Appendix I-2
GENERAL TAHOE PROJECT PROPOSAL

Project Name: Blackwood Cr. Channel Restoration **EIP #** 27.9
Lead Agency: U.S. Forest Service

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Threshold: SC, F, W, SR, WQ, V
Threshold Standard: SC2, F2, W1, W2, SR2, SR3, WQ1-6, V1, V4

Total Project Cost: $ 4,025,000
Round 6 Funding requested: $ 250,000
Is this a multi-year project? Yes/No Yes

Project Description:

The Lake Tahoe Basin Management Unit (LTBMU) of the U.S. Forest Service (USFS) has embarked upon the restoration of the Blackwood Creek ecosystem. After 150 years of land-use impacts, including overgrazing, logging, road construction, and gravel mining, a profound change in the morphology of Blackwood Creek has taken place. A once highly diverse wetland- and meadow-rich riparian and floodplain system has been transformed into an unstable stream channel with a disconnected floodplain, with extensive reaches of barren, sparsely vegetated gravel bars with depauperate terrestrial and aquatic habitats and riparian dependent resource values. Blackwood Creek, once a highly stable and ecologically valuable riparian system, has become highly unstable with extensive areas of vertical and lateral erosion. The functions and processes of the historic ecosystem have been significantly altered by the change in stream morphology.

The restoration of Blackwood Creek will focus on the reestablishment of natural processes. A process-based approach to the stream restoration will rely upon restoring the geomorphic processes related to channel and floodplain formation. The process-based approach will closely replicate natural structures and function, which are found in undisturbed systems. The design of the structures will simulate large-woody debris, which will promote sediment storage and sorting, the formation of pools, and the stabilization of stream channel morphology. Using the processes of natural debris formation, these structures will influence local channel processes and reduce streambank erosion and downstream sedimentation, especially to Lake Tahoe.

The woody-debris structures will promote geomorphic processes that will lead to restoration of the channel and floodplain. The woody-debris structures within the stream channel and on the floodplain will be the primary restoration tool throughout the project area. The structures will function in several ways: storing and sorting fine sediment during floods, reducing bedload transport continuity, providing substrate for vegetation establishment, stabilization of the floodplain during larger floods by disrupting flood flowpaths, reducing the chance of channel avulsion and straightening, and eventual establishment of a meandering channel on the floodplain. And, importantly, the revegetation of the channel and floodplain would also occur, because of the process-based approach of the restoration plan.

Describe the purpose and need for the project:

Blackwood Creek is the forth-largest tributary to Lake Tahoe. Its extensive history of human disturbance within the drainage has caused significant increases in watershed erosion and downstream sedimentation, which has subsequently affected the clarity of Lake Tahoe. In order to reduce the effects that result from watershed degradation and minimize the impacts to Lake Tahoe, restoration of historic watershed function and processes is needed.

Describe the goals and objective of the project (for Science & Research Projects describe Key Management Questions being addressed):

The Blackwood Creek and riparian ecosystem which functions within the natural range of variability, and with a channel and floodplain forming processes comparable to historic conditions. A stream channel and riparian area that have reduced streambank erosion and improved water quality. A stream channel and floodplain that are dynamically stable with sediment transport continuity and floodplain connectivity. A stream channel with a range of aquatic habitats and associated riparian areas to improve and support the desired riparian conditions.

Describe the anticipated project accomplishments:

The ecological status of meadow vegetation will become late seral with a high similarity to the potential natural community. A diversity of age classes of hardwood shrubs will be present and regeneration will be occurring.

Meadows will become hydrologically functional. Sites of accelerated erosion will be stabilized and will recover. Vegetative rooting will occur throughout the available soil profile. Meadows with perennial and intermittent streams will 1) dissipate stream energy from high flows, thereby reducing erosion and improving water quality, 2) meadows will filter sediment and capture bedload, with subsequent floodplain development, 3) meadow conditions will enhance floodwater retention and groundwater recharge, and 4) root masses will stabilize streambanks against cutting action.

Describe the "readiness" of this project to move forward (environmental documentation, etc.):

An Ecosystem Assessment Report (EAR) for the Blackwood Creek drainage has been completed. Coordination and scoping under the National Forest Management Act (NFMA) has been initiated with other Lake Tahoe Basin Agencies. The process for the National Environmental Policy Act (NEPA) has been initiated and an environmental document will be completed in '05-'06. Conceptual stream channel restoration designs have been completed. One stream restoration project at the Blackwood base-control structure has been completed. The crossing at the Barker Pass Road will be replaced in '06. Both of these projects are upstream from this stream channel restoration project.

Describe partnerships for this project (include documentation):
This project goes beyond the normal agency coordination, because of the importance of improving water quality in the Blackwood drainage. Consequently, the Tahoe Regional Planning Agency (TRPA) and Lahontan Regional Water Quality Control Board (LRWQCB) are partners in the development of restoration plans for the drainage. The California Tahoe Conservancy (CTC), however, is a downstream landowner and is developing restoration plans for the lower reaches of Blackwood Creek. Because of this adjacent ownership the CTC and USFS have become partners in order to coordinate the restoration efforts.

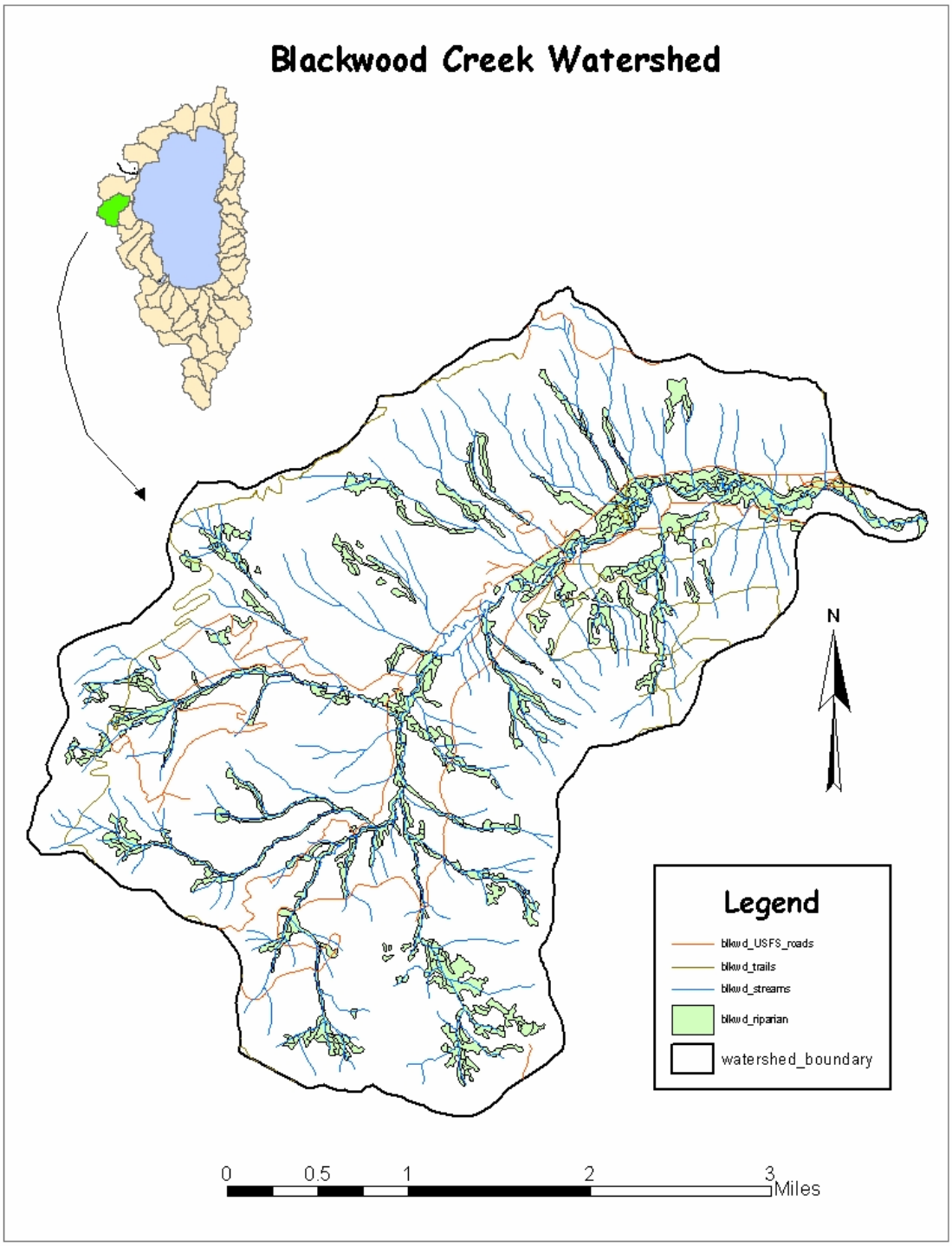
For non-Science & Research Projects (i.e. restoration, planning efforts etc.) describe the anticipated project effectiveness monitoring program for use with adaptive management framework:

The restoration design that will be proposed for this project will be process based; hence adaptive management will be a fundamental component of its success. The restoration of the dynamic processes to which the original stream and floodplain system were adapted will require monitoring and adaptive management that will track and assess spatial and temporal change at the reach scale. A monitoring and adaptive management plan will be developed that will describe how project function will be evaluated and how adaptive management will be accomplished over the life of the project.

The monitoring and adaptive management will focus on and include: 1) channel and floodplain sediment storage, 2) groundwater elevations, 3) vegetative cover, 4) channel sinuosity, 5) channel complexity and diversity, 6) erosion and sedimentation within and from the project area, 7) channel dynamism, and 8) terrestrial and aquatic habitat abundance and diversity.

Include an 8 ½ X 11 map depicting the project, or research/study area.

See below.


Blackwood Creek Watershed
N
Legend
blkwd_USFS_roads
blkwd_trails
blkwd_streams
blkwd_riparian
watershed_boundary
0
0.5
1
2
3
Miles

Appendix B-8

LAKE TAHOE RESTORATION PROJECTS
ESTIMATED DIRECT COSTS & KEY MILESTONE DATES

Project Name: Blackwood Creek Channel Restoration Agency: U.S. Forest Service
Prepared by: JB Reiner Phone: 530-5432624 EIP #: 27.9
SNPLMA Project #:_____

Identify estimated costs of eligible reimbursement expenses:

1. **Planning, Environmental Assessment and Research Costs** (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)	$ 50,000	20	%
2. **Direct Labor (Payroll) to Perform the Project**	$ 108,000	43	%
3. **Project Equipment** (tools, software, specialized equipment, etc.)	$ 2,000	1	%
4. **Travel** (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)	$ 4,000	2	%
5. **Official Vehicle Use** (pro rata cost for use of Official Vehicles when required to carry out project)	$ 6,000	2	%
6. **Cost of Contracts, Grants and/or Agreements to Perform the Project**	$ 45,000	18	%
7. **Other Direct Costs** (direct labor for agency personnel to do project procurements; COR; PI; personnel assigned as NEPA lead; personnel assigned to review contracted surveys, designs/drawings, reports, etc.; project manager and/or project supervisor; and contracted costs for project manager and/or project supervisor if contracted separately	$ 35,000	14	%
TOTAL*:	$ 250,000	100	%

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
EAR completion	Apr. 2003
NFMA scoping	Oct. 2005
NEPA process start	Jan. 2005
NEPA document completion	Sept. 2006
Final Completion Date:	Sept. 2009

COMMENTS: The SNPLMA Round 6 funding of $250,000 for this phase of the Blackwood Cr. channel restoration project will complete the NEPA process and environmental documentation for the construction phase of the project. Round 6 will also complete coordination and permitting with TRPA and LRWQCB. The entire project costs, through construction, monitoring, and maintenance are $4,025,000. The out-year project funds will be requested in SNPLMA Rounds 7, 8, and 9. Project construction will be completed Sept.-Oct. 2009, however, monitoring will be ongoing through 2018.