

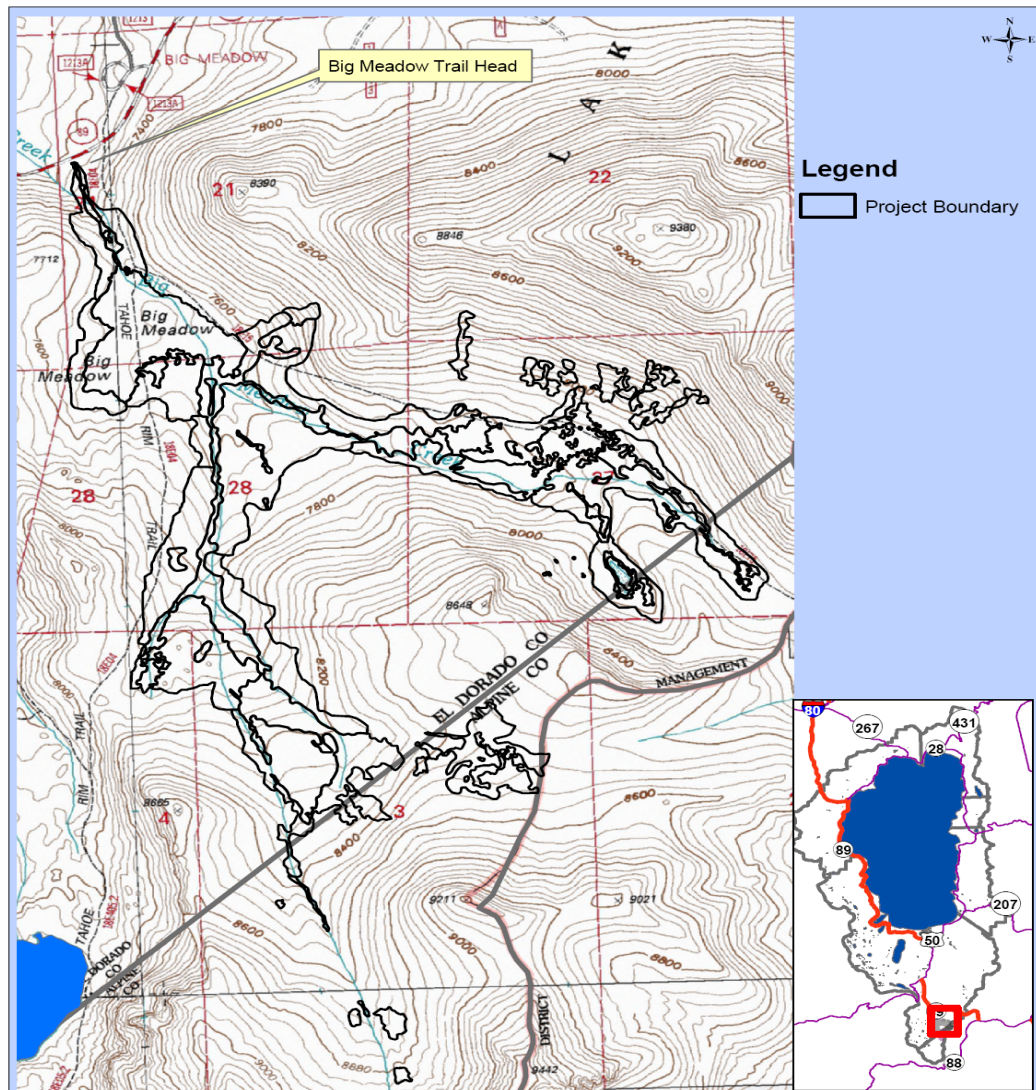
# Proposed Action for the Big Meadow Creek Watershed Fire Regime Restoration Project

US Forest Service Pacific Southwest Region  
Lake Tahoe Basin Management Unit  
El Dorado County, California

## I. PROJECT AREA DESCRIPTION

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.

Figure 1. Vicinity Map



## II. 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.

## III. PROPOSED ACTION

### **The LTBMU Proposes To:**

#### **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 prescribed burning in 2011, which is anticipated to be completed by 2020 (see p.8 for sequencing thru' 2020). Tree thinning in designated areas may occur in the late summer and/or fall when outside established Limited Operating Period(s). Tree thinning activities may take up to two to three months each year to complete, depending on the weather.

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 to remove at least 50% canopy cover, but no trees exceeding 18 inches diameter at breast height (dbh) 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 trees would be thinned up to 20 inches diameter to reduce conifer 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 dbh 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.

**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 will follow design features as mentioned in the design criteria section.

Treatment Type	Tree Thinning (acres)	Underburn (% acreage)	Live Tree Size (inches dbh)	Dead Tree Size (inches dbh)
Upland Forest	325	100	18	20
Montane Riparian	80	80-100	18	20
Aspen Stands	80	80-100	20	20
Meadows	155	80-100	20	20
<b>Total</b>	<b>640</b>			

### **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 trees). Hand thinned stand treatments include hand cutting of trees along with hand piling of fuels. Live trees less than 18 inches 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

The prescription for hand thinning in aspen is to thin live conifer from aspen stands up to 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.

**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**

The prescription for hand thinning in meadows is to thin all conifers from meadows up to 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. Pile burning would occur two years after piling to allow material to cure. Pile burning would start in 2011, prescribed burning in areas where pile burning occurred would start in 2014. Approximately three to five years after pile burning a broadcast burn would be used to reduce fuel loads to 15 tons per acre. Burning operations will occur eight to ten years from the initial burning operations in 2011 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 – Burn hand piles to allow for follow-up under burning on approximately 325 acres.
2. Broadcast and Underburning – Broadcast burn on approximately 155 acres of meadow complex, and allow fire to creep into the aspen stands (about

80 acres) and riparian corridors (about 80 acres). 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.



Existing roads and 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 would be completely rehabilitated after project completion. 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 in the fall through the late winter. 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. However, these areas may be monitored for potential burning operations in winter if conditions allow.

#### **IV. 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 negative 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. A list of applicable water quality BMPs is being developed and will be included as an appendix to the pre-decisional memo when it is released for the 30-day comment period.
2. Do not apply retardant foam within SEZs, unless required for fire suppression efforts.
3. If drafting water from nearby water courses, use screening devices (with < 2mm holes) for water drafting pumps. Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. Locate water drafting sites to avoid adverse

4. Locate hand constructed control lines outside of SEZs.
5. Rehabilitate control lines using hand crews and hand tools.
6. Install water bars as needed based on slope and connected length of control line. Water bar spacing would be determined on a site specific basis as identified in the BMP guidelines.
7. No hand piling and burning of slash within 50 feet of stream channel or standing water. Prescribed underburning is allowed if flame heights do not exceed two feet within 50 feet of stream courses or on wetlands unless higher intensities are required to achieve specific objectives.

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 Forest Service System Roads and/or Trails that result from underburning.

### Scenic Resources:

1. Limit cut stump height to 6", as measured from uphill side.
2. Maintain a minimum of 10% of largest live, non-beetle affected trees per acre, where possible.
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.

### Heritage Resources:

1. Flag and avoid identified cultural resource areas within the Area of Potential Effect.
2. In the event that any new sites 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. For northern goshawk PACs: Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting. If the nest stand within a protected activity center (PAC) is unknown, either apply the LOP to a ¼-mile area surrounding the PAC, or survey to determine the nest stand location. (SNFPA 60.76). LOP may be waived for use of early season burning in up to 5% of LTBMU (6368 acres) goshawk PACs per year (SNFPA 61.79).
2. For California spotted owl PACs: Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the activity center during the breeding season (March 1 through August 15) unless surveys confirm that California spotted owls are not nesting. Prior to implementing activities within or adjacent to a California spotted owl PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest or activity center (SNFPA 60.75).
3. For treatments within aspen stands:
  - a. Piling and burning of slash should be done outside of the aspen lateral root system footprint that extends at least one tree height away from existing stems.
  - b. Thinning slash should be removed to allow sunlight to reach the forest floor, unless a prescribed fire is planned to stimulate additional suckering. In the latter case, only scattered branches and tops should be left.

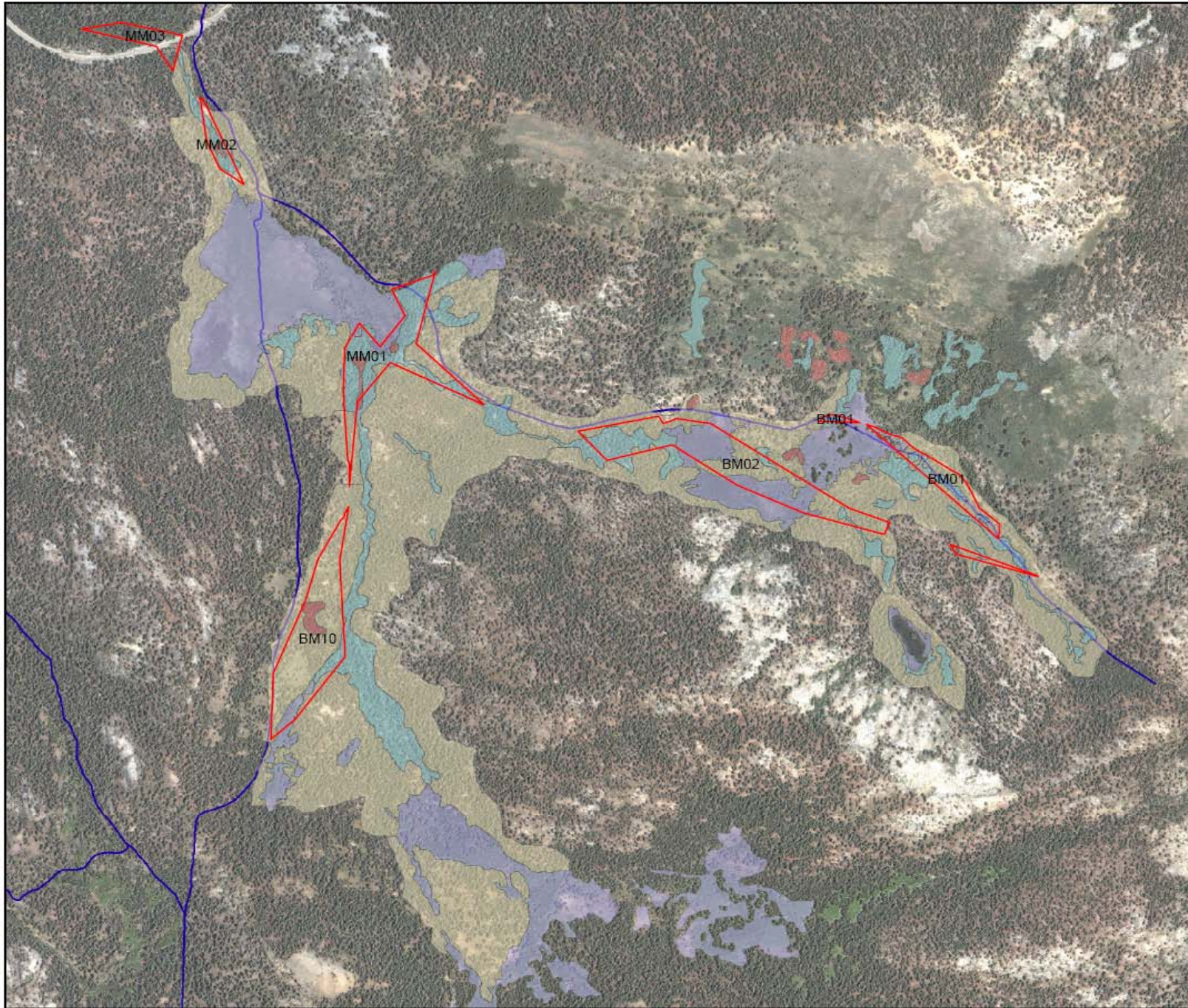
4. Retain some mid- and large diameter live trees that are currently in decline, have substantial wood defect, or that have desirable characteristics (teakettle branches, large diameter broken top, large cavities in the bole) to serve as future replacement snags and to provide nesting structure (SNFPA 51.11).
5. Design projects to retain all live conifers 30 inches dbh or larger (maximum of 20 inches proposed for this project), with the exception of treatments in aspen stands where all live conifers will be removed for the purpose of aspen restoration. (SNFPA 50.6)
6. Retain three of the largest snags (>15" dbh) per acre in upland areas.
7. Snags should be clumped and distributed irregularly across the treatment units.
8. 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. Emphasize retention of wood in the largest size classes and in decay classes 1, 2 and 3. Consider the effects of follow up prescribed fire in achieving desired down woody material retention levels (SNFPA 51.10).
9. Design treatments in PACs to have: (1) at least two tree canopy layers; (2) dominant and co-dominant trees with average diameters of at least 24" dbh; (3) overall average for the PAC of at least 60-70 percent canopy cover; (4) some very large snags (greater than 45 inches dbh); and (5) snag and down woody material levels that are higher than average (SNFPA 38: Desired Condition).
  - a) Within PACs, maintain large snag (> 15" dbh) densities > 3/acre and down woody material levels at 15 tons/acre where possible.
10. Design prescribed fire treatments to minimize disturbance of ground cover and riparian vegetation in RCAs. In burn plans for project areas that include, or are adjacent to RCAs, identify mitigation measures to minimize the spread of fire into riparian vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could be damaging to habitat or long-term function of the riparian community (SNFPA 64.111).
  - a) Prescribed burn activities in meadows and aspen stands are desired, however, should be designed to protect existing late seral vegetation (e.g., willows along streams and within meadows, larger overstory aspen trees).

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. Fens and springs identified within the proposed project area will be surrounded by flagged buffer zones, and avoided during project activities.
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.



# 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)



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