SNPLMA Project #: _____ **(To be assigned by SNPLMA Administration)**

TAHOE SCIENCE AND RESEARCH PROJECTS
ESTIMATED DIRECT COSTS & KEY MILESTONE DATES

Project Name: Multi Species Project
Sponsoring Agency: U.S. Forest Service, LTBMU
Date: March 10, 2004

Contact: Julie Roth
Phone: 530-543-2628
EIP # 10163.48

Identify estimated costs of eligible reimbursement expenses:

1. Planning and Research Costs (Specialist surveys, reports, monitoring, data collection, analysis, etc.).	$0	0.0 %
2. Direct Project Labor (Payroll, fringe benefits, etc.) LTBMU data analysis & reviews	$210,000	17.1 %
3. Equipment (tools, software, specialized equipment,etc.)	$20,000	1.6 %
4. Travel (Travel expenses assoc with project)	$10,000	0.8 %
5. Project Contracts, Grants and Agreements (Contracts, grants, agreements to be awarded) PSW? UNR $115K, field work contracts $970K	$935,000	76.0 %
6. Project Administration (contract admin services, procurement costs, etc.). LTBMU	$55,000	4.5 %
7. Other (Explain)	$0	0.0 %
8. Contingency Reserve (Not to exceed 10%)	$0	0.0 %
TOTAL:	$1,230,000	100.0 %

Estimated Key Milestone Dates:

Milestones:	Date:	Estimated Costs
Amphibian genetic analysis contracts awarded	May 1, 2004	$10,000
2004 Terrestrial data collection contract awarded	July 1, 2004	$20,000
Amphibian genetic analysis completed	Sept 1, 2004	$50,000
2004 Terrestrial, aquatic data collect. completed	Oct 1, 2004	$520,000
2004 Terrestrial data summary and preliminary report completed (ready for Forest Plan)	Dec 31, 2004	$100,000
2005 Terrestrial data collection contract awarded	Mar 15, 2005	$20,000
Amphibian population and habitat trend, modeling, and assessment completed	Apr 1, 2005	$70,000
Aquatic data summary and report completed	July 1, 2005	$30,000
2005 Terrestrial data collection completed	Oct 1, 2005	$450,000
2005 Terrestrial data entered and summarized and report completed (finalized for Forest Plan)	Dec 31, 2005	$100,000
Final project completion report (incl. FS review)	Mar 15, 2006	$10,000

COMMENTS: The budget funds two field seasons of comprehensive data collection, data analysis, and reporting needed to provide the Basin-wide terrestrial species and aquatic species inventories.

In 2004, data will be collected on terrestrial species (birds, bats, small mammals, large mammals, herptiles) and habitat vegetation at 40 or more of the 60 sites previously unsampled sites in the 100 sample sites originally identified for the Basin-wide terrestrial species inventory. These data will be merged with the data collected in 2002 from the initial 40 terrestrial species sites, resulting in a preliminary Basin-wide inventory of terrestrial species that will be input to LTBMU's Forest Plan Revision and TRPA's Regional Plan Revision.

During the 2004 field season, data will also be collected on aquatic species (amphibians, reptiles, and water-associated birds) and habitat vegetation at 50 lake sites, and merged with the data collected in 2003 from lakes, ponds, and wet meadows, thereby completing the Basin-wide inventory of aquatic species that will be final input to LTBMU's Forest Plan Revision and TRPA's Regional Plan Revision.

During the 2005 field season, data will be collected at the 40 terrestrial species sites first visited in 2002, and at the 20 remaining unsampled terrestrial species sites visited in 2004. The data collected in 2005 will be statistically compared to the data collected in 2002 and 2004 to quantify inter-year variability. The data collected in 2005 will then be merged with the 2004 data to create a final, robust Basin-wide inventory of terrestrial species for inclusion in the final version of the Forest Plan Revision and the Regional Plan Revision.

The terrestrial and aquatic bird inventories will be conducted by LTBMU staff; there is insufficient time from the date of this proposal to the start of the needed field activities (early May) to establish a contract to collect the bird data for 2004, and use of the same field crews for 2005 will be essential to minimizing errors that would artificially increase year-to-year variability. At this time, it is proposed that the collection of data on all other terrestrial and aquatic species be submitted to the contracting process; given the 90-day lead time required, however, this too may be infeasible and necessitate the hiring of seasonal crews that would be overseen by LTBMU employees. The decision whether to contract or to use seasonal crews will be made as soon as possible, based on discussions with FS contracting officers.

A proposal will be developed for SNPLMA 2005 funding, for the limited data collections (at 20% of the terrestrial species and aquatic species sites) that must occur in 2006 through 2011 to monitor trends in the terrestrial species populations and the aquatic species populations Basin-wide. The species population trend information will be used annually in the adaptive management of Lake Tahoe Basin natural resources and will be incorporated into the Forest Plan at five-year intervals.

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TAHOE PROJECT PROPOSAL

Project Name: Multi Species Project
EIP # 10163.48
Lead Agency: US Forest Service, LTBMU
Contact: Julie Roth and Pat Manley

Phone Number: 530-543-2628
Threshold: Wildlife
Email Address: jroth@fs.fed.us
Threshold Standard: W-1 and W-2
Total Project Cost: $1,230,000

Project Description:

The Multi Species Project utilizes the Multiple Species Inventory and Monitoring (MSIM) protocol, which was conceived as part of the Sierra Nevada Framework Project as a means of monitoring the large number of species of concern throughout the Sierra Nevada in an effective and cost efficient manner. The MSIM protocol is now being developed as a national protocol that has the potential to meet the monitoring needs of every Region (see www.fs.fed.us/research/monitoring_vertebrate.html).

The MSIM protocol was a logical choice for LTBMU to meet the short- and long-term information needs pertaining to wildlife populations and their habitats. The MSIM protocol consists of a feasible number of standardized, commonly employed, non-lethal survey techniques for each class of vertebrates; it is focused on detection of the presence of a diversity of taxa at each monitoring site. The MSIM protocol is an efficient way to meet legal requirements to monitor vertebrate Management Indicator Species (MIS) and species of concern. In short, multi-species monitoring will (1) provide data on the status and change of many species within the Basin, including many species of concern, (2) provide a means to assess the status and change in species diversity in the Basin, (3) help to determine whether there are 'focal species' in a system that have an indicator or umbrella function, and (4) be useful in developing multi-scale habitat models as a basis of assessing the status and change of habitat conditions. The characterization of habitat conditions where populations are sampled is also a component of the protocol.

Describe the purpose and need for the project:

Terrestrial biota inventory and monitoring data are needed within the Basin to meet the following needs: (1) generate distribution, abundance and habitat association data for plant and vertebrate species on the Basin, (2) prepare for plan revision (USFS and TRPA) by filling important information gaps, including completing inventories, investing in administrative studies, and evaluating monitoring efforts to inform future monitoring programs, (3) identify restoration needs and opportunities, (4) contribute to the development of a multi-agency guide to adaptive management in the Basin, (5) build on the foundation of adaptive management provided by the Sierra Nevada Forest Plan Amendment and the Lake Tahoe Watershed Assessment, and (6) work collaboratively with other agencies in the pursuit of the foregoing objectives.

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

Goals and Objectives

The combination of terrestrial and aquatic sampling and analysis are designed to accomplish the following specific objectives.

1. Support Land Management Plan revision

The monitoring effort will provide data on (1) status of populations and habitat, (2) habitat relationships, (3) the identification and evaluation of indicators, (4) how to design and implement LRMP MIS monitoring. Status information will consist of presence or abundance data of species detected and habitat conditions described at each of the monitoring points. This funding will accomplish data collection on 100 terrestrial species sites and 50 aquatic species (lentic) sites Basin-wide. Presence and abundance data can be used to describe the status of populations, particularly MIS species identified in the current Forest plan. Habitat relationship data can be used to identify habitat for MIS and other species within the Lake Tahoe basin, and then evaluate how habitat for MIS changed over the planning period. These two pieces of information – status of MIS and fate of habitat over the past planning period – have been identified as critical for plan revision and many appeals have targeted the lack of this information as fatal problems in attempted plan revisions. Patterns of covariance among species and with environmental conditions can help identify new species to be used as MIS and then their habitat relationships information can be used to evaluate the effects of various planning alternatives on habitat conditions and populations over the planning period. Finally, implementation of the protocol will refine the most efficient and effective approach to obtaining population and habitat data for species of interest and concern in Lake Tahoe Basin and for assessing biological diversity.

2. Contributes information to threshold standard revision

Threshold standards are in the process of being revised, and the intent of the USFS and TRPA is to have their plans coordinated, if not integrated into one plan. Much like the evaluation of MIS species and desired conditions for LRMP plan revision, TRPA is the process of evaluating current threshold standards and recommending new threshold standards and indicators. The MSIM data will provide a valuable source of information to evaluate the value of current threshold standards for terrestrial and aquatic vertebrate (non-fish) and plant species and communities. Thus, the data set generated by the MSIM protocol can be jointly evaluated to identify threshold standards and indicators for both agencies. The information provided by the proposed work will also jointly inform TRPA and LTBMU as to how best to design and implement population and habitat monitoring.

Key Management Questions

This project will address multiple key management questions that have been identified by resource and land management agencies in the basin. Specifically, the study addresses some portion or all of four forest health and biodiversity questions and one adaptive management question:

What environmental stressors (e.g., climate change, exotic species) and management actions (e.g., timber harvest, fire suppression) pose the greatest risk to old forest ecosystems and associated species?

What indicator species ("focal" species) are strong representatives of the condition of forested conditions, as determined by research and monitoring efforts directed at identifying and validating candidate focal species and species complexes?

What are the key areas of biological diversity associated with terrestrial ecosystems, as determined by a comprehensive assessment, and how is the composition, abundance, and distribution of associated plant and animal species and plant communities changing over time?

What environmental stressors (e.g., poor air quality, exotic species) and management actions (e.g., grazing, siphoning) pose the greatest risk to aquatic, riparian, and meadow ecosystems and associated species, and what protective actions would be most effective to prevent adverse impacts?

What and where are the ecologically significant areas in aquatic environments in the basin, as determined by a comprehensive assessment, and how is the composition, abundance, and distribution of associated plant and animal species changing over time?

What indicator species ("focal" species) are strong representatives of the condition of aquatic, riparian, meadow ecosystems (as determined by research and monitoring efforts directed at identifying and validating candidate focal species and species complexes)?

How are aquatic, riparian, and meadow conditions, amounts, and distributions throughout the basin (including the indicator species to inform evaluations) changing over time?

What are the expected costs of administration and future monitoring activities?

How can monitoring be focused to provide feedback on essential activities?

Threshold Standards

The inventory and monitoring project will inform the TRPA threshold update process. Standards and measures for thresholds need be specific and based on reliable information. In that light, this study will generate reliable, basin-specific information on appropriate and measurable standards, and will assist the effort to identify indicators for multiple existing and proposed thresholds.

"Habitat of Special Significance" (W-2) threshold standard -- it is proposed that this threshold be updated to focus on ecosystem integrity, with special emphasis on ecologically significant wildlife communities. This threshold overlaps to some degree with the existing Vegetation Protection Standards (V-1, V-2). This project will inform standards and indicators for wildlife and vegetation based on the distribution and habitat associations of wildlife species.

"Special Interest Species" (W-1) threshold standard -- it is proposed that this threshold be updated to focus on species at population and community levels, including "Focal Species" (W-1), consisting of species at risk and of special interest, and "Species Diversity" (W-3), consisting of measures of biological diversity and integrity, including native and exotic species by ecosystem type. The threshold revised as such would overlap to some degree with the existing Vegetation Protection Standard (V-1). The project will inform these threshold standards and indicators by providing information on patterns of plant and animal species presence and composition associated with a range of disturbance levels.

Describe the anticipated project accomplishments:

Project accomplishments are partitioned as follows:

1. Design terrestrial data collection efforts and award contract
2. Conduct terrestrial and aquatic field data collection
3. Analyze terrestrial species distribution, abundance, and habitat associations
4. Design and award contract for analysis of genetic diversity of two vulnerable amphibian species (long-toed salamander and western toad)
5. Conduct genetic analysis and generate report of findings
6. Analyze amphibian species distribution, abundance, population trend, and genetic diversity
7. Complete preliminary and final summaries of terrestrial data and write reports, including implications for land management plan and threshold standard revision
8. Complete summary of aquatic data and write final report, including implications for land management plan and threshold standard revision

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

This project was initiated in 2001 as a pilot effort, and in 2002 it was implemented throughout the Basin. In 2002, 40 terrestrial sites and 44 aquatic sites were sampled. In 2003, 112 aquatic sites were sampled. The project study plan has been peer reviewed and is ready for implementation. Two years of data collection efforts are required to complete the work started in 2002, to be conducted in 2004 and 2005.

Describe partnerships for this project. (Include documentation)

This project is a collaborative effort between the Tahoe Regional Planning Agency and USFS Lake Tahoe Basin Management Unit. Both agencies have contributed funds towards data collection and analysis. The USFS PSW Sierra Nevada Research Center has also collaborated on the effort, leading the design and analysis phases of the project.

For Science & Research Projects describe how this project will guide future management activities:

- It will provide a tool for evaluating the potential consequences of development and land management scenarios that affect the distribution and

integrity of habitat conditions for vertebrate species in the Basin.

- It will also provide information on potential standards and indicators (including indicator species) for habitat management.
- It will inform the establishment of threshold standards and indicators by providing information on patterns of plant and animal species presence and composition that are associated with various amounts and distributions of habitat conditions.
- It will provide information on trends in lentic habitat conditions and the effectiveness of current management guidelines for conserving habitat conditions.
- It will provide information on the vulnerability of amphibian populations in the Basin, and on key locations for their conservation.

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

Two maps are provided on the following pages; one for the comprehensive field site network and the second for the lake, pond, and wet meadow (amphibian) sites.

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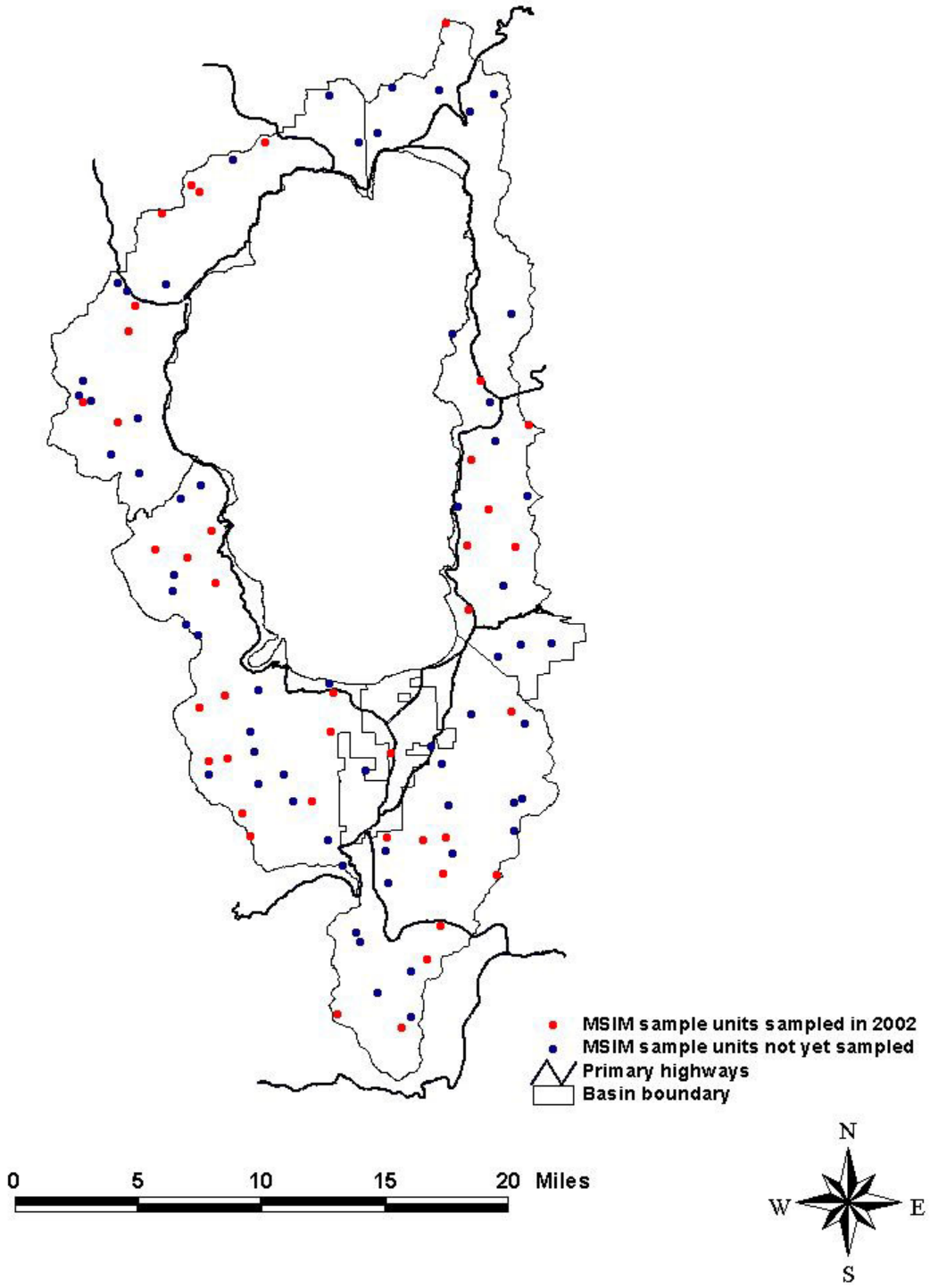

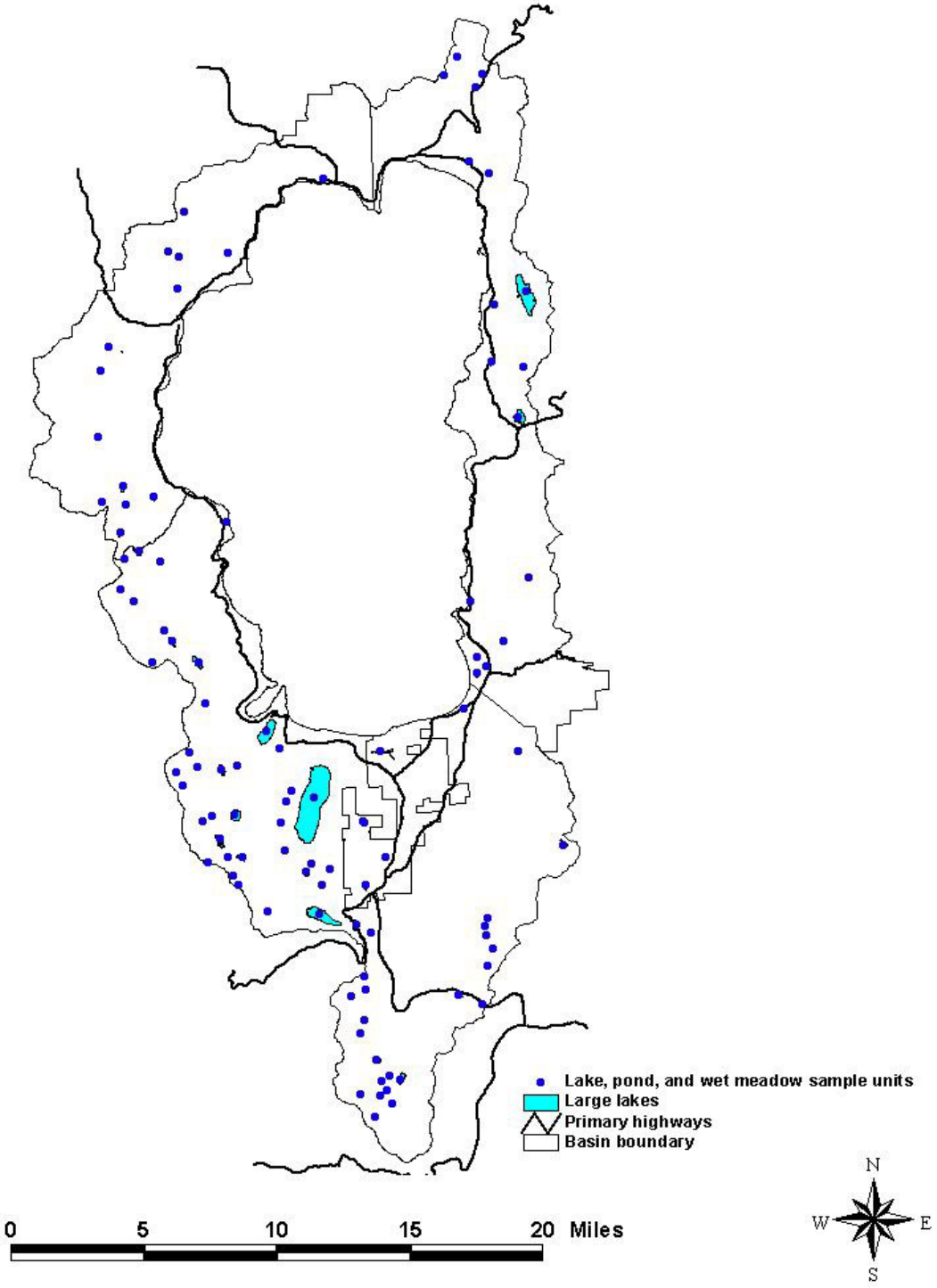
Lake, pond, and wet meadow sample units
Large lakes
Primary highways
Basin boundary
0
5
10
15
20 Miles
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