

Appendix B-8

LAKE TAHOE RESTORATION PROJECTS ESTIMATED DIRECT COSTS & KEY MILESTONE DATES

Lahontan Cutthroat Trout
Restoration in the Upper

Project Name: Truckee River Agency: U.S. Forest Service
 Prepared by: Richard Vacirca Phone: 530 543-2768 EIP #: 10125.1
 SNPLMA Project#: F045, F083

Identify estimated costs of eligible reimbursement expenses:

1. Planning, Environmental Assessment and Research Costs (LTBMU and CAFG strategy and logistic meetings, TBRT meetings, monitoring-population assessment)	\$ <u>10,000</u>	<u>7</u> %
2. FWS Consultation	\$ <u>0</u>	<u>0</u> %
3. Direct Labor (Payroll) to Perform the Project	\$ <u>82,000</u>	<u>55</u> %
4. Project Equipment (purchase gill nets, block nets and conduct electroshocker maintenance)	\$ <u>19,500</u>	<u>13</u> %
5. Travel (Present project status at LCT IA meetings, present and attend Western AFS meetings)	\$ <u>3,000</u>	<u>2</u> %
6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project)	\$ <u>7,500</u>	<u>5</u> %
7. Cost of Contracts, Grants and/or Agreements to Perform the Project (CAFG CCS agreement)	\$ <u>10,000</u>	<u>7</u> %
8. Other Direct Costs	\$ <u>0</u>	<u>0</u> %
9. Other Necessary Expenses (10% Indirect + 2% Environmental Education)	\$ <u>18,000</u>	<u>12</u> %
TOTAL*:	\$ <u>150,000</u>	<u>100</u> %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Perform non-native fish removal in discrete reaches on 2 miles of the Upper Truckee River	8/01/2009 – 10/31/2009
Project Completion	10/31/2012

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): _____

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): EIP no. 10125.1; SNPLMA No.’s F045, F083

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: Lahontan Cutthroat Trout Restoration in the Upper Truckee River

EIP #: 10125.1

Lead Agency: USFS

Contact: Richard Vacirca

Threshold: F

Phone Number: 543-2768

Threshold Standard: F4

Email: rvacirca@fs.fed.us

Funding Requested in this Round: \$150,000

Total Project Cost: \$840,500

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)

Lahontan cutthroat trout (LCT) were introduced to the headwaters of the Upper Truckee River in Meiss Meadows in the late 1980's and early 1990's. Non-native brook trout were removed from the Upper Truckee River prior to the LCT introduction. However, because of the extensive wet meadow conditions throughout the Meiss area, brook trout were able to escape from the initial removal effort. It is important to continue the brook trout removal, because of their impacts on the LCT population. Non-native fish removal efforts funded in Rounds 6, 7 and 8 cover four miles of the Upper Truckee River (headwaters) and approximately eight acres of Meiss Lake and Four Lakes. Round 8 funding also contributed to initiating non-native fish removal efforts (planning and implementation) in the LCT expansion area of the Upper Truckee River in order to reclaim downstream habitats for federally threatened LCT. Round 9 will continue these efforts to remove non-native fishes in the Upper Truckee River expansion area (see map).

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).

Lahontan cutthroat trout (LCT) was the only native salmonid species in Lake Tahoe Basin. The species was extirpated in the early 1900's by the actions of European immigrants. The LCT is a threatened species under the Endangered Species Act (ESA). The reintroduction of LCT in the Upper Truckee River headwaters in Meiss Meadow is critical to preservation and potential expansion of the species. The Meiss Meadow population will be one of the only high-elevation meadow populations of LCT in the Sierra-Nevada Mountain Range. Furthermore, in response to recent funding opportunities, scientific findings, public interest, and the unique political climate found within the Tahoe Basin, the development of a Lake Tahoe Basin-specific recovery implementation team (TBRIT) was initiated by the U.S. Fish and Wildlife Service (FWS). The TBRIT was formed in February 2007 to develop a strategy for LCT recovery in the Lake Tahoe Basin and consists of federal and state fish/land management agencies. Progress on recovery efforts are communicated to the interagency LCT Management Oversight Group (MOG) and the Lake Tahoe Basin Executive Committee (LTBEC).

SNPLMA Funding Summary

Year 1 (Round 6 \$70,000): This portion of the project conducted the brook trout removal from the current restoration site (4 miles of the upper Truckee, and 8 acres of Meiss and Four Lakes). Additionally, fisheries managers initiated planning efforts in conjunction with California Department of Fish and Game (CDFG) to explore the potential for expansion of the population downstream. This included the collection of existing habitat data and conducting downstream brook trout population data.

Year 2 (Round 7 \$170,500): This portion of the project completed the necessary planning work to determine the maximum potential expansion area in the Upper Truckee River

and completing NEPA. Implementation in the LCT expansion area began with physical removal of brook trout between known barriers by electrofishing and setting gill nets in deeper pool habitats. Non-native fish removals in the expansion area occurred in smaller, discrete reaches as dictated by channel habitat conditions. The effectiveness of the removals will be examined before supplementary LCT stocking occurs. In addition, removal of non-native fish in the Meiss Meadow area also continued in order to achieve a second year of zero brook trout detections.

Year 3 (Round 8 \$150,000): This round of funding continued to implement physical removal of non-native trout species in 2 miles of the Upper Truckee River LCT expansion area (see map) in 2008 from August to October. Additionally, this round's funding initiated physical removal of brook trout in Meiss meadow in order to achieve a third year of zero brook trout detection. Artificial barriers (gabions) that were put in place to facilitate the initial restoration in the late 1980's will be evaluated for removal in coordination with CDFG. Removal of these barriers will provide connectivity and establish gene flow necessary to attain a viable, larger self-sustaining population of LCT. Additionally, where complete brook trout removal is successful LTBMU and CDFG will work with the TBRIT to determine the desirable strain of LCT to be stocked, which will facilitate population expansion.

Round 9

Year 4 (Round 9 \$150,000): This round of funding will continue the physical removal of non-native trout from the identified expansion area of the Upper Truckee River. Removal efforts will occur from the lowermost limit of Meiss Meadows (at the artificial barrier) to 2 miles downstream to Round Lake Creek confluence. Removal efforts will occur in 2009 from August to October. Field crews will be utilized to implement fish removals within the 2 miles of the Upper Truckee River and hike in needed equipment, which includes: electroshocker, gill nets and block nets.

Additional Funding Needs

Year 5, 6, and 7 (Rounds 10, 11 and 12 - \$150,000/round): Funding needed in these rounds will continue the physical removal of non-native fishes from the Upper Truckee River in partnership with CDFG. An estimated additional 6 miles of stream (main stem of Upper Truckee River and tributaries) 20 acres of lake habitat will be reclaimed for LCT.

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

The overall goal of the LCT restoration project in the Upper Truckee River is to establish LCT in the Upper Truckee River Watershed to function as a source population for outmigrating individuals that may occupy Lake Tahoe. CDFG and LTBMU fisheries managers have identified a need to conserve the current LCT population in Meiss Meadows, provide potential for the expansion of LCT from Meiss Meadows downstream, reclaim aquatic habitats in the Upper Truckee River by removing non-native salmonids and monitor the progress and attainment of LCT conservation.

The objective of the project specifically associated with Round 9 funding is to reclaim 2 miles of the Upper Truckee River by physically removing non-native salmonids.

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

The project accomplishments specifically for Round 9 funding will be the restoration of 2 miles of aquatic habitat (by removing non-native trout). Comprehensive population estimates have not been completed for the Upper Truckee River above Christmas Valley. Snorkeling efforts during recent habitat surveys showed an average of 6 adult fish above and below pool features and 3 adult fish in riffles (average of 2 pools per 100 feet). Therefore, it is estimated that an average of 21 fish per 100 feet comprising adults would be removed after treatment.

Accomplishments on a larger scale are the establishment of LCT in the Upper Truckee River from Meiss Meadow downstream 3 miles at a natural barrier. The removal of non-native trout from the Upper Truckee River will decrease competition for habitat and prey, thereby providing for an increase in available habitat and survivability, especially juvenile LCT. Brook trout removal accomplishments have been tracked in Meiss Meadows and are summarized in the following table.

YEAR	NUMBER OF BROOK TROUT CAUGHT	LCT POPULATION ESTIMATES	COMMENT
1996	20	3251	7 years post-original rotenone treatment – Start of manual fish removal
1997	464	2189	Initiate target removals during fall spawning (Sept – Oct)
1998	256	4068	
1999	121	3207	
2000	156	2062	
2001	656	4393	
2002	52	3656	
2003	5	3965	
2004	16	3544	
2005	7	3719	
2006	2	Not yet known	SNPLMA Round 6 funding
2007	0	Not yet known	SNPLMA Round 7 funding

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

The first reintroduction efforts of LCT in Meiss Meadow began in the late 1980’s. The physical removal of brook trout and monitoring of LCT has occurred annually, since 1990. Trail improvement projects and discontinuance of livestock grazing in Meiss

Meadow have decreased erosion and resultant sedimentation to the Upper Truckee River. Assessments, inventories, and monitoring of the aquatic habitat were completed in the 1990's. Stream monitoring has continued, with the establishment of a stream condition inventory (SCI) monitoring and meadow trend transects. Currently, the NEPA which addresses fish removal in the LCT expansion area is underway and will be completed in the beginning of Year 3.

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

The CDFG has contributed an average of \$10,000 per year by providing personnel time and equipment. The LTBMU has also utilized appropriated aquatic habitat improvement funding to aid in the planning and development of this project, however it's anticipated that this funding will not be available in 2009. The US Fish and Wildlife Service, Trout Unlimited and California Trout are partners in this project.

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

1) The questions the monitoring program is designed to answer:

1. To what extent has non-native trout removal in the Upper Truckee River headwaters been successful in reducing trout population numbers and improving Lahontan cutthroat trout population numbers?
2. How effective are physical fish removal methodologies in extirpation of invasive species?

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.)

Round 9 funding will provide dollars for 1 year of monitoring and implementation for 2 miles of stream in the Upper Truckee River. Data collection will occur simultaneously with implementation efforts (fish removal). All fish collected are recorded for effectiveness monitoring. Non-native salmonids are removed following data collection while native fish are returned to the stream.

Future longer term effectiveness monitoring is expected to be funded through research proposals funded through the TSC process, or the USFS monitoring program funded through base appropriations and/or the SNPLMA funded NEPA Resource Surveys Project.

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

The monitoring identified for this project is part of the overall Forest Plan monitoring effort for the Lake Tahoe Basin Management Unit. Results and accomplishments of all Forest Monitoring are summarized every year in the Annual Forest Monitoring Report. When appropriate, interpretation of results is integrated at the programmatic, forest, and sometimes Regional level. For this project integration at a larger scale is expected and will be reported out at the LCT Interagency meetings in January.

Over the last 10 years the USFS and CDFG has been implementing fish removal efforts and monitoring the success of those efforts in the Upper Truckee River headwaters. The CDFG has been producing electrofishing survey reports, which summarize treatment reach locations, length frequencies and number of fish captured. The monitoring program is designed to track non-native fish population trends, specifically depletion rates. The objective for the Upper Truckee River headwaters is to have 3 consecutive years of zero non-native fish detection. Upon determining attainment of that objective the monitoring approach in the Upper Truckee River will turn attention towards documentation of LCT population and habitat trends, which may include: effects of beaver dams and population demographics.

The approach taken has been one of adaptive management. Monitoring results will be applied to future Lahontan Cutthroat Trout management strategies and recovery efforts. Our removal and habitat restoration efforts are monitored annually to ensure effectiveness.

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.

Fisheries (F4):

The goal of this project is to secure and expand the one existing population of LCT in the Lake Tahoe Basin. Fulfillment of this objective will directly address and achieve environmental threshold F-4 which calls for the successful establishment of a LCT population in the Lake Tahoe Region.

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

Currently, the one population of LCT is isolated to the headwaters of the Upper Truckee River. The population ranges from 1500-3000 individuals occupying

approximately 4 miles of stream habitat and 12 acres of lake habitats. This population is potentially vulnerable to extirpation through a single or series of stochastic events (i.e. flood, fire, drought). Increasing the amount of available habitat in the Upper Truckee River will provide LCT with access to tributaries and create local source populations that would re-colonize stream segments if such events were to happen (metapopulation). If this project fails to expand the range of the LCT downstream, this population would remain at risk.

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

The project results will be communicated to the public through local and regional newspapers as well as the LTBMU and CDF&G websites. Project results will also be communicated by way of presentations to interested conservation (i.e. Trout Unlimited and California Trout) and scientific (i.e. Western Chapter of American Fisheries Society) organizations, as well as government management briefings (i.e. MOG and LCT Interagency meetings).

Include an 8 ½ X 11 map depicting the project.

