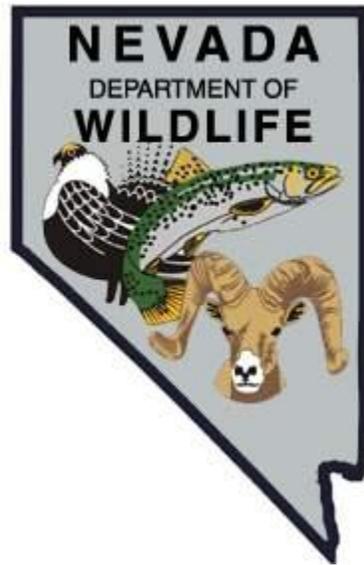


NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS
F-20-50
2014

LAHONTAN CUTTHROAT TROUT
EASTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Lahontan Cutthroat Trout Management*
Subjob Title: *North Fork Humboldt River and Cole Canyon Creek Treatment*
Period Covered: *January 1, 2014 through December 31, 2014*

SUMMARY

The planning, permitting, and conducting of the North Fork Humboldt River (NFHR) and Cole Canyon Creek Rotenone treatment was completed in 2014. Treatment evaluations will occur in the summer of 2015.

BACKGROUND

Lahontan cutthroat trout *Oncorhynchus clarkii henshawi* is the only salmonid native to the Lahontan basin. Lahontan cutthroat trout (LCT) were distributed in the drainages of ancient Lake Lahontan and as conditions became more arid during the last 5,000 to 12,000 years, they survived as small populations in the isolated headwaters of streams in many mountain ranges in Nevada, Oregon, and California.

The settlement of the Great Basin resulted in the loss of LCT habitat as livestock grazing, urban and mining development, water diversions, hybridization, and competition with non-native trout led to significant declines in the range and numbers of this unique trout species. In response to these declines, the Lahontan cutthroat trout was listed as endangered in 1970 and reclassified as threatened in 1975. In January of 1995, the USFWS released the recovery plan for the Lahontan cutthroat trout.

Historically, LCT may have inhabited as much as 2,210 miles of stream habitat in the major subbasins of the Humboldt River during wet cycles (Coffin 1983). Early emigrant journals documented LCT in nearly all the major subbasins and occasionally as far as the Humboldt Sink during wet years. The major impacts to LCT populations in the Humboldt Basin have come as a result of loss of habitat and displacement and hybridization by introduced trout species.

The North Fork Humboldt River Subbasin has a total of six streams identified with LCT populations and an estimated 14.5 miles of occupied habitat. Approximately 112 miles of potential LCT habitat exists in the subbasin. Metapopulation potential is somewhat limited as most streams are only connected during normal to wet water years. The NFHR, a recent recovery stream, has approximately 20 miles of good aquatic habitat occupied by brook trout. This fish eradication treatment will be conducted on the upper North Fork Humboldt River (NFHR), which is located on the east side of the Independence Range in Elko County (T43-42N, R53-54E). This eight miles of stream flows through U.S. Forest Service administered land. Elevations of the

stream range from 6,600 ft at the Forest Service boundary to 7,600 ft at the NFHR headwaters.

In the early spring of 2007, NDOW was notified that a mining exploration company had drilled through an aquifer in the upper drainage of the North Fork Humboldt River. The loss was discovered when two pit lakes that had held water since the end of previous mining activities (late 1990's) began to drain. As the spring flow subsided, it became apparent that some of the NFHR tributaries were drying up and the upper mainstem flows were greatly affected. By mid-summer, the upper NFHR had been reduced to intermittent segments and fish were concentrated in isolated reaches. By early September, flows between the upper and lower campgrounds had ceased and fish were now trapped in isolated beaver ponds. The dewatering event caused the LCT population to reach almost undetectable levels. Since 2007, six different surveys have been conducted, with only eight LCT being found.

The last population survey was conducted in 2011. A 300 meter, two-pass, block netted population survey was conducted at historical survey sites, as well as a single pass spot electroshocking survey between stations. The survey resulted in only three LCT being found outside of the survey stations. In addition, 20 brook trout with an average length of 22.6 cm and a range from 19.3 cm to 29.0 cm were removed between S1 (S150) and S4. The brook trout were all adults that most likely migrated from private lands below the culvert crossing. A fish passage barrier and water flow gauge was installed/completed on July 21, 2014 in order to stop the upstream migration of non-native trout species.

OBJECTIVES and APPROACHES

Objective: Native Sport Fisheries Management

Approach:

- Plan, permit, and conduct the rotenone treatment of NFHR and Cole Canyon (NFHR River Subbasin) and its tributaries to remove all non-native trout.
- Evaluate the stream through electrofishing surveys for two years to confirm the successful eradication of non-native trout.

PROCEDURES

Pretreatment

Several meetings occurred with the USFS, USFWS, and NDOW to coordinate all issues, as well as to set a timeline from the start of treatment through the projected reintroduction. Upon coordination with the various entities, the treatment was set for July 22-23, 2014 with pretreatment surveys being set for the two weeks prior (July 7-17, 2014). On June 2, 2014, a letter was sent to NDEP seeking a permit for the use of rotenone for the removal of the nonnative fish in the North Fork Humboldt River. The NDEP fish eradication permit (NVW-39574) was issued on June 9, 2014.

Pre-treatment surveys were conducted to document the presence/absence of listed, candidate, or sensitive wildlife species, and appropriate actions developed to mitigate impacts if necessary. No listed, candidate, or sensitive species were found during pre-treatment surveys.

Throughout the pretreatment timeline, multiple trips were made to the NFHR and Cole Canyon Creek to document flows, establish drip bucket intervals, find fish distribution limits, and locate spring/seep locations. Drip station sites and springs/seeps were marked with flagging and a GPS coordinate was recorded so that the locations could be found easily during the treatment. Detoxification with potassium permanganate was needed to reduce the impacts of non-target species outside of the desired treatment area.

A safety meeting was conducted prior to treatment, with all members attending. During the safety meeting, all precautions were explained and treatment procedures were assigned. Also, prior to the treatment, caution signs were posted along the treated portions of the NFHR and Cole Canyon Creek in an effort to warn the public of any potential chemical runoff.

Treatment (August 22-23, 2014)

The drip stations were spaced approximately 0.5 miles apart along the mainstem of the NFHR. Once at the station, the attendant constructed his drip bucket and spigot. A dip bucket was then used to fill the drip bucket or container with creek water and then the prescribed amount of rotenone, based on the flow calculations, was added using the provided measuring cup. CFT Legumine, which contains five percent rotenone and is EPA registered (75338-2) for use by State and Federal fish and wildlife agencies in fish management projects, was utilized. The drip stations were set to dispense 105 ml/min at 2-ppm formulation, running for approximately three hours with periodic checks starting at 9:00 am. At the end of the three hour period, the bucket was then reset for another three hours to total a six hour treatment. Each drip station attendant was asked to walk 0.25 mile upstream and downstream of their station noting and removing all fish killed. The exact same process was performed during the second day of treatment. At 3:00 pm on the last day of treatment, each drip station attendant made sure to remove the flagging and collect all of the items packed in. Approximately four gallons of liquid emulsified CFT Legumine was used for the drip buckets per day of treatment for a total of eight gallons for the entire two day treatment.

Three sand/spray crews were responsible for covering the entire stream treatment area, applying either sand and/or spray mixture to any stagnant pools, springs, seeps, or intermittent areas that the drip station toxicant could not get into. The spray rotenone mixture consisted of six ounces of rotenone per gallon of water (five percent mixture), and was applied with a four-gallon backpack sprayer. The sand consisted of a mixture of Rotenone Fish Toxicant Powder (7.4% rotenone), gelatin, and sand. The Rotenone Fish Toxicant Powder is EPA registered 655-691. These spray crews were critical in insuring a 100% kill by eliminating any fresh water refuges. Approximately five gallons liquid emulsified CFT Legumine was used by the sand and spray crews each day for a total of 10 gallons for the entire two day treatment.

A detoxification station was set up just below the barrier in order to minimize the downstream impact of non-target organisms. The potassium permanganate was applied as a 2.5% solution at approximately 3-ppm. Chlorine strips were used to monitor the amount of potassium permanganate needed and to ensure that a 1-ppm residual was achieved. Approximately seven pounds of potassium permanganate was used each day for a total of 14 lbs for the entire two day treatment.

FINDINGS

Approximately eighteen gallons of rotenone were used for the entire two day treatment. Station attendant observations documented very few trout within the treatment area, with brook trout being the only trout species found. No live fish were documented by any of the station attendants after noon of the first day of treatment and it is anticipated that the project was a complete success. Post treatment surveys to document the success of the detoxification found no effect on non-target organisms outside of the treatment area.

MANAGEMENT REVIEW

The planning, permitting, and conducting of the NFHR and Cole Canyon Creek Rotenone treatment was completed. Treatment evaluations will occur in the summer of 2015.

RECOMMENDATIONS

Post-treatment projects will occur in the summer of 2015 and will include spot electroshocking to evaluate the effectiveness of the treatment. Reintroduction of LCT into the NFHR will only commence after a thorough evaluation is completed to make certain of the success of the treatment. LCT from Forman Creek or Pratt Creek will most likely be the donor source for the reintroductions. Introduction activities will follow the guidelines set in the Reintroduction of LCT section of the Upper Humboldt Species Management Plan. These reintroductions efforts will most likely occur in the fall of 2015.

Project Participants: Nevada Department of Wildlife, U.S. Fish and Wildlife Service, and U.S. Forest Service.

Project Duration (All Past, Present, and Planned Segments): Beginning July 1, 1995 and continuing until the species is delisted.

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