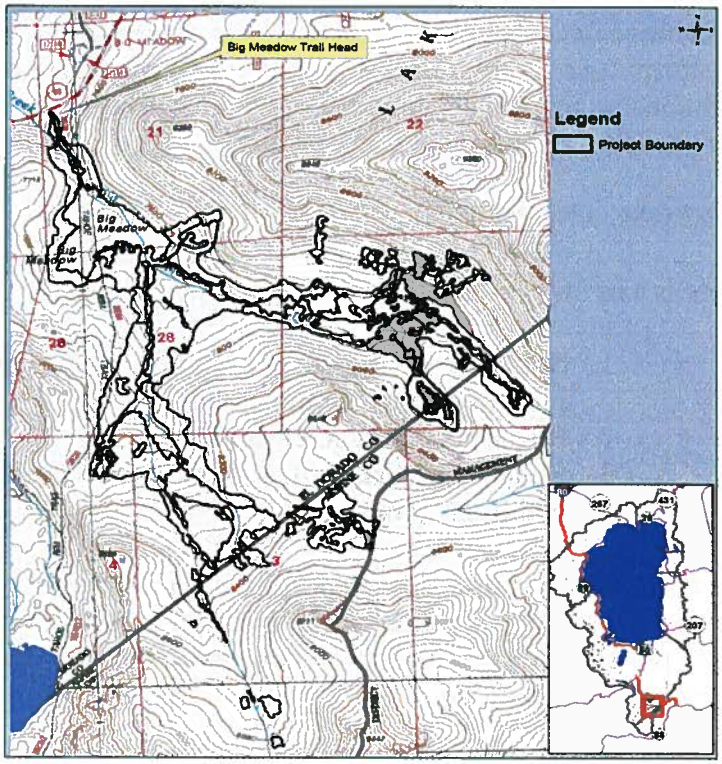
USDA Forest Service
Pacific Southwest Region
Lake Tahoe Basin Management Unit

Decision Memo for Implementation of the Big Meadow Creek Watershed Fire Regime Restoration El Dorado County, California

BACKGROUND:

The Big Meadow Creek Watershed Fire Regime Restoration Project is located within the Big Meadow Creek Watershed of the Lake Tahoe Basin Management Unit (LTBMU), approximately ten miles south of Lake Tahoe in El Dorado and Alpine Counties, California. Access to the project area is from Highway 89 at the Big Meadow Trailhead.



The history of logging, livestock grazing, and the cessation of burning and fire suppression has degraded the ecological health and function of meadows, aspen stands, and riparian corridors in the Big Meadow Creek Watershed. Prior to fire suppression, the Washoe Native American Indian Tribe deliberately used fire as a tool to influence vegetative structure. Burning and cultivation in the meadows and meadow edges encouraged the growth of native desired plant and tree species such as American bistort, willow, and quaking Aspen. This management tool benefits a variety of terrestrial and insect species potentially utilizing these unique habitats such as northern goshawk, mule deer, mountain beaver, butterflies, and song birds. Sheep and cattle grazing, occurring after European settlement, stunted natural regeneration of the meadow and riparian vegetation. Although grazing activities no longer occur in the watershed, impact of long term grazing pressure is still evident. The result of logging practices impacted forest structure and composition

of tree species evident along meadow edges and riparian corridors. Lack of fire has created a dense even-aged monoculture conifer forest susceptible to large scale fires, insect infestation and drought in the Big Meadow Creek Watershed.

The encroachment of conifer into the meadows and aspen communities has negative consequences for these ecosystems. Dense stands of conifers place stress on the entire network of communities (forest, meadow, aspen, etc). Intense competition for sunlight, nutrients, and water results from this excessively dense conifer growth, and may eventually lead to a reduction or elimination of aspen stands and meadows, as well as stress-induced forest die-off and stand-replacing fire.

Additionally, the excessive numbers of trees use water that would otherwise occur as ground water and/or flow as surface water to the meadows where it would be stored as ground water. Excessive numbers of trees lowers the water table, making water unavailable for much of the wet meadow plant community, and as base flow for the stream (meaning the stream is more affected by dry periods so stream flow is attenuated or even ceases to flow in late summer or fall or during drought periods). By thinning the conifers to a sustainable density, we create more healthy and vigorous forest, meadow, and aspen communities that are more resistant to drought, fire, and insect infestation. More water makes it to the meadows; likely raising the water table and making it more available to the meadow and riparian plant communities that rely upon it, and supporting the stream base flow for longer periods during the late season or dry periods. Additionally, many wildlife species rely on these riparian communities, which in turn rely upon having sufficient water available.

PURPOSE AND NEED:

There is a need to re-introduce fire, and in some areas, thin trees in order to:

1. Stimulate the growth of desirable native vegetation to sustain desirable plant and animal communities.
2. Reduce conifer encroachment.
3. Reduce fuel loading to reduce the potential for high severity wildfires within the project area.

The re-introduction of fire is intended to sustain favorable conditions for montane meadow ecosystems, riparian corridors, and aspen stands (all of which evolved with fire) and to provide for a mechanism of recovery of the Big Meadow Creek watershed to a more desirable condition.

There is also a need to reduce the risk of adverse wildfires by treating hazardous fuels within the project area. Fuels have been allowed to accumulate in the Big Meadow Creek Watershed and now they present a wildfire hazard to the plant and animal species which rely on these ecosystems.

Needs identified that will not be pursued as a part of this project

A section of the Tahoe Rim Trail goes through the project area. This section has been identified as needing improvement. This project is focused on habitat restoration and will not include trails.

PROPOSED ACTION:

Hand Thin Conifer Stands

Remove conifer from meadows, aspen stands, riparian corridors and the adjacent uplands on approximately 640 acres using manual methods. It is anticipated to treat as many acres as possible starting in 2009 until completion of thinning in 2015 depending on available funding. Initial tree thinning in 2009 may be followed by pile burning in 2011, which is anticipated to be completed by 2020 (see p.9 for sequencing through 2020). Initiation of prescribed burning within designated areas not requiring pile burning such as meadows may occur in the fall of 2009, when weather conditions are desirable for burning operations. Tree cutting with no hand piling known as lop and scatter methods may be utilized in designated areas within aspen stands, meadows, riparian corridors, and upland Forests to meet the desired stand densities. Tree thinning in designated areas may occur in the summer, late summer, and/or fall when outside established Limited Operating Period(s). Tree thinning activities may take up to two to three months or longer each year to complete.

Conifer removal would occur in:

1. Upland Forest (325 acres)
2. Montane Riparian (80 acres)
3. Aspen Stands (80 acres)
4. Meadows (155 acres)

The estimated acres of manual treatment in the proposed action are the maximum that would be considered for removal. Actual figures may be less when implemented, but would not exceed the stated acres.

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 and would retain 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 crown fire type. A surface fire type is considered a low intensity ground fire in which it is mainly the fuels on the ground that is consumed. A conditional crown 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 crown fire type stand.

Within aspen stands and meadows, live and dead trees would be removed and/or cut to reduce conifer encroachment. Thinning in aspen stands, meadows 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. Slash would then be hand piled in preparation for prescribed burning activities. Placement of slash piles and pile burning in Stream Environment Zones (SEZ's) will follow vegetation and fire design features located in the design criteria section below. 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.

Table 1. This table is meant to summarize the 4 treatment types. It displays acreage of tree thinning, acreage of underburning (in percent), and maximum live and dead tree sizes 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 will follow design features as mentioned in the project design features section. Underburn exclusions in these areas is why acreage of underburn in montane riparian, aspen stands, and meadows is less than 100%.

Treatment Type	Tree Thinning (acres)	Underburn (% acreage)	Maximum Live Tree Cut (inches dbh)	Maximum Dead Tree Cut (inches dbh)
Upland Forest	325	100	18	20
Montane Riparian	80	80-100	18	20
Aspen Stands	80	80-100	n/a	n/a
Meadows	155	80-100	30	30
Total	**640**			

Upland Forest and Montane Riparian Treatments

The prescription for hand thinning treatments includes understory thinning of trees up to 18 inches dbh based on desired residual trees per acre and average spacing (approximately 70 trees per acre and 25 ft. between residual tree boles). Hand thinned stand treatments include hand cutting of trees along with hand piling of fuels. Live trees less than 18 inch dbh would be felled; dead trees up to 20 inches dbh would be felled, while retaining a minimum of 3 of the largest snags per acre (6 snags/ac in goshawk Protected Activity Center (PAC) in the largest diameter classes. Hand treatments may need future follow-up treatments (10 to 20 years) to remove a portion of the larger (greater than 14 inches dbh) understory trees in order to achieve the desired stand densities.

Photo 1. A stand of small sized Conifer encroachment occurring near a meadow.

Photo 2. A dense stand of dead and live conifer near Big Meadow negatively influences the health and ecological integrity of the stand adjacent to the meadow complex.

Aspen Treatments

To promote aspen regeneration, tree removal would not be constrained by an upper diameter limit. In most cases, trees designated for removal would be smaller than 30 inches dbh. The retention of large, late seral trees that existed prior to Comstock-era logging and/or wildland fire suppression in the Lake Tahoe Basin will be evaluated based on criteria found in the design features section. The prescription for hand thinning in aspen is to thin all live conifer from aspen stands on average of 20 inches dbh resulting in residual trees consisting of approximately 20 aspen trees per acre of various size classes and about 30 lodgepole pine per acre with diameters greater than 14 inches. All dead trees up to 20 inches dbh will be felled, while retaining a minimum of 6 snags per acre of various size classes of which 3 will be greater than 15 inches dbh (or of the largest size classes available) for wildlife habitat. Removal of dead and/or live trees up to 30 inches will be determined on site specific bases.

Photo 3. A stand of aspen near a trail in the watershed is being encroached by conifer.

Photo 4. Conifer encroachment with aspen stands adjacent to a meadow.

Meadows Treatments

To promote meadow regeneration, tree removal would not be constrained by an upper diameter limit. In most cases, trees designated for removal would be smaller than 30 inches dbh. Removal of dead and/or live trees up to 30 inches will be determined on a site specific basis. The retention of large, late seral trees that existed prior to Comstock-era logging and/or wildland fire suppression in the Lake Tahoe Basin will be evaluated based on criteria found in the design features section (Vegetation #1). The prescription for hand thinning in meadows is to thin all conifers from meadows on average of 20 inches dbh. All dead trees up to 7 inches dbh will be felled. All dead trees between 7 inches and 20 inches dbh will be felled, while retaining a minimum of 6 snags per acre of various size classes of which 3 will be greater than 15 inches dbh (or of the largest size classes available) for wildlife habitat.

Photo 5. Conifer encroachment within meadow will reduce meadow size and influence vegetation community type.

Photo 6. Conifer encroachment may eventually eliminate this meadow that provides habitat for a diversity of wildlife species.

Prescribed Burning

The actual amount of acres planned for prescribed burning will vary each year depending on the readiness of the vegetation treatment areas. Initial tree thinning in 2009 may be followed by pile burning in 2011. Pile burning and/or broadcast burning would be used to reduce fuel loads to 15 tons per acre. Pile burning would occur at least one to two years after piling to allow material to cure. Initiation of prescribed burning within designated areas not requiring pile burning such as meadows may occur in the fall of 2009, when weather conditions are desirable for burning operations. Follow-up burning operations will occur eight to ten years from the initial burning operations treating approximately 50 to 100 acres per year. Burning operations are anticipated to be completed in 2020. Broadcast burning would consist of:

1. Pile Burning – Pile burning will be completed in site specific designated treatment units and types based on the design features of this project to allow for follow-up under burning on approximately 500 acres. No more than 30% of any SEZ acre may be occupied with piles. No more than 15% of any SEZ acre may be burned within SEZ units each year.

2. Broadcast and Underburning – It is anticipated broadcast burning would occur in 80 to 100 percent of the four treatment types (640 acres) approximately 155 acres of meadow complex, and allow fire to creep into the aspen stands (about 80acres) and riparian corridors (about 80 acres). The remainder of the upland forest would also be burned. See Figure 1 for a map of treatment areas.

Five different burning operations may occur depending on the site condition and site preparation for one or a combination of the following burning methods:

- Meadow ecosystem under burn in the late summer to early fall.
- Upland forest burn of piles.
- Upland forest burn following a pile burn.
- Upland forest burn of lop and scattered units.
- Upland underburn following no treatments.

Aspen stands will be hand thinned. Piles would be burned in addition to the understory vegetation. Riparian associated plant and forbs species will be burned along with the understory burning thus allowing for a broadcast burn and creeping of the fire into the aspen stands. Control lines will be made at the fire perimeter. Natural features, rock outcroppings, and trails will be used as fire lines where feasible.

Upon completion of pile burning, one prescribed fire technique planned for the pretreated burned areas may include hand ignition with strip head fire from higher to lower elevation including aspen stands, riparian corridor, and meadows. Fire ignition begins at the top of unit gradually working down slope to the end of the unit.

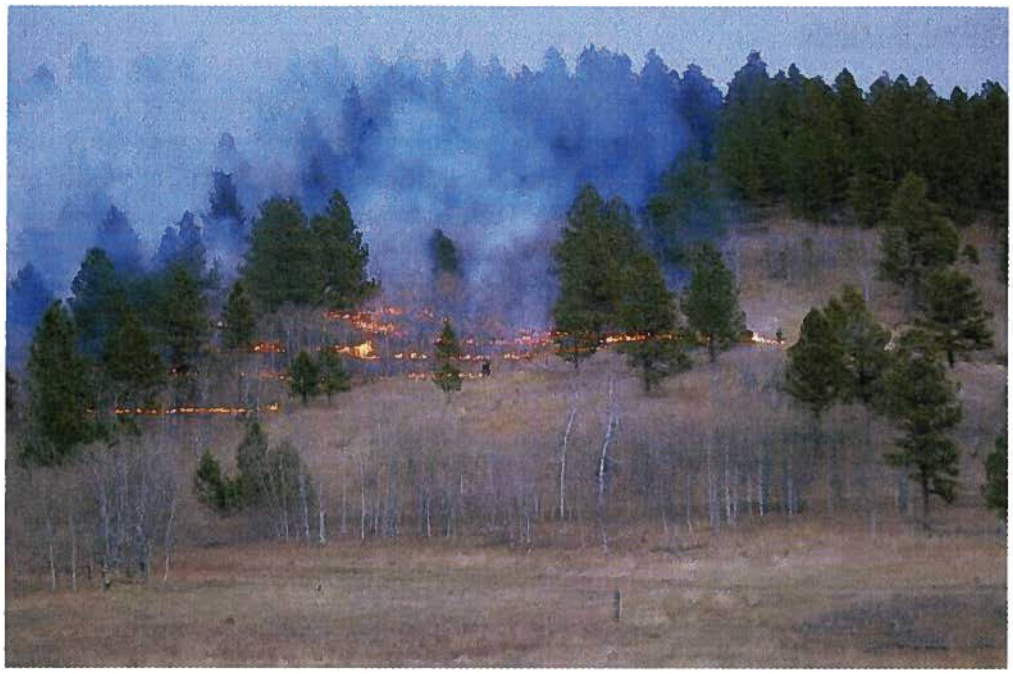


Photo 7. Example of a strip head broadcast fire burn technique within meadow, aspen stand, and adjacent upland forest.

Trails would be utilized for control lines as available. Control lines are a comprehensive term for all constructed or natural fire barriers and treated edges used to control a fire. Control lines would be constructed with hand tools and no mechanized equipment would be used for this project except for chainsaws. All constructed control lines will be completely rehabilitated as soon as possible after they serve their intended purpose and not later than the end of each burning season. 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.

In order to meet state regulations for air quality and health and safety, project underburning would take place during permitted burn days, as required by California Air Resources Board, CARB. Peak summer months of prescribed burning may not occur because fuel and weather conditions make prescribed fires difficult to control. Burning may occur according to the conditions described in the burn plan at any time of year typically in the fall through the late winter. In addition, seasonal burning may occur to meet resource objectives in the spring and summer months. There may be some level of mortality allowed to meet desired stand densities and snag levels especially near meadows and aspen stands. Permissible mortality of residual trees may be killed due to prescribed fire operations. The high elevation treatment areas are likely to only be burned in the fall because winter snow pack and annual precipitation rates tend to make conditions unfeasible for burning in the winter. In order to meet resource objectives, burning operations may occur at any given time of the year if site conditions are favorable for burning operations. Burning operations will not occur if there is an established limited operating period in the treatment unit.

PROJECT DESIGN FEATURES:

Project design features are elements of the project design that are applied in treatment areas. These features were developed to reduce or avoid potentially environmental effects of the proposed action on forest resources.

General Design Features

Hydrology/Soil

1. Implement water quality protection Best Management Practices (BMPs) during and following project activities. Applicable BMPs are listed in the project files and can be made available upon request (Project Record Document L-8).

Air Quality:

1. A burn plan would be prepared and reviewed by the Lake Tahoe Basin Management Unit Forest Fire Management Officer prior to implementation of any prescribed burning. This burn plan includes a Smoke Management Plan which is the basis for obtaining a burn permit from the El Dorado County Air Quality Board. In order to minimize the effects of prescribed burning on air quality; monitoring, mitigation and contingency measures will be identified in the Smoke Management Plan. Desirable meteorological conditions such as favorable mixing layer and transport wind speeds are required in the Smoke Management Plan to facilitate venting and dispersion of smoke from populated areas.

Recreation:

1. Provide advanced notice to the public to ensure that the public is aware of project activities. Post signs in project area near public access points to highlight the proposed action, ecological and stewardship benefits, and impacts to public access.

2. Initiate temporary forest closure only during management activity period to ensure public safety. Closure would be as limited as possible to reduce restrictions to public access.

3. Fell any hazard trees near National Forest System Roads and/or Trails that result from underburning.

4. Thinning operations in high recreational use areas would be scheduled during non-peak use times and the public would be notified in advance.

Scenic Resources:

1. Limit cut stump height to 6", as measured from uphill side.

2. Maintain largest live, non-beetle affected trees within upland treatment areas to a level consistent with desired forest density standards, taking into account future growth patterns and accumulation of ground fuels.

3. Maintain the maximum number of snags, consistent with wildlife objectives that do not pose a beetle infestation risk to live trees remaining outside restored meadow.

4. Locate burn piles a minimum of 50 foot buffer from the Tahoe Rim trail south of Big Meadow to Round Lake on both sides of the Tahoe Rim Trail. Lop and slash material within this 50 foot buffer would be hand removed outside of the buffer and piled.

5. Avoid fire ignition operation in the area flagged by Forest recreation staff or landscape architect near the Tahoe Rim Trail in the north section of Big Meadow Proper.

Heritage Resources:

1. Flag and avoid identified cultural resource areas within the Area of Potential Effect.

2. In the event that any new sites or artifacts are discovered during project implementation, notify the Forest Archaeologist and implement the procedures in accordance with the 36 CFR Part 800.

Wildlife and Fish:

1. Retain some mid- and large diameter live trees that are currently in decline, have substantial wood defect, or that have desirable characteristics (teakettle branches, large diameter broken top, large cavities in the bole) to serve as future replacement snags and to provide nesting structure (SNFPA 51.11).

2. Implement limited operating periods (LOPs) to protect the breeding activities of LTBMU federally-listed and sensitive species as determined by a LTBMU wildlife biologist. The Big Meadow Creek Watershed and the Ben Meadows Watershed are bisected by a ridge top separating one northern goshawk Protected Activity Center (PAC) into two watersheds. There are no known northern goshawk nest sites located in the Big Meadow Creek Watershed. The seven acres planned for treatment in a PAC is in an area of dense small diameter trees adjacent to a meadow edge mainly encroaching into the meadow complex within the Big Meadow Creek Watershed.

- An LOP from February 15 to September 15 will apply to all project activities, except for early season burning, within the seven acres of northern goshawk PAC.

3. Leave larger diameter trees (i.e, large coarse woody debris) on the ground (including recently felled trees) to the extent possible without exceeding a desired fuel load of 15 tons/ac including goshawk PACs.

4. Within PACs, maintain large snag (> 15" dbh) densities > 3/acre and down woody material levels at 15 tons/acre where possible.

Vegetation

1. In order to restore aspen communities, remove encroaching conifers up to the following distances: (1) 1 ½ times the height of aspen trees in the stand (the maximum extent of lateral aspen roots), (2) the distance required to prevent remaining, adjacent conifers from shading the aspen stand and suppressing aspen regeneration, or (3) up to 100 feet.

2. To promote aspen regeneration and meadow regeneration, tree removal would not be constrained by an upper diameter limit. In most cases, trees designated for removal would be smaller than 30 inches dbh. The retention of large, late seral trees that existed prior to Comstock-era logging and/or wildland fire suppression in the Lake Tahoe Basin will be evaluated as follows:
   a. Tree species exhibiting resistance to White Pine Blister would be retained.
   b. Trees exhibiting old tree characteristics would be retained. Old tree characteristics are defined as follows: 1) mature to over-mature age class; 2) the tree crown is round to flat in shape; 3) tree bark plates are very wide or long; and 4) branches are drooping, gnarled, and crooked. These characteristics are equivalent to Dunnings tree classes 4, 5, and 7.
   c. Trees not exhibiting old tree characteristics may be removed unless a silviculturist or similarly qualified staff identifies that:
      i. The species of tree to be removed is under-represented within the surrounding stand (e.g. the tree to be removed is one of very few or the only representative of a desired species, such as sugar pine, in the area of the treatment stand).
      ii. Old trees are absent or under-represented and would have occurred in the stand naturally, necessitating retention of the tree(s) in question to develop an old tree cohort.
   d. Individual trees may be cored to determine tree-age when necessary to help determine old tree characteristics, although utilization of this more costly and labor-intensive approach is expected to occur as an exception rather than the rule.
   e. Site-specific treatment prescriptions would be developed for each aspen stand and/or meadow complex prior to implementation.

3. SEZs would be delineated in each treatment area prior to implementation using SEZ indicators. SEZs would be identified as areas with at least one key indicator or three secondary indicators.
    a. Key indicators are 1) evidence of surface water flow, including perennial, ephemeral and intermittent streams, but not including rills or man-made channels; 2) primary riparian vegetation (TRPA Section 37.3 definition); 3) near-surface ground water; 4) lakes or ponds; 5) Beach (Be) soils; or 6) one of the following alluvial soils: Elmira loamy coarse sand, wet variant (EV) or Marsh (Mh).
    b. Secondary indicators are 1) designated floodplains; 2) ground water between 20-40 inches; 3) secondary riparian vegetation (TRPA Section 37.3 definition); or 4) one of the following alluvial soils: loamy alluvial land (Lo), Celio gravelly loamy coarse sand (Co), or gravelly alluvial land (Gr).

4. If aspen removal (promoting root stimulation and stand regeneration) is required to achieve restoration objectives, up to 90 percent of existing aspen basal area may be removed. However, the intent is to remove the minimum amount (expected to be 25% or less in most cases) of basal area necessary to achieve restoration objectives.

5. Trees would be felled away from watercourses.

6. Storage of fuels or refueling would not be allowed in Riparian Conservation Areas or Critical Aquatic Refuges.

Botany:

1. All LTBMU sensitive plant and special interest plant areas identified within the Big Meadow Watershed Fire Regime Restoration project area will be flagged and avoided during project implementation.

2. Fen areas with sensitive and special interest mosses within the proposed project footprint will be flagged and avoided. Hand treatments of conifers or the use of prescribed fire may occur within the immediate periphery of these areas to provide an opportunity to enhance fen ecosystems.

3. Prior to implementation, survey for sensitive plants, communities and noxious weeds. If any new occurrences are identified, additional design features and mitigations will be created.

4. Do not site staging areas for equipment, materials, or crews in identified weed infested areas.

5. Notify the LTBMU Noxious Weed Coordinator prior to project implementation so known weed infestations that are within the project area or along travel routes near the project area will be hand treated by pulling or "flagged and avoided" according to the species present and project constraints.

Fire

1. Design features for burning piles
    a. Maintain a 50 foot buffer (no piling or burning) along perennial or intermittent streams, lakes, bogs, and fens.
        i. Except where sensitive plant occurrences, fens, and the noxious weeds whitetop and cheatgrass are present, allow for fire to creep between piles and into this buffer, maintaining flame lengths of less than two feet in height.
    b. Piles will be placed in a non-linear pattern in each unit where possible.
    c. Burning piles in aspen will be avoided when possible to minimize risk of mortality to aspen roots and trees and the risk of reducing site suitability for aspen growth and regeneration (e.g., killing live roots or inducing soil hydrophobicity).
        i. Piles may be burned in aspen when pile burning is the only feasible method of addressing treatment by-products and the sum of short and long term effects to aspen would be positive.
        ii. If piles are burned in aspen then the following would apply:
            1. Piles would be located outside the extent of lateral roots to the greatest extent possible.
    d. Within SEZs
        i. Piling and burning is permitted up to 10 feet from the edge of ephemeral channels.
        ii. Allow fire to creep between piles and into these buffers, maintaining flame lengths of less than 2 ft in height.
        iii. The maximum pile size would not exceed 10 foot diameter by 5 foot height.
        iv. No more than 30% of any SEZ acre may be occupied with piles.
        v. No more than 15% of any SEZ acre may be burned within SEZ units each year.
        vi. Maximize the distance between piles to the extent feasible, maintaining approximately 20 ft average spacing between piles in each unit.
        vii. After initial ignition of piles, but while they are still burning, allow each pile to be re-piled once (i.e., place large unburned pieces back into the burning pile). Additional re-piling will be allowed if necessary to achieve 80% consumption of the piled material.
        viii. Hot piling of burn piles is prohibited within SEZs (i.e. don't feed one pile with the material from other piles or ground material), unless necessary to meet desired fuel load conditions.

ix. When piles are adjacent to aspen trees, re-piling during pile burning shall be restricted to one time per pile and hot piling would be prohibited without exception.

2. Design features for prescribed burning.
   a. All prescribed burning would adhere to Federal, Regional, State and local air quality regulations and guidelines.
   b. Prescribed fire may be applied outside a 50 foot buffer from stream courses or wetlands.

3. No fire line construction would take place within SEZs. Wet lines would be used in these areas.

4. Rehabilitate control lines using hand tools and hand crews.

5. Install water bars as needed based on slope and connected length of fire line. Water bar spacing would be determined on a site-specific basis.

6. Fire retardant and/or foam would not be applied within SEZs, unless required for fire suppression.

7. If drafting water from nearby water courses or bodies, use screening devices (with <2mm holes) for drafting. Use pumps with low entry velocity to minimize removal of aquatic species. Locate drafting sites to avoid adverse effects to stream flows and depletion of pool habitat. Drafting sites should be selected with the agreement of a hydrologist and/or fish biologist.

MONITORING

An implementation monitoring checklist will be completed to document that all project design features and BMPs are implemented as prescribed.

In addition, the Best Management Practice Evaluation Program (BMPEP) protocols developed by the USFS and the CA State Water Resources Control Board (USDA FS, 2002) will also be followed to provide qualitative information about BMP implementation and effectiveness. Regionally, targets are set for each forest (including the LTBMU) identifying how many of each type of evaluation should be completed each year. The Big Meadow Project proposed treatment units will be included in the pool for random BMPEP evaluations to meet this target. The R-5 BMPEP On-Site Evaluation form (See Appendix A) will be used to rate the effectiveness of the BMPs.

Finally, monitoring will occur to determine whether the design features for pile burning in SEZs were successful at avoiding impacts to soil stability, soil productivity and riparian plant growth. The monitoring results will be used to either support the design features as they are, or to modify them to provide additional protection to SEZs where necessary.

REASONS FOR CATEGORICALLY EXCLUDING THE PROPOSED ACTION:

CEQ regulations allow Federal agencies to exclude from documentation in an environmental assessment (EA) or environmental impact statement (EIS) categories of actions that do not individually or cumulatively have a significant effect on the human environment, based on the agency's experience and knowledge. The Category of Exclusion which is being used for this project is:

- 36 CFR 220.6 (e)(5) Timber stand and/or wildlife habitat improvement activities which do not include the use of herbicides or do not require more than one mile of low standard road construction."

EXTRAORDINARY CIRCUMSTANCES:

1. Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species. The potential effects of this decision on listed wildlife, fish, and plant species have been analyzed and documented in a Biological Assessment (BA) and Biological Evaluation (BE). There are no federally listed species habitats and/or individual listed species in the areas so there will be no impacts to listed species and/or their habitat.

   The only known terrestrial Forest Service sensitive species known to occur in the project area is northern goshawk (*Accipter gentilis*), based off project level surveys completed for this project. There are two Forest Service sensitive plant species subalpine fireweed (*Epilobium howelli)* and three-ranked hump-moss (*Meesia triquetra*).

   Project design features, described in this memo, are intended to minimize potential effects to sensitive species. The determination is **may affect individuals, but are not likely to result in a trend toward federal listing or loss of viability** for the, subalpine fireweed (*Epilobium howelli)*, three-ranked hump-moss (*Meesia triquetra*) and northern goshawk. The proposed action, including these design features, may allow for minimal impact to some individuals, but is not likely to result in a trend toward federal listing or loss of viability for any sensitive species and/or their habitat. The project is being designed to enhance the Protected Activity Center so it is anticipated to have a long-term benefit for Northern goshawk. There will be no affect to other listed species. Effects to wildlife, aquatic and sensitive plant resources are discussed in the Wildlife and Aquatic Species BE/BA (Project Record Document L-14) and in the Sensitive Plant BE (Project Record Document L-7).

2. Floodplains, wetlands, or municipal watersheds – The potential effects from the proposed action have been evaluated and will not result in any extraordinary circumstances related to floodplains, wetlands, or municipal watersheds that

would prohibit the implementation of this project. The project area contains floodplains and wetlands; however, no building upon or development of these areas will occur as a part of this project. The project involves hand thinning and burning of the resultant slash piles of the excess fuel accumulation that resulted from over a century of fire suppression, and administering a prescribed broadcast burn to the floodplains, meadows, and adjoining upland areas. These ecosystems evolved with periodic, low intensity fires that prevented the dangerous accumulation of fuel in the floodplain, meadows, and surrounding forest, Therefore the proposed activities are intended to benefit these environments by moving them closer to their naturally occurring condition that existed prior to the fire exclusion policies that were implemented with the arrival of European settlers.

Floodplains: Executive Order 11988 was implemented to avoid adverse impacts associated with the occupancy and modification of floodplains. This project area contains floodplains; however, the project does not involve occupancy or development of the floodplain. The only modifications are the removal of excess fuel by hand thinning, pile and broadcast burning, and these activities are not expected to result in an increased risk of flood loss, adverse impacts on human safety, health, or welfare. They are expected to result in improvements in the natural and beneficial values served by floodplains.

To help insure that any potentially adverse impacts to floodplains are minimized, Best Management Practices (BMPs) will be incorporated into the project. These BMPs are identified in Appendix A.

Wetlands: The purpose of Executive Order 11990 is to avoid adverse impacts associated with destruction or modification of wetlands. Wetlands as defined by this order means, "areas inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds."

This project area includes wetlands in the form of wet meadow, fen and marsh habitats. This project includes hand thinning of excess fuels in the meadows and adjacent upland forests, and subsequent broadcast and pile burning of the resultant slash material. Project design features will be employed to reduce the intensity of the prescribed fire when near stream courses or in wetlands. Additionally, these riparian areas are adapted to frequent disturbance, and are expected to recover rapidly.

Municipal Watersheds: There is no municipal water supply in the Big Meadow watershed. Ground water is withdrawn much further downstream in the Upper Truckee watershed, although not close to the Upper Truckee River, and no surface

water is used for municipal water supplies in either watershed. The activities of this project, thinning and broadcast/pile burning, are not expected to adversely affect the quality or quantity of water for potential municipal supplies. Rather, as a result of this project, less water will be withdrawn by trees and this additional water will be stored as additional ground water and delivered downstream.

3. Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas-The project area is not located in a congressionally designated area.

4. Inventoried roadless areas (IRAs) – The project is located within the Dardanelles Roadless Area; however, no vehicles will be utilized in these areas and no road construction or reconstruction will occur. This project will not alter the IRA in any way that impairs the roadless character of the IRA.

5. Research Natural Areas-There are no Research Natural Areas in the Big Meadow Creek Watershed.

6. American Indians and Alaska Native religious or cultural sites-A letter of support submitted by the Washoe Tribe located in the project folder did not mention any known cultural sites documented to occur in the Big Meadow Creek Watershed. Alaskan sites do not apply to the California region.

7. Archaeological sites, or historic properties or areas-Archeological surveys were completed for the site. Archeological report identified areas to be flagged prior to project implementation. No additional surveys are required.

FINDINGS REQUIRED BY OTHER LAWS:

National Forest Management Act (NFMA) – This Act requires the development of long-range land and resource management plans (Plans). The LTBMU Land and Resource Management Plan was approved in 1988 as required by this Act. It has been amended several times, including the Sierra Nevada Forest Plan Amendment, (2004). The amended plan provides for guidance for all natural resource management activities. The Act requires all projects and activities are consistent with the Plan. Therefore, a forest plan consistency analysis of standards and guidelines and management areas was completed for the project (Project Record Document A-3). The project is consistent with management direction in the Forest Plan.

Sensitive Species (Forest Service Manual 2670) – The Manual direction requires analysis of potential impacts to sensitive species, those species for which the Regional Forester has identified population viability is a concern; the project biological review contains the sensitive species list. Potential effects have been analyzed and documented in the Wildlife and Aquatic Species BE/BA and Sensitive Plant BE (Project Record Documents L-7 and L-14) – see extraordinary circumstance #1 above for species determinations.

Clean Water Act – This Act is to restore and maintain the integrity of waters. The Forest Service complies with this Act through the use of BMPs. This decision incorporates BMPs to ensure protection of soil and water resources. In addition, hydrological and soil field assessments were completed to determine site specific BMPs and project design features. The project design meets the Timber Waiver for Waste Discharge requirements and would continue to involve TRPA staff review during project implementation.

Clean Air Act – Under this Act areas of the country were designated as Class I, II, or III air sheds for Prevention of Significant Deterioration purposes. Impacts to air quality have been considered for this decision. Class I areas generally include national parks and wilderness areas. Class I provides the most protection to pristine lands by severely limiting the amount of additional human-caused air pollution that can be added to these areas. The remainder of the Forest is classified as Class II airsheds. Any prescribed burning in this decision would coordinate with CARB to protect air resources; including obtaining and following air quality permits.

National Historic Preservation Act – Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties or areas that may be affected by this decision. The information was documented in a letter to file dated on December 4, 2007 (Project Record Document L-1). The proposed project may be implemented without any further Section 106 consultation or review, in accordance with the provisions of the Regional Programmatic Agreement, as currently planned provided that the recommended Standard Resource Protection Measures (SRPMs) are implemented. These protections measures will consist of placement of flagging and the establishment of buffer zones prior to project implementation.

PUBLIC INVOLVEMENT:

This project was originally listed July 1, 2007 on the LTBMU's Schedule of Proposed Action (SOPA) and updated quarterly. 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 integrated aspects of their recommendations submitted in the letter into project design.

A thirty day scoping period begin November 3, 2008. The scoping proposed action was posted on the LTBMU website on November 3, 2008. Public notices were distributed to newspapers including the Tahoe Daily Tribune and the Mountain News on November 4, 2008. A copy of the proposed action with the address of the LTBMU website was also posted on the information board at the Big Meadow trailhead and posted on the kiosk within the Big Meadow trailhead parking area. A hard copy of the proposed action was mailed to the following agencies and/or organizations: TRPA, LRWQB, El Dorado County Supervisor, California Tahoe Conservancy, and League to Save Lake Tahoe, El Dorado County Planning Department, City of South Lake Tahoe, Washoe Tribe of Nevada and California, South Tahoe Public Utility District, and the Sierra Club. Copies of these notices are on file.

A 30-Day Comment period was provided beginning on April 8, 2009 for the pre-decisional memo. A legal notice was published in the Tahoe Daily Tribune, and the pre-decisional memo was posted on the LTBMU website on March 27, 2009. Public notices were distributed to newspapers including the Tahoe Daily Tribune and the Mountain News on April 8, 2009. A hard copy of the proposed action was mailed to the following agencies and/or organizations: TRPA, LRWQB, El Dorado County Supervisor, California Tahoe Conservancy, League to Save Lake Tahoe, El Dorado County Planning Department, City of South Lake Tahoe, Washoe Tribe of Nevada and California, South Tahoe Public Utility District, and the Sierra Club. Copies of these notices are on file. Only one comment was received in support of the project from the Washoe Tribe during the 30-Day Comment period.

IMPLEMENTATION DATE:

This project may be implemented immediately.

Other Agency Review: The Tahoe Regional Planning Agency (TRPA) and California Regional Water Quality Control Board, Lahontan Region (Water Board) have determined that this project qualifies under the terms of their *Memorandum of Understanding (MOU) for Vegetation Management* (2009) for TRPA to serve as the single regulatory agency (Letter from TRPA in Project Record). This project also qualifies under the Memorandum of Understanding between TRPA and Forest Service (2009) regarding Fuels Reduction and Forest Health Projects. TRPA's involvement will be guided by the conditions set forth in the TRPA-FS MOU.

Implementation in IRAs: This project is within an IRA identified within the jurisdiction of the LTBMU and displayed in the Forest Service Roadless Area Conservation, Final Environmental Impact Statement, Volume 2, dated November 2000. The project includes hand thinning treatments (no mechanical treatments) within an IRA. Materials generated from hand thinning treatments will be piled and burned in the treatment units. Vehicles will not be utilized in these areas and roads will not be constructed or reconstructed. This project will not alter the IRAs in any way that impairs the roadless character of the IRA. This project involves the following IRA:

IRA	Total Acreage in IRA	Acres in Project	Percentage of Acres Affected
Granite Chief	1,205	0	0
Mount Rose	2,880	0	0
Pyramid	8,752	0	0
Dardanelles	14,254	640	4.5
Freel	15,340	0	0
Lincoln	6,779	0	0
Totals	**49,249**	**640**	**1.3**

In accordance with the United States Secretary of Agriculture's Memorandum 1042-145 (5/28/09) areas proposed for treatment included in this project that involve the "cutting,

removal or sale of timber" within IRAs will be deferred pending Secretary of Agriculture approval. Project areas or activities not approved by the Secretary will be deleted from the project.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES:

A 30 day comment period was provided pursuant to the July 2, 2005 order issued by the U.S. District Court for the Eastern District of California in case *Earth Island Institute vs. Ruthenbeck* (including clarifying orders issued on September 16, 2005 and October 19, 2005). During the project's 30 day comment period (which lasted from April 8, 2009 to May 8, 2009), no comments expressing concerns were received that would require an appeal period pursuant to 36 CFR part 215 regulations. The Washoe Tribe sent comments in support of the project.

CONTACT PERSON:

For additional information on this project contact Raul Sanchez – Project Leader at 530.543.2679 or rsanchez@fs.fed.us.

SIGNATURE AND DATE:

I have concluded that this decision may be categorically excluded from documentation in an environmental impact statement or environmental assessment as it is within one of the categories identified by the U.S. Department of Agriculture in 7 CFR part 1b.3 or one of the categories listed in sections 220.6 (d) and (e) of 36 CFR 220.6. My decision concludes that no extraordinary circumstances exist related to the proposed action that may result in a significant individual or cumulative effect on the human environment, and that the decision is not subject to appeal.

My conclusion is based on information presented in this document, my familiarity with the project areas and the entirety of the project file. I also based my conclusion on a review of the project record that shows review of relevant scientific literature (Project Record Documents N) which includes The Big Meadow Creek Watershed Ecosystem Assessment Report (Project Record Document M-1), the Lake Tahoe Basin Management Unit Meadow Restoration Study (Project Record Document M-3), and the Big Meadow Creek Watershed Restoration Monitoring Plan (Project Record Document M-4). During the comment period there were know apposing views expressed by the one commenter. The LTBMU has experience and success with the types of activities to be implemented (i.e. Lake Tahoe Ecosystem Underburn Project) the analysis shows the effects from conifer thinning and prescribed burns are not uncertain, and do not involve unique or unknown risk.

TERRI MARCERON 8/18/09
Date
Forest Supervisor, Lake Tahoe Basin Management Unit

PSW Region BMP 7-7: Management by Closure to Use	Underburn units may be closed to public use during implementation.