

## Appendix B-8

### LAKE TAHOE RESTORATION PROJECTS ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Project Name: Big Meadow Fire Regime Restoration Agency: USFS, LTBMU

Prepared by: Raul Sanchez Phone: 530.543.2679

EIP #: 10133.04 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.)

\$ 14,100 6 %

**2. FWS Consultation—Endangered Species Act**

\$ \_\_\_\_\_ %

**3. Direct Labor (Payroll) to Perform the Project**

\$ 23,500 10 %

**4. Project Equipment** (tools, software, specialized equipment, etc.)

\$ 2,350 1 %

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

\$ 2,350 1 %

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

\$ 1,175 0.5 %

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

\$ 165,675 69.5 %

**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)

\$ \_\_\_\_\_ %  
28,200 12 %

**9. Other Necessary Expenses** (See Appendix B-11)

\$ \_\_\_\_\_

**TOTAL:** \$ 235,000 100 %

**Estimated Key Milestone Dates:**

Milestones/Deliverables:	Date:
<b>Begin hand thinning operations</b>	<b>August 15, 2010</b>
<b>Complete hand thinning of first 50 acres</b>	<b>December 31, 2011</b>
<b>Start burning operations on thinned acres</b>	<b>June 01, 2012</b>
<b>Complete hand thinning of second 50 acres</b>	<b>December 31, 2012</b>
<b>Complete burning operations</b>	<b>December 31, 2015</b>
<b>Final Project Report</b>	<b>March 31, 2016</b>
<b>Final Completion Date (including project close-out)</b>	<b>July 31, 2016</b>

**ROUND 10 CAPITAL PROJECT NOMINATION FORM**  
**LAKE TAHOE FEDERAL SHARE EIP CAPITAL PROJECTS**  
**APPENDIX K**

**Project Name:** Big Meadow Watershed Fire Regime Restoration Project: **EIP# 10133.2**

**Federal Agency Sponsor:** USDA Forest Service  
**Phone Number:** 530.543.2679

**Contact:** Raul Sanchez

**Threshold: Water Quality, Soil Conservation, Vegetation, Fisheries, Wildlife**

**Threshold Standard:**

Water Quality

- 1- Tributary Water Quality
- 2- Runoff Water Quality
- 3- Turbidity Shallow

Soil Conservation

- 1- Natural Functioning SEZ

Vegetation

- 1- Relative Abundance and Pattern
- 2- Sensitive Vegetation
- 3- Late Seral/Pld Growth

Fisheries

- 1- Stream Habitat
- 2- In-Stream Flows

Wildlife

- 1- Special Interest Species
- 2- Habitat of Special Significance

**Email Address:** [rsanchez@fs.fed.us](mailto:rsanchez@fs.fed.us)

**Funding Requested in this Round:** \$235,000

**Total Project Cost:** \$840,000 (Rds7, 9, 10, 11)

**Federal Share EIP rationale** (select and describe appropriate EIP criteria from 5 items below – projects must meet one or more of these 5 items) :

1. Does the project involve federal land? **YES**
  - If so, is the federal land involved important to successful implementation of the project? **YES – This project would continue to occur solely on federal lands managed by the USFS Lake Tahoe Basin Management Unit.**
2. Does the EIP identify the federal funding for the EIP project (project #)? **YES**  
**The EIP identifies this project as EIP #10133.2**
3. Does the project involve the conservation of a federal or regional threatened, rare, endangered or special interest species? **YES**  
**This project would restore habitat for federally sensitive species and regional special interest species.**

4. Does the project involve an identified federal interest such as the detection and eradication of noxious aquatic or terrestrial invasive species? **NO**

5. Does the project otherwise directly support federal implementation of capital projects in the EIP (e.g. technical assistance, data management, resource inventories, etc.)? **YES**

**This project is being managed in cooperation with another EIP project #:4 – meadow restoration – where the results of that project will help guide the implementation for this project.**

**List Capital Focus Area(s) (as described in the 2006 Federal Vision):**

- Watershed and Habitat Management
- Forest Health

**Circle all that apply (must meet a minimum of one category):**

**1.** ----- → Continued emphasis on forest ecosystem health/fuels reduction projects considering the LTBMU Stewardship Fireshed Assessment and Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy.

**2.** ----- → Continued implementation of projects approved in Rounds 5 through 9 which implement the EIP. Project proposal should identify the applicable project(s) from Rounds 5 through 9 and clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 10.

**Round 7 – Big Meadow Restoration – 175,000**

**Round 9 – Big Meadow Restoration – 225,000**

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 source category being addressed and integrate into the project nomination the following TMDL considerations (\*see attached TMDL references – page 6). Source Category:

a) Describe whether, and how, the project demonstrates advanced, alternative, or innovative practices.

b) If project includes project level monitoring, describe ability of proposed monitoring strategy to contribute to the state of TMDL knowledge. Also describe if purpose of the capital project is to conduct data collection and/or analysis related to Lake Tahoe clarity.

c) Describe treatment approach for reducing pollutants, and/or measures to address connectivity between pollutant sources and Lake Tahoe or its tributaries. Identify target pollutants, and, to the degree feasible, provide quantitative estimates of project effectiveness at reducing pollutant loads (and/or a commitment to provide post-project estimates).

d) If appropriate, describe whether, and how, the project can be combined or coordinated with other TMDL implementation projects.

4. Control of aquatic invasive species and prevention and/or detection of new aquatic invasive species.

**Provide an overall Project Summary (maximum 200 words): (describe ONLY this Round 10 project):**

The Round 10 funding cycle will be used for 100 acres of tree thinning operations of even-age conifer stands in meadow(s), adjacent conifer forest, and aspen riparian corridors. Round 10 will also focus on initiating burning operations on hand piles (timing of burning is dependent on weather on dries of piles – which creates up to a two year lag between piling and burning the piles). Tree thinning activities may occur in the late summer or fall (outside of any established Limited Operating Period(s)). Some larger diameter trees would be cut near meadow fringes and aspen stands to achieve the desired stand densities.

**Is this project proposed as a multi-round project (previous or future)? (If yes, for previous or future projects describe in the Detailed Project Description below number of years or phases and which year the requested funding will cover).**

Yes, this project has been proposed as a multi-round project.

**Round 7**

The objective of this funding cycle was mainly intended to initiate and complete the NEPA analysis for this project, and the associated NEPA resource surveys and reports. The project scheduling was shifted back due to the Angora fire of 2007. Round seven funding cycle closing date is October 2014. Specific NEPA scheduling information will be mentioned in the project “readiness” section.

**Round 9**

Currently, the round nine funding cycle will cover approximately 100 acres of treatments in 2009 and 2010 and associated burning operations. The Round 9 final closeout date is April 2013.

**Round 10**

This Round 10 proposal will cover an additional 100 acres of treatments in 2011 and 2012 and associated burning operations. The Round 10 proposed final closeout date is July 2016.

**Round 11**

The round eleven proposal will target the remaining acres to be treated for the project (approximately 150 acres) (see Table 1 below in the detailed project description section) as well as any associated burning operations. The Round 11 proposed final closeout date is expected to be requested for December 2020.

**Detailed Project Description (focuses on what Round 10 is funding; list the number of years the requested funding will cover; briefly describe how this project links into previous and future projects).**

The following description from the project’s proposed action details the history of the project that has been associated with Rounds 7 (\$175,000) and 9 (\$225,000) and what is expected with Rounds 10 and 11.

It can be noted that costs are expected to rise; therefore requests for funding in Round 10 may likely produce less than expected acres, while funding requests for Round 11 may be increased to meet planned project acres.

The project proposes to remove lodgepole pine and white fir from stands in forest fringe areas, riparian corridors, aspen stands, and meadows using manual methods such as with chainsaws. Existing down logs that are suitable for wildlife will be retained in areas lacking down woody material. Live trees from 1 to 18 inches (dbh), dead trees from 1 to 24 inches (dbh), and some down logs would be removed. Selected logs that are ten to fifteen foot long and greater than 14 inches dbh may be left for downed woody debris, and the remainder of the tree would be piled for burning.

For hand thinning treatments, trees up to approximately 18” dbh would be thinned at variable spacing, based on achieving desired residual trees per acre and/or basal area: cross sectional areas of live wood, expressed as square foot per acre. The vegetation would then be hand piled and/or lopped and scattered in preparation for prescribed burning activities in openings to reduce scorching of adjacent conifer and riparian hardwoods. Under burning of residual vegetation in the uplands would occur in strips as needed to achieve the desired vegetation conditions.

Control fire lines would utilize existing roads and trails first, but additional fire lines may need to be constructed with hand tools and chainsaws. Project analysis will determine the extent, location, and miles of fire line construction. All constructed control fire lines would be rehabilitated after project completion following Best Management Practices and resource specific guidelines. Rehabilitation activities would include using hand crews and hand tools to rake in berms created from control lines, install water bars, and scatter downed wood where appropriate.

Approximately 50 acres would be thinned in 2009 and another 50 acres in 2010 using Round 9 funding. Round 10 funding would then treat an additional 50 acres in 2011 and another 50 acres in 2012. Round 11 funding would aim to treat the remaining acres (approximately 150acres).

**Table 1.** Total number of acres planned for thinning including the total percentage of acres planned for underburning, and the maximum size class of live and dead trees planned to be cut. Hand pile burning close to riparian corridors, aspen stands, and meadow treatment areas will occur within upland forest type near and/or upland forest in between these communities. Hand pile burning within riparian corridor and aspen stands is contingent upon the NEPA decision.

Treatment Type	Tree Thinning (acres)	Underburn (% acreage)	Live Tree Size (inches dbh)	Dead Tree Size (inches dbh)
Upland Forest	200	100	18	20
Montane Riparian	50	80-100	18	20
Aspen Stands	50	80-100	20	20
Meadows	50	80-100	20	20
<b>Total</b>	<b>350</b>			

The following is a summary of the guidelines for desired conditions to be implemented as part of the round ten funding cycle. Within Northern Goshawk Protected Activity Centers (PACs) and riparian corridors a minimum of 50% canopy cover would be retained in both overstory and understory trees. To reduce fuel ladder conditions, understory trees would be thinned to remove at least 50% canopy cover, but no trees exceeding 18 inches diameter would be thinned. Using the Forest Vegetation Simulator (FVS) model, a representative stand was chosen for simulating resulting conditions over

time with this thinning treatment. Post treatment fire types were modeled to be either a surface or conditional fire type. A surface fire type is considered a low intensity ground fire in which it is mainly the fuels on the ground that are consumed. A conditional fire type means that depending on the type of fire as it enters a stand would determine what type of fire that stand would have. If a fire enters a stand as a ground fire from an adjoining stand, it would stay a ground fire when it burns through the conditional fire type stand.

Within aspen stands and meadows, live and dead conifers would be thinned up to 20 inches diameter to reduce encroachment. Thinning in aspen stands and along meadow edges would include the removal of all or most conifers, leaving canopy covers of about 10% to 20%. Thinning treatments would enhance growth of aspen trees and other meadow vegetation. Post treatment fire types were modeled using FVS to be a surface fire type.

Trees that are greater than 20 inches diameter would be retained near meadow fringes and aspen stands to maintain desired stand densities. Slash would then be hand piled in preparation for prescribed burning activities. The project leader and/or the wildlife specialist will be working with implementers to ensure appropriate levels of dead and down wood and snags remain. The following time line is a schedule of hand thinning and possibly burning operations dependent on site specific burning conditions:

- **2011-** Continue tree thinning.
- **2012-**Continue tree thinning; burning operations may occur.
- **2014-**Continue tree thinning and burning operations.
- **2015-**Continue tree thinning (if needed); burning operations continue.
- **2016-**Close out this round of funding project.

**Describe the specific goals and objectives of the project and describe how fulfilling those objectives will contribute to the achievement of one more environmental thresholds (air quality, water quality, soil conservation, vegetation, fisheries, wildlife, scenic, noise, recreation).**

The goals of this project are to move both old forest and meadow ecosystems toward a desired condition. Those conditions are based on an estimate of the natural trajectory that the vegetation in the watershed would have taken, had the natural fire regime not been altered.

If these projects are implemented, we anticipate that the ecological status of first and second growth forests will develop into late seral conditions, which include multiple layers, openings, large down material, and released conifers which will grow into vigorous large diameter trees. The ecological status of meadows is also likely to shift to late seral, particularly where a more natural fire regime is reestablished in meadows where hydrologic function is recovering and the meadow is restored to a properly functioning condition.

In summary, the end result will be forests, meadows, aspen stands, and riparian corridors with a high similarity to the potential natural community. In forest areas, a diversity of age classes of conifers and under-story vegetation will be restored. In meadows and the recovery of a diverse assemblage of herbaceous grasses and hardwood shrubs will occur.

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

The Project is being designed to enhance wildlife habitat adjacent to the meadows and aspen stands in

the watershed, and to reintroduce fire into the ecosystems to sustain a desirable environment for species of interest in the watershed. The wildlife threshold is focused on enhancing wildlife habitat desirable for Special Interest Species including northern goshawk, which is a Forest Sensitive species and it is a TRPA special interest species. This project is specifically being designed to improve and enhance habitat for special interest species. The Big Meadow Fire Regime Restoration Project will accomplish the following:

- Restore historic, fire-adapted meadow communities in the watershed to conditions approximating pre-European conditions.
- Increase the diversity and forage quality of the meadow plant community such that it is composed of a diverse assemblage of herbaceous grasses and hardwood shrubs
- Restore historic, fire-adapted old-growth forest community complexes in the Big Meadow watershed to conditions that approximate those that existed prior to the implementation of total fire suppression and other Euro-American land use practices. Restoration will include forest thinning of dense second growth conifers, removing ladder fuels and the re-introduction of periodic, low-intensity fires.

With restoration we anticipate to:

- Reduce the current high risk of destructive, high-intensity fires.
- Produce a forest composed of a diversity of age classes of conifers and under-story vegetation.
- Improve the health of the old-growth trees.
- Enhance, improve and expand habitat for spotted owl, northern goshawk, and mule deer.
- Improve the health and extent of the aspen communities by re-introducing fire to prevent the encroachment of conifer.

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

The Lake Tahoe Basin Management Unit (LTBMU) of the U.S. Forest Service (USFS) completed an Ecosystem Assessment Report (EAR) for the Big Meadow Creek Watershed. The analysis showed that portions of the forest ecosystems and the meadow ecosystems are at risk primarily from historic fire suppression. As the Big Meadow Fire Regime Restoration Project continues through the environmental analysis process, the Forest Service will be lead agency for the NEPA process. The Forest Service will work closely with the Tahoe Regional Planning Agency (TRPA) and Lahontan Regional Water Quality Control Board (LRWQCB) to meet applicable regulations. The Project Initiation Letter (PIL) is completed, and public scoping comment period began on November 3, 2008 for a 30 day comment period ending December 3, 2008. A final decision is anticipated to occur in the summer of 2009. Contingent upon the final decision for the project, the Forest Service interdisciplinary team will develop an implementation plan for specific treatments, beginning in the fall of 2009.

**Describe partnerships for this project. (if applicable, project should identify committed/secured partner funding and/or other partner contributions (describe) and how it is integrated into the project):**

The reestablishment of a natural fire regime is well supported by the Washoe Tribe. The Big Meadow areas are a traditional area used for plant and cultivation for the Washoe Tribe. The tribe managed the meadow ecosystem for years using sustainable practices such as fire and cultivation. In order to support resource management for this project, the reintroduction of fire into meadows is being collaborated with the tribe as it may be contentious in nature regarding the use of fire as a management tool in sensitive

habitats. The Washoe Tribe would like to see the following results from meadow restoration efforts:

- Decrease in Lodgepole Pine invasion stands and encroachments
- Increase in culturally significant plants historically used and gathered in the area
- Increased plant diversity
- Restore native vegetation
- Aspen regeneration
- Increase in plant cultivation opportunities
- Use of fire to promote native vegetation

A vegetation assessment summary including a letter of support from the Washoe Tribe dated December 6, 2007 is located at the LTBMU project folder(s). The Big Meadow watershed project anticipates integrating aspects of these recommendations into project design.

The Lake Tahoe Basin Management is also in the process of developing a Basin wide Meadow Restoration (EIP # 4; F086) study, which will help us determine how meadow forbs, grasses, and lodgepole pine respond to wildland fire in the Basin. The study is focused on using a combination of bioclimatic niche modeling, historical aerial photo mapping, and field prescribed burn experiments, we will gain substantial information for controlling and managing invasion in meadows, focusing on two species of special concern: (1) the noxious exotic annual plant cheatgrass (*Bromus tectorum*) and (2) the native conifer tree lodgepole pine (*Pinus contorta*). The proposed study is also fundamental for developing meadow management plans for the Lake Tahoe Basin (LTB), and continues our long-term efforts to answer basic biological and ecological questions about meadow and fen habitats in the LTB (Safford et al 2007).

**Describe the estimated environmental risks from unintended consequences of the proposed project:**

The Big Meadow Creek Watershed contains a diverse range of wildlife habitats with high fuels loads up drainages in meadow complexes and near Sensitive Environmental Zones (SEZ's). The dramatic increase of conifer encroachment in these unique environments over the last six decades has created a situation for severe fire intensities. If no management is to occur in the watershed, the risk of potential habitat loss due to a stand replacing wildland fire in the watershed can occur. A stand-replacing wildland fire may convert the existing habitat type resulting in a new colonization of early seral species associated with high severity burns. Basically, there will be a different type of species that may utilize the burned area for food, cover, water, and breeding. Forage and breeding opportunities for sensitive wildlife species due to a stand replacing wildland fire could create an undesirable environment for species currently utilizing these habitats in the watershed.

In addition to habitat type conversion due to a stand replacing fire, hydrophobic soils created by a high wildland fire severity can result in a higher rate of erosion in the watershed. Soil particulates may end up in the drainages where water currently gets infiltrated into the existing soil(s) prior to reaching the drainages.

A potential loss of containment of the fire during burning operations is a certain level of risk taken during burning operations. A burn plan will be developed to address any potential risk of the fire to burn outside of the prescription, and it will address all mitigations measures for this project.

The visual quality of a prescribed burn is not also favorable for recreational opportunities in the area, and generally, a burn is not visual pleasing to the eye for some members of the public who

enjoy recreating in the area. The “burned” vegetation will recover in the short term (1-2 years) and eventually grow into a vigorous healthy stand.

Although the habitat is being improved, habitat enhancement projects may not always attract focal species to the sight, and wildlife species do not always disperse into to a new site and successfully reproduce. However, the loss of succulent plants and forbs used by migratory birds that depend upon aspen stands and meadows for forage and breeding opportunities maybe lost if no management is done. This project focuses on improving these areas.

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

The monitoring to be implemented in this proposal addresses short-term implementation and effectiveness. Long-term project effectiveness monitoring (>3 yrs post project) for all LTBMU projects and programs will be addressed through either 1) The Forest Above Project level monitoring program funded through the USFS SNPLMA NEPA Resources Surveys project, 2) LTBMU base appropriated funds for Forest Plan Monitoring), or 3)TSC coordinated research projects.

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

Pre-project monitoring data has been collected in the Big Meadow Watershed to integrate into the implementation monitoring post-project phase, to assess if the project was implemented according to plan. Effectiveness monitoring will use both before-and-after comparisons and trend analysis to assess the success of the restoration activities. Monitoring will be conducted to address three general questions to determine the success of the project.

*Implementation Monitoring*

- Was the project constructed according to design?

*Effectiveness Monitoring*

- What are short term (less than 10 years) impacts from project implementation as it relates to hydrology and/or vegetation?
- To what degree was the project successful in achieving the goals of improving riparian and meadow habitat, and enhancing wildlife community richness and health?

**2). 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? (Note, a detailed monitoring plan and/or research plan is not required, however, enough detail must be provided to allow someone that is unfamiliar with the project to understand and evaluate the proposed methods and strategies)**

The monitoring approach will involve review of the analysis by adaptive management experts to determine what suite of indicators would be appropriate for tracking the recovery of old-growth forest and meadow ecosystems. Monitoring protocols will be designed to track the change, maintenance, and recovery of old forest and meadow seral status. Potential monitoring tools are:

- a. Photo points to document change in species composition.
- b. Vegetation trend transects
- c. Survey plots

**3). Describe whether the monitoring or research associated with this project fits into or is part of a larger monitoring or research program**

This project monitoring is part of the Project Level LTBMU 5-year Plan, which outlines the strategy for monitoring projects within the various program areas within the LTBMU. The LTBMU project level monitoring strategy is to determine the success of LTBMU projects in meeting design features, project specifications, and design measures (implementation monitoring), and when possible, whether projects were effective in achieving short term environmental goals.

**4). Describe how information from the monitoring and/or research will be used to improve the continued performance of the proposed project or future similar projects**

Project-level monitoring results will be used in the short term to determine whether maintenance or corrective actions are needed to meet design goals and specifications. Project-level monitoring results will be periodically assessed in a comprehensive evaluation of results to evaluate overall success of design approaches with the Biological Sciences program.

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

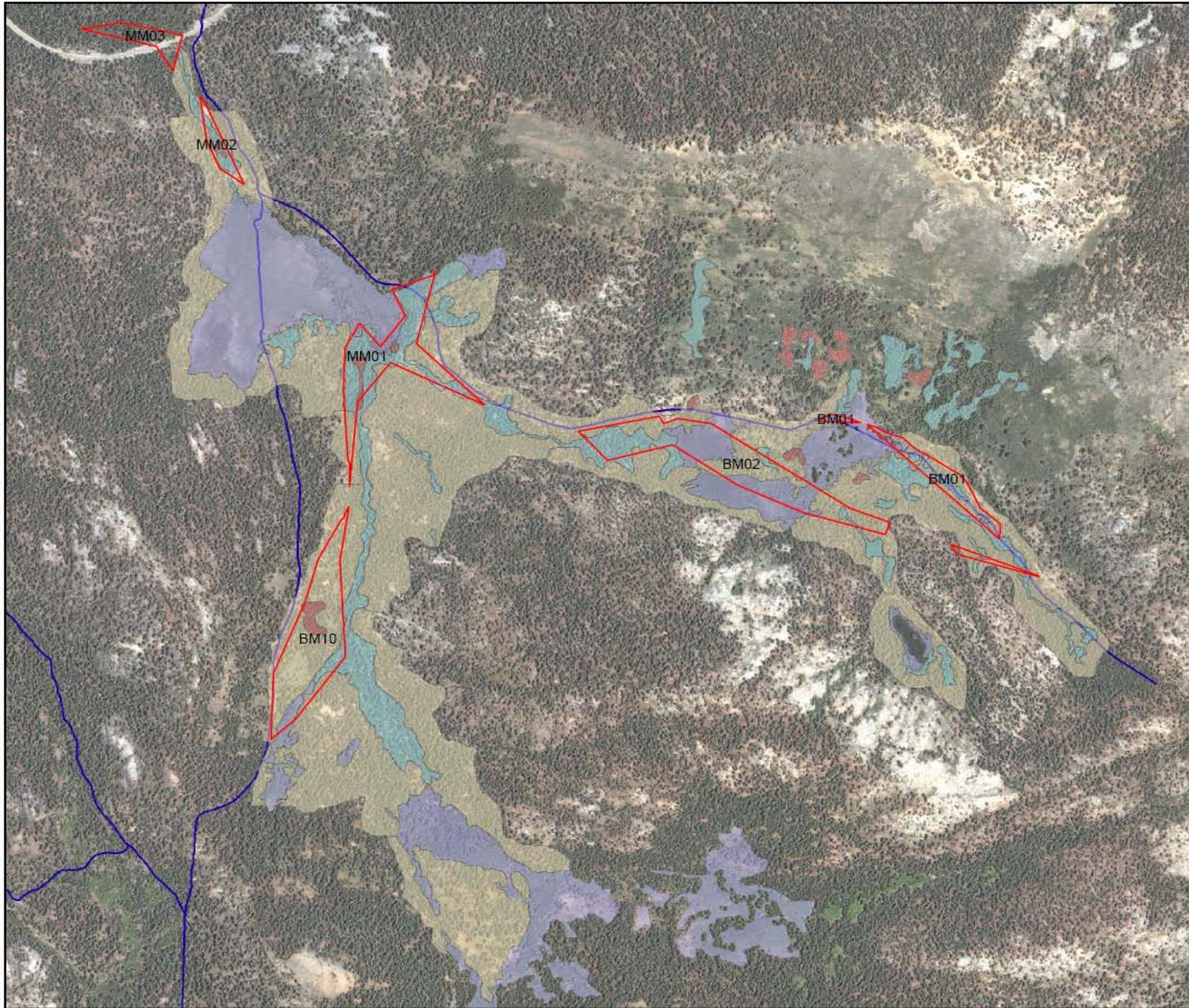
This proposal will remain posted on LTBMU's "SNPLMA website" and interested parties will use the project contact information supplied herein to communicate directly with the LTBMU contact. Significant interim accomplishments may be reported out as they occur, by posting to LTBMU's website. Discussion of project particulars may periodically occur during meetings of TSACC (Tahoe Science Agency Coordinating Committee), as well.

Monitoring activities and results will be summarized in the LTBMU Forest Monitoring Program Annual Report. Project and program specific monitoring reports will be produced within one to five years after project implementation, depending on the variables being monitored and the questions to be answered. In addition the LTBMU will periodically produce a Comprehensive Five Year Evaluation Report as part of the Forest Plan Monitoring Requirement. All monitoring reports will be posted on the LTBMU external website. The audiences (public, agencies, and research community) will be informed through appropriate email lists, and public and interagency meetings.

**If applicable, include an 8 ½ X 11 map depicting the project.  
(See next page)**



# Big Meadow Treatment Types



0.2 0.1 0 0.2 Miles



## Legend

### Proposed Treatment Areas (640 acres)

-  Upland Forest (325 acres)
-  Aspen
-  Meadows (155 acres)
-  Montane Riparian (80 acres)
-  Aspen Stand ID (80 acres)



The Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify or replace GIS products without notification.

For more information, contact: Lake Tahoe Basin Management Unit  
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