

Trail Creek Culverts Replacement Project

WHO

Humboldt-Toiyabe National Forest

Partners:

Nevada Department of Wildlife

-Culverts and delivery (Wildlife Heritage Grant)

U.S. Fish and Wildlife Service

-Rock and delivery (Western Native Trout Initiative Grant)

WHAT (Project Description and Background)

Maggie Summit Road (County Road 729), located in the Trail Creek drainage, crosses the Bull Run Mountains, as well as provides access to several private ranches and serves as the primary east-west linkage through the western portion of Mountain City Ranger District. The upper portion of Trail Creek is habitat for State Sensitive redband trout, as well as other native nongame fishes and introduced brook trout. The tributaries which cross under Maggie Summit road both input water to Trail Creek, and also provide spawning, rearing, and foraging habitat for redband trout. The Nevada Department of Wildlife surveyed the entire Trail Creek system in 1986, documenting those tributaries with actual or potential fish populations, as well as ability of culverts to pass fish. Among non-fish-bearing streams, undersized culverts may be in danger of failure during high run-off events, potentially impacting the road and leading to user safety issues, as well as inputting excessive sediment into Trail Creek.

In addition to fish passage issues, undersized culverts contribute to local stream habitat degradation in the form of excessive sediment deposition, downcutting, and scour; and excessively undersized culverts may increase the possibility of road wash-out or damage if the inlet becomes blocked. A culvert did fail in the spring of 2006, resulting in impact to Maggie Summit Road in the form of a 10-foot deep hole. The culvert was subsequently replaced with a similar sized structure as which failed, maintaining the potential for future comparable catastrophic consequences.

This project replaced five Trail Creek tributary culverts with larger structures more appropriate to the system. Most of the existing structures were either undersized and/or poorly placed. The natural channels were generally constricted. In the worst cases (i.e., Alexander Creek and Spring Creek), culverts became chronically obstructed and were subject to catastrophic failure.

The replacements were all “squash” culverts, pipes modified from a standard round shape into a “pear” configuration. To best simulate the natural stream, the culverts were embedded such that the widest dimension encompassed the channel. Both Hutch Creek and Timber Gulch were provided gravels as a seed source to jumpstart the process of covering the culvert bottom with rock in order to more closely mimic the local system, but all sites are eventually expected to partially fill with similar sediments. In the case of the fish-bearing creeks, a graveled bottom will facilitate fish passage.

The larger culverts will allow passage of fish, decrease local impact to habitat from the road crossings, and are less likely to become blocked with debris during high spring flows.

WHEN

Project activities occurred August 10th through August 14th, 2008.

- Culverts were replaced one per day in the following order: Timber Gulch, Hutch Creek, Alexander Creek, Spring Creek, Maggie Gulch
- Some locations had to be returned to following installation in order to add rock, clean up the site, and so forth.

WHERE

- Maggie Summit Road (County Road #729), Mountain City Ranger District, Humboldt-Toiyabe National Forest
 - Fish-bearing systems
 - Hutch Creek, Maggie Gulch, Timber Gulch
 - Non-fish-bearing systems
 - Alexander Creek, Spring Creek

WHY (Goals)

- Restore year-round fish passage to 2.7+ miles of Trail Creek tributary streams
- Improve watershed functionality to 0.5 miles of non-fish-bearing Trail Creek tributary streams
- Enhance fish habitat degraded by old culverts

Trail Creek supports redband trout, a native inland form of rainbow trout considered Sensitive by the state of Nevada. Also present are native dace and minnows, as well as non-native brook trout.

2008 Legacy Road and Trail (CMLG) Project Summary

		Fish Passage Project	Y	X	N
State:	Nevada	TRTR funds used:	\$20,000		
National Forest:	Humboldt-Toiyabe NF	Other funds used:	\$11,000 (NFWF)		
Project Name:	Trail Creek Culverts Replacement	Total Project Cost:	\$31,000		

Project Purpose/Objectives:

The purpose of this project was to replace five culverts crossing Maggie Summit Road with structures appropriate given spring discharge and ability of the given tributary to support fish. All creeks are tributaries to Trail Creek. Three streams (Hatch Creek, Maggie Gulch, Timber Gulch) had actual or potential fish populations; and two streams (Alexander Creek, Spring Creek) are contributors to the general watershed health of upper Trail Creek.



Before Picture – Hatch Creek outlet

Work Performed:

- Five undersized and/or poorly positioned culverts were replaced with “squash” culverts of appropriate size
- All culverts were embedded; and gravel was introduced in the fish-bearing culverts so as to provide a more natural stream bottom

Expected Benefits:

- Enhanced and/or restored fish passage at three locations given sufficient seasonal discharge
- Enhanced watershed health
- Decreased chance of catastrophic failure during high spring run-off events



After Picture – Hatch Creek outlet

Additional Information:

Partners: Nevada Department of Wildlife - culverts; U.S. Fish and Wildlife Service - rock

Types of TE Species: Redband trout (State Sensitive)

Miles of Habitat Opened/Restored: Fish-bearing systems: 2.7+ miles (includes some private)
Non-fish-bearing (watershed improvement): 0.5 miles

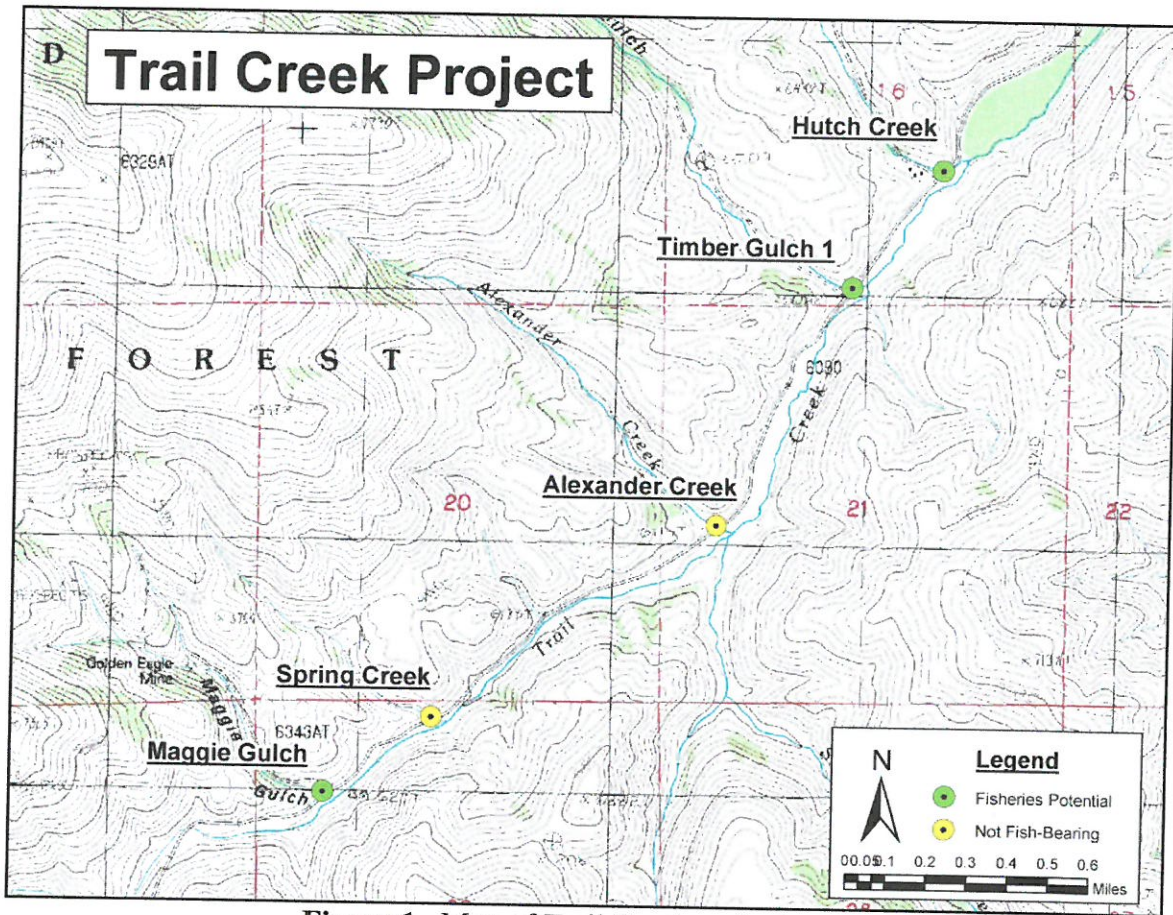


Figure 1. Map of Trail Creek project area.



Figure 2. Hutch Creek, pre-project. Culvert is undersized and outlet is poorly sited over rip-rap.



Figure 3. Hutch Creek, post-project. New culvert is larger and more appropriately placed.