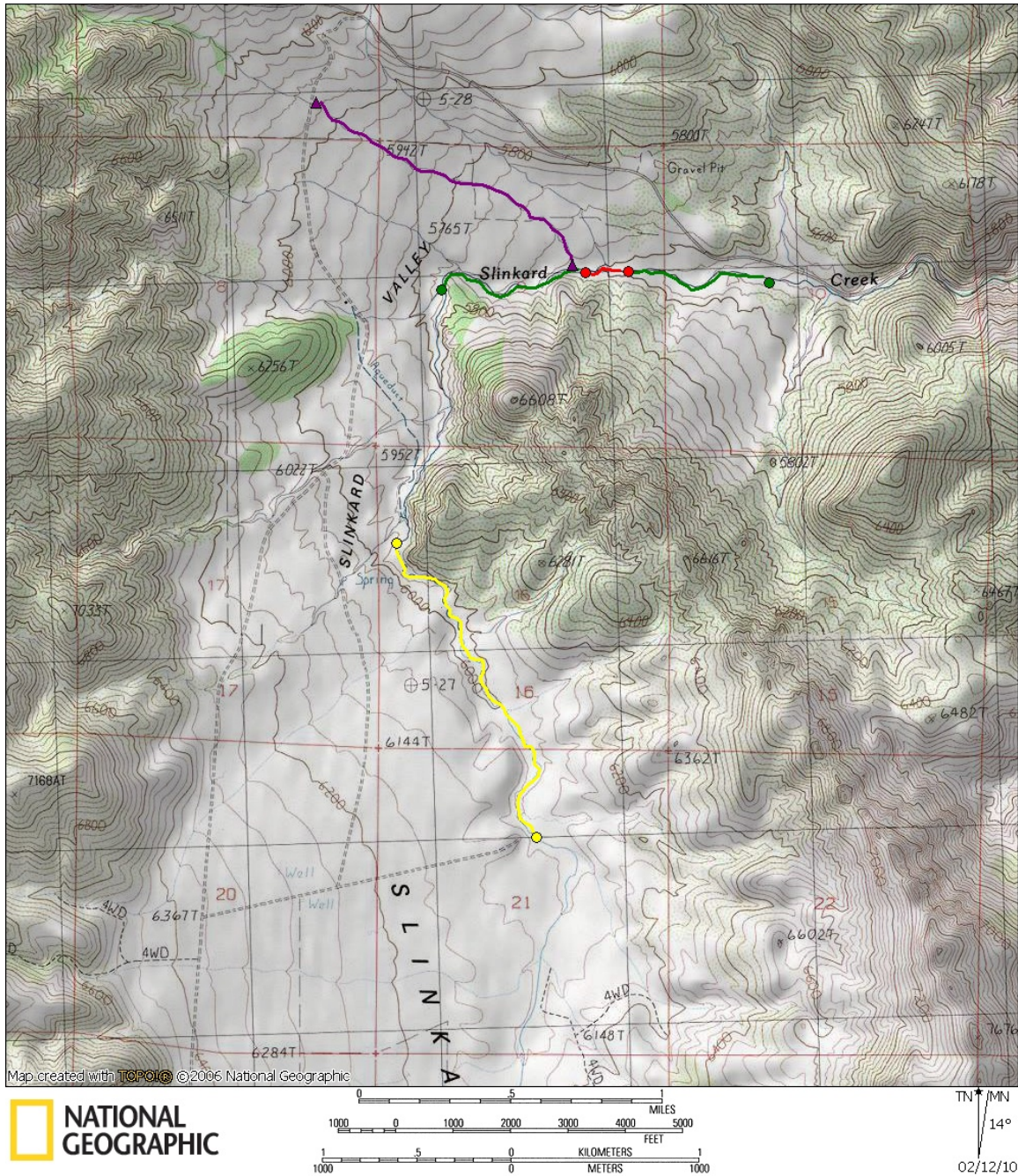
Due to extremely dense riparian vegetation, Slinkard Creek was difficult to electroshock in many locations. Each team shocked likely fish habitat (i.e. pools) where access was feasible. HWTP personnel did not attempt to collect all fish within a given stream segment or habitat unit. Instead, samples were collected at accessible locations throughout each section. All captured fish were identified to species and measured to the nearest inch using a calibrated landing net. Processed fish were released downstream of the electrofishing effort.

Figure 1. Overview map showing approximate location of Slinkard Creek (red star).



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Figure 2. Map of 2009 Slinkard Creek section locations (Section 109 in green; Section 209 in red (note that Section 209 overlaps Section 109); Section 309 in yellow; and unnamed tributary in purple). The rock gabion barrier is located approximately one-half mile upstream (south) of Section 309.



Results:

The weather was cold (6 °C) and alternated between snow, sun, and periods of high wind during the survey on October 27, 2009. Water temperature was measured at 6 °C and 8 °C, depending on the time of day. Habitat was primarily shallow runs interspersed with small pools. Riffle habitat was limited. Riparian vegetation was thick in most areas and was dominated by willow (*Salix* spp.). A total of eight Lahontan cutthroat trout and 15 brook trout were captured in all sections combined (Table 1). Due to the overlap of Sections 109 and 209, the four brook trout captured in Section 209 may also have been captured in Section 109 and may be counted twice. Zero fish were captured (or observed) in the unnamed tributary (Figure 2). Two potential barriers to upstream fish migration were identified on this tributary and both were located within approximately 300 feet of the confluence with Slinkard Creek. Lahontan cutthroat trout were only captured in the upper one-half mile of Section 309; in the remainder of Section 309 and in Sections 109 and 209, only brook trout were captured. Lahontan cutthroat trout ranged in size from two to 12 inches and brook trout ranged in size from five to 13 inches (Table 2). One of the brook trout captured in Section 209 released milt during handling and was likely spawning. In addition, numerous brook trout were observed to be brightly colored, another indication of spawning activity.

Table 1. The number of fish captured by species and section from 2009 Slinkard Creek electrofishing survey.

Section number	Number of fish captured	
	Lahontan cutthroat trout	brook trout
109	0	8
209	0	4
309	8	3
Tributary	0	0
Total	8	15

Table 2. Size classes of fish captured (to the nearest inch) by species from 2009 Slinkard Creek electrofishing survey.

Total length (nearest inch)	Count by species	
	Lahontan cutthroat trout	brook trout
1	0	0
2	1	0
3	3	0
4	3	0
5	0	2
6	0	0
7	0	7
8	0	4
9	0	0
10	0	0
11	0	0
12	1	0
13	0	2
Total	8	15

Discussion:

Lahontan cutthroat trout appeared to be limited to the upper extent of our survey area (within one mile below the rock gabion barrier); zero cutthroat trout were captured in Sections 109 or 209, nor were they encountered in the lower three-quarters of a mile of Section 309. During a HWTP angling study that took place on Slinkard Creek in July, 2009, which began approximately at the upper boundary of Section 309 and extended upstream above the fish barrier approximately one-half mile, only Lahontan cutthroat trout were captured via hook and line. Although this does not confirm the absence of brook trout above the barrier, it is assumed that the barrier remains effective in preventing the upstream movement of brook trout in the system.

Slinkard Creek is an important Walker River-strain Lahontan cutthroat trout

refuge site. Few other Walker River-strain Lahontan cutthroat populations exist that could be utilized for future recovery efforts. Monitoring and protecting the Lahontan cutthroat trout population in Slinkard Creek is a high priority for the HWTP. Therefore, the HWTP recommends more comprehensive monitoring in Slinkard Creek and tributaries assess species distribution, size class structure, and relative abundance of both trout populations and condition factor of Lahontan cutthroat. The status of the rock gabion structure and its current effectiveness as a fish barrier should also be closely monitored to ensure that brook trout do not move upstream into the Lahontan cutthroat trout restoration area. Given the efforts to date to restore the Lahontan cutthroat trout fishery, evaluation and implementation of manual brook trout removal efforts is recommended. Due to complex habitat (i.e. dense willows) observed in 2009, capture efficiency in Slinkard Creek may be dependent upon manipulation of riparian vegetation to allow access into and through the creek corridor. The smallest brook trout captured in 2009 was five inches; further examination of growth rates in this system will be useful in evaluating the optimum time of year for manual removal efforts. If brook trout can attain a total length of five inches by October of their first year, then consideration should be given to conducting manual removal efforts in the fall when capture probability may be increased. Conductivity should be measured for future electrofishing efforts and the presence of young of year brook trout should be assessed. In addition, further examination of all tributaries should be conducted in order to evaluate fish distribution and potential barriers to upstream fish migration.

References:

Bloom, R. and J Weaver. 2008. California Heritage and Wild Trout Handbook (Draft). State of California Natural Resources Agency. Department of Fish and Game.