

# Maggie Creek Fish Barrier WNTI Progress Report November 2008

## Background

Maggie Creek drains into the Humboldt River approximately 20 miles west of Elko, Nevada. Maggie Creek supports Lahontan cutthroat trout (LCT), a federally listed threatened species. The Maggie Creek Basin including tributary streams, Coyote, Little Jack, and Beaver creeks, represents one of few remaining systems supporting an LCT metapopulation (interconnected population with potential for genetic mixing).

In an effort to improve habitat for LCT, the Maggie Creek drainage has been the focus of comprehensive watershed restoration efforts involving Newmont Mining Corporation (Newmont), Elko Land and Livestock, the Elko District Bureau of Land Management (BLM), U.S. Fish and Wildlife Service, Trout Unlimited, Nevada Department of Wildlife (NDOW) and other partners beginning in the early 1990's (Figures 1 and 2).



Figure 1. Maggie Creek, October, 1980. Up until 1993, the majority of Maggie Creek was grazed by cattle throughout the growing season resulting in complete loss of riparian vegetation and very degraded stream conditions.





Figure 2. Maggie Creek, June, 2008. Changes in livestock grazing practices in the Maggie Creek basin have resulted in dramatic improvement in stream and riparian habitat conditions throughout the basin.

As part of the effort to restore the Maggie Creek Basin for LCT, culvert barriers were replaced with structures designed for fish passage in the fall of 2005. Trout Unlimited, in cooperation with BLM and other partners, has been conducting studies on movements and distribution of LCT in response to both habitat improvement and barrier removal.

Although efforts to improve riparian habitat in the Maggie Creek Basins for the benefit of LCT and other species have been very effective, nonnative fish species from the Humboldt River pose a significant threat to the recovery effort. State and federal biologists are concerned that better water and habitat conditions are making Maggie Creek increasingly attractive to nonnative bass and rainbow trout present in the Humboldt River. Smallmouth bass have recently been documented in the lower reaches of Maggie Creek below the area of occupied cutthroat habitat. Construction of fish barriers on the lower reaches of Maggie Creek would prevent invasion of nonnative fish thus protecting LCT in the headwaters and ensuring habitat restoration efforts to promote population recovery or expansion are successful.

## Scope of Work

Design and construct a fish barrier in lower reaches of Maggie Creek (below area of occupied Lahontan cutthroat trout habitat) by fall of 2009.

## Cooperators

- U.S Fish and Wildlife Service – Lead Applicant for WNTI funds and participant in project planning and field trips.
- BLM, Elko District - Responsible for planning, permitting and implementation.
- Newmont Mining Corporation – Site access; overall cooperation with long-term effort to improve Maggie Creek Basin habitat restoration work.
- Barrick Goldstrike Mines, Inc. - Use of Conservation and Mitigation of Wetland/Riparian Areas Trust Fund (Barrick Goldstrike Mines, Inc., Betze Project – 1991) to fund barrier design.
- Nevada Department of Wildlife – participant in project planning and field trips.

## Project Status

A site evaluation was completed on September 4, 2008, to look at alternatives and develop a preliminary design(s). Two alternatives were considered. These included modification of existing culverts under a Newmont's road to its discharge water cooling towers (Figure 3) and construction of a barrier in the Maggie Creek Canyon "Narrows" (Figure 4). The culvert alternative would include modifying the existing culverts with an overhanging weir and concrete apron below the outlet. The Narrows option would include construction of a weld wire wall with grout facing or gabions in a narrow part of the canyon. The Narrows site is located on land administered by BLM but would require coordination with Newmont for equipment access. To date, \$2,348 has been spent from the Conservation and Mitigation of Wetland/Riparian Areas Trust Fund to pay Porior Engineering for site inspections and a conceptual design.



Figure 3. Bridge culverts under road to Newmont Mining Corporation's Cooling Towers.  
Figure 4. Potential barrier site location in the Maggie Creek Canyon "Narrows".

## Project Timeline

BLM complete topographic site map – Fall 2008

Porior Engineering complete design - Winter 2008/09

BLM complete permitting and contracting – Winter/Spring 2009

BLM award contract for construction – Spring 2008

Barrier construction – Summer/fall 2009