

Appendix B-8

LAKE TAHOE RESTORATION PROJECTS ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Restoration/Recovery of
Lahontan Cutthroat Trout in Fallen

Project Name: Leaf Lake/Tahoe Basin Agency: US Fish and Wildlife Service

Prepared by: Lisa Heki Phone: 775-861-6300 EIP #: WR/HI-8

SNPLMA Project #: 10125

Identify estimated costs of eligible reimbursement expenses:

1. Planning, Environmental Assessment and

Research Costs (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)

\$ _____ %

2. FWS Consultation—Endangered Species Act

\$ _____ %

3. Direct Labor (Payroll) to Perform the Project

\$ 178,880 34.4 %

4. Project Equipment (tools, software, specialized

equipment, etc.)

\$ 72,800 14 %

5. Travel (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)

\$ 15,600 3 %

6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project)

\$ 26,000 5 %

7. Cost of Contracts, Grants and/or Agreements to Perform the Project

\$ 208,000 40 %

8. Other Direct and Contracted Labor: Agency

payroll for the Contracting Officer to do project procurement, COR, Project Inspector, Sec. 106 Consultation if required, NEPA Lead, Project Manager, Project Supervisor, and subject experts to review contracted surveys, designs/drawings, plans, reports, etc.; Also covered is the cost to contract for a Project Manager and/or Project Supervisor if contracted separately from other project contracts)

\$ 18,720 3.6 %

TOTAL

\$ 520,000 100 %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Finalization of Tahoe Basin Recovery Implementation Plan	June 2009
Research contracts Established for Life History	January 2010
Begin implementation of Recovery Implementation Tasks	June 2009
Implementation of non-native suppression program	June 2009
Final Completion Date:	December 2014

COMMENTS:

**APPENDIX K
LAKE TAHOE CAPITAL PROJECT PROPOSAL
ROUND 9**

Consistency with Lake Tahoe nomination criteria:

Project nominations must qualify as an Environmental Improvement Program (EIP) project and be the responsibility of the federal government (federal share responsibility); and have a willing and ready federal sponsor.

Project nominations must be consistent with one of the focus areas in the June 2006 Federal Vision (pp. 8-9) (<http://www.fs.fed.us/r5/lbmu/documents/lbtec/revised-FV-Final.pdf>) and fit into at least one category.

Capital Focus Area (as described in the 2006 Federal Vision): Watershed and Habitat Improvement

Circle a minimum of one category:

1. Continued emphasis on fuels reduction in coordination with projects funded under the 2006 SNPLMA amendment (the “White Pine” amendment).
2. Continued implementation of projects approved in Rounds 5 through 8 which implement the EIP. Project proposal should clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 9.

List project(s): 10125

3. Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel).

List category(ies): _____

4. Control of aquatic invasive species and prevention of new aquatic invasive species.

Project Name: Restoration/Recovery of Lahontan Cutthroat Trout in Fallen Leaf Lake/ Tahoe Basin

EIP #: 10125

Lead Agency: U.S. Fish and Wildlife Service

Contact: Lisa G. Heki

Threshold: Lahontan Cutthroat Trout Reintroduction

Phone Number: (775)861-6300

Threshold Standard: Fisheries 4 (F4)

Email Address: Lisa_G_Heki@fws.gov

Funding Requested in this Round: \$520,000

Total Project Cost: \$1.75 Million

Is this a multi-year Project? (If “Yes”, describe in the Detailed Project Description below number of years or phases and which year the requested funding will cover). Yes

Project Summary (maximum 200 words): (applicable ONLY to this Round 9 project):

This proposal builds and expands on important preliminary information gathered from the first three years of research monitoring on Fallen Leaf Lake. This next phase of LCT reintroduction, which includes stocking, research, and monitoring, will emphasize development and implementation of strategies to increase its recovery and restoration potential with regard to the constraints of non-native fishes. It will focus specifically on assessing movement patterns and habitat use of LCT and other non-native species both within and among seasons. Another component of this project proposal is the formation of the Tahoe Basin Recovery Implementation Team. This Team, comprised of representatives from the Lake Tahoe Basin Management Unit, Tahoe Regional Planning Agency, Fish and Wildlife Service, California Tahoe Conservancy, Nevada Department of Wildlife, Washoe Tribe, and California Department of Fish and Game, will develop and implement actions to restore and recover LCT by developing an action plan based on the most complete biological, geographical, and hydrological information available for the Tahoe basin. The plan will assist team members in identifying and prioritizing actions for recovery of LCT as well as restoration of the recreational fishery. Upon completion of the plan the TRBIT will continue to partner on implementation of projects, actions, and opportunities identified within the action plan.

Detailed Project Description (focuses on what Round 9 is funding; list the number of years or phases the Round 9 requested funding will cover; if phased, briefly describe how this project links into previously phased projects including what remains for Rounds 10 and beyond).

LCT was re-introduced into Fallen Leaf Lake beginning in 2002 by the Fish and Wildlife Service, in partnership with the Fallen Leaf Lake community, the U.S. Forest Service, and California Department of Fish and Game. The re-establishment of this native fish is critical to the preservation and potential expansion of the species into historic lake habitat and provides an important and unique native fishery to the region. The Lahontan National Fish Hatchery Complex will produce, mark, and stock LCT annually into Fallen Leaf Lake. LCT reared at Lahontan NFH is a strain known to have originated from a population indigenous to the Tahoe/Truckee basin. Biological sampling of LCT and non-natives will continue seasonally using a variety of methods, including creel census and mark and recapture methods using boats, nets, traps, weirs, and hydroacoustical sampling technology.

This project proposal builds and expands on the important information gathered from several years of research and monitoring. The first years of monitoring emphasized primarily the abundance, population structure, and forage base of lake trout. This information was an important first step to understand better the ecosystem dynamics that successful recovery of LCT will depend. The subsequent year of monitoring focused on quantifying the distribution and abundance of reintroduced LCT and non-native species in the lake. This information will aid in the evaluation of the most effective means for a successful reintroduction of this native, threatened trout into historic, lacustrine habitats.

This phase of the study will focus on assessing movement patterns and habitat use of LCT and non-native trout (specifically lake trout) both within and among seasons. Data on within and among seasonal movement will provide information critical to assessing the re-establishment of a naturally reproducing LCT population with management of the extant non-native lake trout population. It will inform the LCT recovery process being undertaken by the Tahoe Basin Recovery Implement Team for other lacustrine

ecosystems including Lake Tahoe. This phase will also assess the success of re-introduction strategies for recreational fishing opportunities and develop a management protocol for regular planting of LCT to maximize success in terms of location and numbers. Implementation of non-native reduction efforts to identify the most efficient means for reducing non-natives with the smallest impacts on native fishes will begin in coordination with the TBRIT.

The long-term strategy for restoration of LCT lacustrine populations in the Tahoe basin will require monitoring of re-introduced LCT in systems with well-entrenched lake trout populations. Fallen Leaf Lake offers the opportunity to track LCT as they are re-introduced into a lacustrine environment and provide information to refine recovery strategies for successfully re-establishing LCT in historically occupied lacustrine habitats.

Describe the goals and objectives of the project (those applicable ONLY to this Round 9 project):

- 1) Utilize Lahontan cutthroat trout from the Pilot Peak strain broodstock, the only strain in captivity known to be native to the Truckee River basin. Continue monitoring the growth, size and longevity of this strain in historic lake habitat.
- 2) Continue the research into habitat utilization by LCT and potential overlap with lake trout and other non-native trout in Fallen Leaf Lake. Assess LCT, lake trout and other non-native trout movement patterns and habitat use both within and among seasons using the most appropriate tracking and non-lethal sampling methods, determined in previous round research.
- 3) Develop and implement a comprehensive strategy with the TBRIT for reducing factors limiting the successful reintroduction of LCT into historic lake habitats. Collaborate with other biologists in other areas regarding the most effective mean for reducing limiting factors affecting the successful reintroduction of LCT, synthesize current and recent research on Fallen Leaf Lake as well as other systems containing non-natives and cutthroat trout, and incorporate field data for suppressing non-natives impacts on LCT by reducing their numbers.
- 4) Partner with the USFS-LTBMU to continue ongoing creel census throughout the fishing to evaluate angler harvest, growth rates, and angler satisfaction.
- 5) Continue seasonal gill net and minnow trapping sampling efforts to monitor species composition and size of fish from representative habitats.
- 6) Evaluate alternative means for reintroducing LCT into Fallen Leaf Lake by investigating spawning potential of LCT in Glen Alpine Creek and Taylor Creek. Investigate and monitor the use of streamside incubation technologies such as remote site incubators at these two stream locations using eyed-up eggs from Lahontan NFH. Apply mass marking technologies for future identification.
- 7) TBRIT will finalize and implement the Tahoe Basin Recovery Implementation Plan to further restoration and recovery of LCT in lacustrine habitats. Implementation of plan actions will improve identification and prioritization of recovery tasks for restoring and recovering LCT in the basin. These actions will be implemented as demonstration projects with partners in the basin.

Describe the anticipated project accomplishments (i.e. products or identifiable environmental benefits being produced or implemented under this project):

Begin re-establishment of naturally reproducing LCT population with management of the extant non-native lake trout population. Inform the LCT recovery process for other lacustrine ecosystems including Lake Tahoe. Determine a successful re-introduction strategy for recreational fishing opportunities. Develop a management protocol for regular stocking of LCT to maximize success in terms of location and numbers, and a sampling methodology for removal of non-natives. Investigate streamside incubation technologies to initiate natural reproduction in Fallen Leaf Lake tributaries. Monitor seasonal habitat utilization of LCT and the non-native species in Fallen Leaf Lake.

Describe the “readiness” of this project to move forward (urgency, capacity, capability, environmental documentation etc.):

All authorization, consultations, and permits have been acquired in this ongoing project. The public and specifically the community of Fallen Leaf Lake were involved during the initial project development and continue to be involved in the implementation. Most of the sampling protocols were established and have been refined and tested this last year and are ready for use during this project.

Describe partnerships for this project. (if applicable, project should identify partner funding [committed/secured] and how it is integrated into the project)

Partners with the Fish and Wildlife Service and Lake Tahoe Basin Management Unit include, the Fallen Leaf Lake Community Association, Trout Unlimited, California Department of Fish and Game and all parties to the Tahoe Basin Recovery Implementation Team as well as the Management Oversight Group Memorandum of Understanding.

Describe the project monitoring that will be implemented as part of this project including:

1) The questions the monitoring program is designed to answer

Document the abundance and habitat use of both reintroduced LCT, naturalized lake trout, and other non-natives. Determine whether the ecology of LCT and lake trout differ substantially and if co-existence may be achieved if opportunities for spatial segregation exist. Evaluate alternative methods for LCT reintroduction in Fallen Leaf Lake. Develop and implement a comprehensive strategy in coordination with the Tahoe Basin Recovery Team to reduce factors limiting successful reintroduction of LCT.

2) The monitoring approach (describe the methods and strategies [i.e. monitoring, research, or both] that will be used to verify whether the project goals and objectives have been met. A detailed monitoring/research plan is not required, but enough detail must be provided to allow someone that is unfamiliar with the project to understand and evaluate the proposed methods and strategies.)

A comprehensive sampling approach will be used to determine habitat use of LCT and non-native trout. The data will be collected during a five-month period when the lake is accessible and fish are actively foraging. This period includes a time frame for when the lake is well-mixed as well as stratified. Mark-recapture models will be used to quantify abundance so all fish will be marked. Capture data will be analyzed to determine whether LCT and lake trout are ecologically different and if and where spatial segregation exists. Different methods will be employed to assess successful LCT reintroduction into the lake. Examples of these methods are: deploying remote

site incubators (RSI) in Glen Alpine Creek to estimate the success of egg incubation, tracking juvenile young-of-year LCT in the lake using a variety of sampling methods, using hydroacoustic methods to quantify substrate composition in the lake as means of guiding future stocking events into areas offering potential refugia from predators. The TBRIT will work collaboratively with other biologists facing similar issues (cutthroat trout, nonnatives, lake habitats) to synthesize current and recent research on Fallen Leaf Lake and incorporate field data into a strategy for reducing the abundance of non-native trout species.

3) Whether this project monitoring fits into a larger monitoring or research program (including how information from the monitoring and research will be used to improve the continued performance of the proposed project or improve future similar projects)

The Fallen Leaf Lake component of the project represents an opportunity to assess the threat that non-natives (specifically lake trout) may pose to reintroduction and re-establishment of LCT into historic lacustrine habitat. Restoration of LCT lacustrine populations in the Tahoe basin will require monitoring of re-introduced LCT in systems with well-entrenched non-native populations. Fallen Leaf Lake offers the opportunity to track LCT as they are re-introduced into a lacustrine environment and provide information to refine recovery strategies for successfully re-establishing LCT in historically occupied lacustrine habitats. The information generated by the Fallen Leaf Lake project will be used by the Tahoe Basin Recovery Implementation Team to prioritize and implement actions for recovery of LCT as well as restoration of the recreational fishery in the basin

Describe these two items which will be considered along with the above project monitoring information by the Tahoe Science Consortium related to research and monitoring resource areas and the effectiveness of environmental restoration activities:

1) Describe the specific goals and objectives of the project and describe how fulfilling those objectives will contribute to the achievement of one or more environmental thresholds.

- 1) Re-establishment of naturally reproducing LCT population with management of the extant non-native lake trout population.
- 2) Inform LCT recovery process for other lacustrine ecosystems including Lake Tahoe.
- 3) Success of re-introduction strategy for recreational fishing opportunities.
- 4) Develop a management protocol for regular planting of LCT to maximize success in terms of location and numbers, and sampling methodology for removal of lake trout.
- 5) The Tahoe Basin Recovery Implementation Team will develop and implement a Tahoe Basin Recovery Implementation Plan to restore and recover LCT in the basin.

2) Describe the risk to the environment from failure of the proposed project (i.e. if the project fails what is the environmental consequence).

Efforts to restore and recovery a native, threatened trout and a unique native fishery will be severely delayed.

Describe how the project results will be communicated and made available to the public.

The project results, which include the monitoring research on LCT, lake trout, and non-native habitat use, will be published in a peer reviewed scientific journal.

Implementation of the recovery tasks described by the Tahoe Basin Recovery Implementation Plan as well as the strategies for successful re-introduction of LCT, suppression of non-natives, and incorporation of other lacustrine ecosystems for LCT will be presented to and discussed with various stakeholder groups in the basin. These presentations will begin upon completion of the action plan.

Include an 8 ½ X 11 map depicting the project.