

# Proposed Action for the High Meadows Forest Plan Designation; Ecosystem Restoration; and Access Travel Management Project

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

## I. PROJECT AREA DESCRIPTION

The larger Upper Cold Creek acquisition is shown in figure 1. Projects proposed are located within this area. Specific project locations are described below.

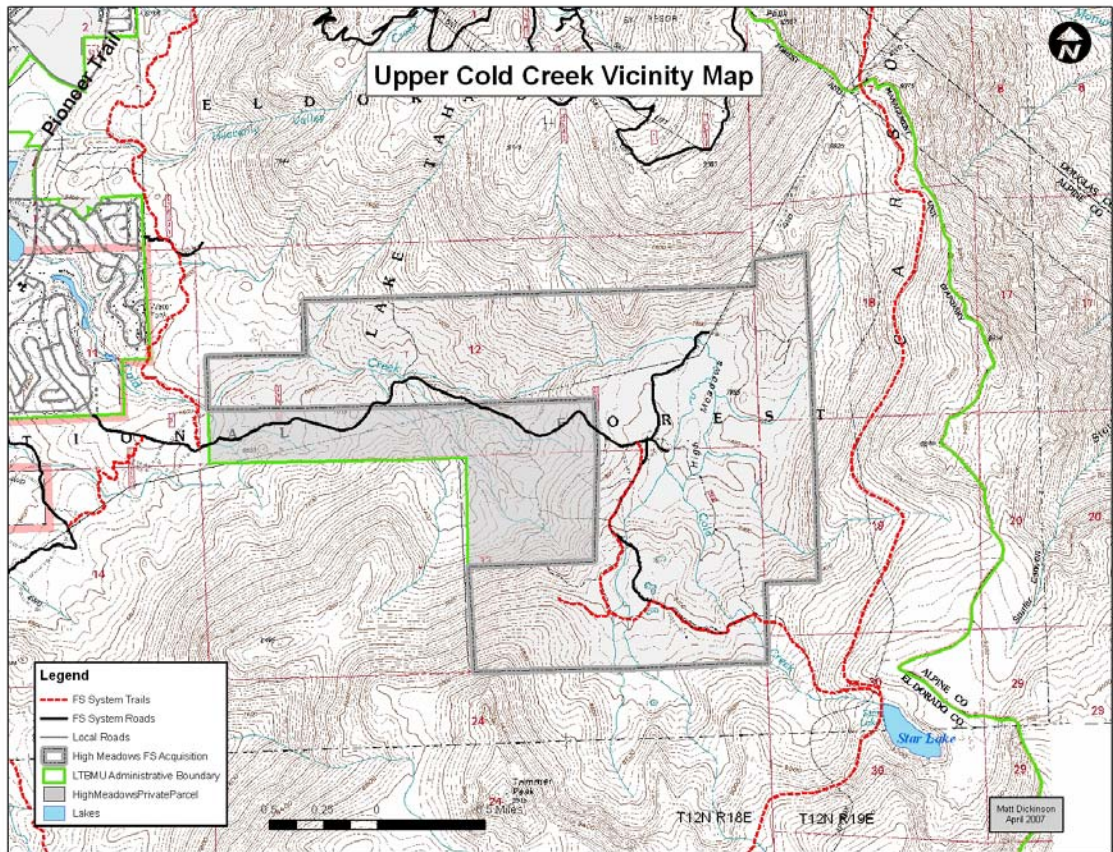


Figure 1. Vicinity Map

### **Management Area Designation**

This project will involve the acquired property as a whole.

### **Meadows Ecosystem Restoration**

The High Meadow complex is located in the upper Cold Creek Watershed in the SE ¼ Section 12 and NE ¼ Section 13, T12N, R18E of the South Lake Tahoe Quadrangle map. See attached Figure 1.1.

### **Access and Travel Management Plan (ATM)**

This project is located on the numerous roads and trails located within the boundary of the acquired property. The project is bounded by the basin hydrologic boundary to the SE, Heavenly Ski resort to the E, Power Line Trail/Road to the N, and Trimmer Peak to the W.

## **II. PURPOSE AND NEED**

### **Management Area Designation**

The Forest Service acquired 1,790 acres of land in 2003, and there is a need to incorporate it into the Lake Tahoe Basin Management Unit (LTBMU) Land and Resource Management Plan (LRMP) and assign it to Management Areas. The purpose of incorporating this land into the LRMP is to provide direction as to the desired future condition and guide management of this property.

### **Ecosystem Restoration**

In September 2004, the LTBMU Ecosystem Restoration group initiated an ecological assessment of the Cold Creek watershed that focused on the High Meadow Complex. The Ecosystem Assessment Report (EAR) identified a need to remove Lodgepole pine from the meadow and surrounding area. Lodgepole pine has invaded the meadow due to the absence of fire and the dried meadow conditions resulting from the incised stream channel. Since the fall of 2006 there has been widespread Lodgepole pine mortality in and around the High Meadow Complex, largely due to bark beetle kill. This has resulted in additional habitat degradation and increased risk of wildfire in the area.

There is a need to restore the Cold Creek channel through the High Meadow Complex in order to increase the potential for the meadow to store water and sediment and allow it to function as a wet meadow ecosystem. Currently there is a reduced capability to store water or sediment in the meadow. The severity of the channel incision has caused Cold Creek to become hydrologically disconnected from the meadow providing limited ecological potential. The stream is unable to contact the floodplain even during peak flows. Because the stream is no longer seasonally flooding the area, the meadow is no longer functioning as a wet meadow ecosystem. The channel is unstable and geologically lacks the ability to repair itself. There are multiple head-cuts in the stream profile indicating incision could continue. There continues to be extensive

bank erosion and sloughing in areas where vegetation cannot stabilize the four to seven foot high vertical gully walls.

### **Access and Travel Management Plan**

In August 2003, the LTBMU prepared a road and trail inventory and initial plan for treatment of the transportation system in the High Meadows project area. This plan identified a need to establish a sustainable road and trail system (thus reducing the need for road and trail maintenance and costs for maintenance); provide access to the power line for maintenance; and provide access for forest management projects. The purpose of this project is to reduce impacts and protect resources while providing for current and future recreation needs by implementing the proposed action as described below.

## **III. PROPOSED ACTION**

### **Management Area Designation**

Incorporate 1,790 acres of newly acquired land into the LTBMU Land and Resource Management Plan (LRMP). Adjacent management areas were analyzed against current uses of this area. Based on adjacent management area prescriptions and current non-motorized use of the area (biking, hiking, etc.) as well as the natural features found on the landscape (Cold Creek channel), the following recommendations are made (Refer to attached Figure 1.1 for a map of proposed management area designations):

- Heavenly Management Area – Update this MA to include the portion of the analysis area north of Cold Creek from the west boundary to the power line as prescription 9, maintenance (444 acres). Management would maintain the camping and summer Off-Highway Vehicle (OHV) and winter Over-the-Snow Vehicle (OSV) closures while allowing for more opportunities for non-motorized dispersed recreation (Cold Creek Trail).
- Freel Management Area – Update this MA to include the area south of cold creek and east of the power line as it crosses Cold Creek as Prescription 3, Unroaded Recreation (1325 acres). Management would maintain the summer OHV and winter OSV closures while improving non-motorized trail access (Star Lake Trail, Trail to Monument Pass).
- Tahoe Valley Management Area – Update this MA to include the area north of Cold Creek and west of the boundary with Heavenly MA as prescription 10, timber stand maintenance (5 acres) and prescription 11, reduced timber (22 acres). Management will continue to provide dispersed recreation opportunities via the Cold Creek Trail.

### **Ecosystem Restoration**

The Ecosystem Assessment Report (EAR – project record document C1) for the High Meadow Complex documents the past management activities, including

grazing in the meadow and diversion of creeks and natural drainage systems to support irrigation practices. The EAR also outlines possible actions to reverse the effects of these historical land uses and restore the function of the pre-1850's ecosystem. These actions would restore the connection between floodplain channel and water table and maintain or restore geomorphic and biological characteristics of meadows, fens, and streams. Lodgepole pine removal treatments would enhance meadow function. Phasing for this project has also taken into account lodgepole pine mortality caused by a recent pine beetle infestation around the High Meadow Complex. Actions include:

- Removal of lodgepole pine in the areas surrounding the meadow using mechanical (113 Acres) or manual methods (165 acres).
- Prescribed burning the lodgepole pine removal areas and the meadow complex (approximately 350 acres). All hand and mechanical treatment stands will be followed-up with a prescribed burn.
- Construction of approximately 8,700 linear feet of new channels and associated floodplain terrace on the Mainstem, East Fork and North Fork of Cold Creek within High Meadows.
- Use of onsite materials to construct new channels, including excavating gravel from the North Fork fan for grade control/riffle construction.
- Fill/decommission of approximately 6,660 linear feet of existing stream channel.
- Release of aspen stands where conifer encroachment is identified as a problem.
- Removal/fill of approximately 8,500 linear feet of "highline" ditches and 15,000 feet of other diversion ditches and gullies throughout the meadow complex.

See Figure 1.2 for a map of the location of proposed stream channel restoration and Figure 1.3 for a map of the proposed lodgepole removal and underburning. Detailed engineering drawings of the proposed restoration work are available on the LTBMU website and in the project file (project record document G1).

### **Mechanical Thinning**

The general prescription for ground based mechanical treatments will be to remove understory trees that are less than 20" diameter at breast height (dbh). All dead trees will be removed to achieve desired conditions for fuel loading (<10 tons/ac), retaining a minimum of 3 of the largest snags/ac of the largest diameter classes. The type of mechanical equipment used for thinning operations will depend on vegetation removal needs, operational feasibility, and cost efficiency. They include: whole tree yarding using mechanical harvesters and whole tree skidding, commercial fuelwood sales using small skidders, and cut-to-length harvest with log forwarding operations. Treated material will be removed either as sawlogs, fuelwood, or biomass. Activity fuels will be lopped and scattered, outside of drip line of residual trees whenever possible. Approximately 700 feet of temporary road would be constructed for mechanical thinning and would be restored following management activities.

Existing landings will be used where available otherwise new landings will be constructed. New landings may average one to two acres in size in order to safely facilitate the handling and removal of biomass material. When operations have been completed, rehabilitation of landings would be implemented. Rehabilitation will include measures to insure proper drainage and provision of sufficient ground cover.

**Table 1. Thinning and Fuels Treatments. See Figure 1-4 for location information**

Stand #	Acres	Thinning Treatment	Fuels Treatment
1	40	Mech.	LS - UB
2	14	Mech.	LS - UB
3	49	Hand	LS - UB
4	47	Hand	LS - UB
5	59	Mech.	LS - UB
6	49	Hand	LS - UB
7	20	Hand	LS - UB
8	44	n/a	UB only
9	24	n/a	UB only

LS – Lop and Scatter Activity Fuels

UB – Underburn

**Mechanical Thinning in Northern Goshawk Protected Activity Centers (PAC)**

The prescription for mechanical thinning in the PAC is to thin trees to a desired basal area of 60-80 ft<sup>2</sup> per acre and a canopy cover of at least 40%. Remove all dead trees leaving 6 of the largest snags/ac. Leave 5% of total treatment area in lower layers of canopy (trees 6-24” dbh).

**Mechanical Thinning in PAC and Aspen Areas**

The prescription for mechanical thinning in PACs that include aspen is to remove all live conifers from aspen stands, leaving only aspen. Snags will be removed as needed retaining a minimum of 6 snags/ac of various size classes of which 3 will be greater than 15” dbh (or of the largest size classes available) for wildlife habitat.

**Mechanical Thinning in Lodgepole bark beetle mortality areas (i.e., stand 1)**

A total of 3 “no-treat” retention areas (approximately 1-2 acres each) will remain in the lodgepole mortality stand to provide for areas of higher density and diversity of snags for wildlife.

**Hand Thinning**

The prescription for hand thinning treatments includes understory thinning of trees up to 14” dbh based on a desired residual tree per acre and average spacing (approx. 70 trees/ac and 25 ft. between residual trees). Hand thinned stand treatments include hand cutting of trees along with lopping and scattering of activity fuels. Live trees less than 14” dbh would be felled; dead trees up to 20”

dbh would be felled, while retaining a minimum of 3 of the largest snags/ac (6 snags/ac in goshawk PAC; stands 6, 7 and southern end of stand 4) 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" dbh) understory trees in order to achieve the desired stand densities.

#### Hand Thinning in PAC and Aspen Areas

The prescription for hand thinning in PACs that include aspen is to thin all conifers from aspen stands up to 14" dbh resulting in residual trees consisting of approximately 20 aspen trees/ac of various size classes and about 30 lodgepole pine per acre with diameters that range between 14" and 30". All dead trees up to 7" dbh will be felled. All dead trees between 7" and 20" dbh will be felled, while retaining a minimum of 6 snags/ac of various size classes of which 3 will be greater than 15" dbh (or of the largest size classes available) for wildlife habitat.

#### Access and Travel Management Plan -

The current transportation system is a web of user created roads and trails that do not meet Forest Service design criteria. Further, the existing system does not meet current access and recreation needs. The ATM will correct many erosion, SEZ disturbance and water quality problems resulting from the existing road and trail system. Stream crossings will be designed to facilitate natural hydrologic processes, geomorphic function, and not create barriers to aquatic dependent species. Roads and trails will be located to reduce impacts to wildlife from existing recreation uses. These actions would allow for dispersed non-motorized recreation, access for forest management and restoration activities, access to the main power line to South Lake Tahoe, and protect restored resources. Trails will be open to non-motorized multiple uses. Roads will be open to the public for non-motorized multiple uses and administrative vehicle use. The ATM will result in the establishment of a managed and maintained road and trail system through decommissioning, re-routes, and new construction. Interconnecting roads and trails forming loops are inherent to the system of routes. Actions include:

- Partial reroute of the main access road
- Approximately 5 miles of road to non-motorized trail conversions
- Approximately 2 miles of road decommissioning
- Approximately 2 miles of non-motorized trail construction.
- The re-routes and new construction will provide a loop with the Tahoe Rim Trail from Monument Pass to Star Lake

See Figure 1.2 for a map of the proposed decommissioning, reroutes, and new construction.

## **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 negative environmental effects of the proposed action on forest resources. Project design features are listed in two

groups. The first group of design features applies to the whole project area. The following groups of design features are specific to the ATM, ecosystem restoration or fuels reduction portions of this project. Since the Forest Plan Management Area Designation will not have tangible on-the-ground effects, there is no need to adopt measures to mitigate environmental effects.

### **General Design Features**

#### **Hydrology/Soils:**

1. Implement water quality protection Best Management Practices (BMPs) during and following project activities. A list of project specific BMPs will be developed as an appendix for the preliminary Environmental Assessment.

#### **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. Pre-Project Activities**

A Communication and Sign Plan should be developed to include:

- News Releases describing project activities.
- Signage posted at the various access roads and trailheads that describes the purpose of the project and safe travel suggestions.

##### **2. Construction Phase**

Due to potential safety hazards to the public inherent in the construction process, the following strategies may need to be implemented during the various construction phases.

Alternative Routes and Signage

- In lieu of an all out closure, some existing travel routes could be detoured to redirect users around construction activities.
- Detours should be adequately posted with signage that meets Forest Service design standard guidelines.

Closures and Signage

- Use of heavy equipment on access routes may preclude the safe use of those routes by the public and the area should thus be temporarily closed.
- Temporary closures should be adequately posted with signage that meets Forest Service design standard guidelines

### 3. **Post Construction**

Sign Plan would be implemented at completion of project.

#### Scenic Resources:

1. Use native materials or similar imported materials local to the surrounding landscape for construction of any required drainage armoring or other constructed features.

#### Heritage Resources:

1. Flag and avoid equipment operations in known heritage sites, use hand treatments in these areas. Fell trees away from and do not drag trees across identified heritage sites.
2. In the event that any new sites are discovered during project implementation, the Forest Archaeologist would be notified and the procedures in accordance with the 36 CFR Part 800 would be implemented.

#### 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. (Sierra Nevada Forest Plan Amendment (SNFPA) 60.76). LOP may be waived for use of early season burning in up to 5% of LTBMU 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. Conduct surveys in compliance with the Pacific Southwest Region's survey protocols during the planning process when vegetation treatments are likely to reduce habitat quality are proposed in suitable northern goshawk nesting habitat that is not within an existing California spotted owl or northern goshawk PAC. Suitable northern goshawk nesting habitat is defined based on the survey protocol (SNFPA 54.34)
4. Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species (e.g., bottomless culverts with natural bed material) (SNFPA 63.101).



## **ATM Design Features**

### **Recreation:**

1. User conflicts will be reduce or minimized on trails through the use of informational signage, including trail signs with allowed uses.

### **Scenic:**

1. Distribute irregularly spaced tree branches and slash scattered over the surface of decommissioned roads and trails, and areas adjacent to decommissioned travel routes.

### **Botany:**

1. Botany surveys will be conducted for TES plant species and noxious weeds if there any changes to the proposed trail alignment.

## **Ecosystem Restoration Design Features**

### **Hydrology/Soils:**

1. No permanent roads or trails will be constructed for meadow ecosystem restoration; temporary roads will be designed to minimize soil erosion, compaction, and stream bank deterioration. Temporary roads will be completely restored following project activities.
2. Water quality effects will be minimized at gravel extraction sites.
3. All onsite fuels and hazardous materials will be stored outside of SEZ's in OSHA certified containers.
4. Implement onsite dust abatement procedures as necessary.
5. Sod borrow sites will be restored using approved revegetation techniques as outlined in the Cold Creek Restoration Project Design Report (Project Record Document C2).

### **Scenic:**

1. Remove all stockpiled materials following activity, and minimize visual evidence of all construction activity.
2. Establish final grade, topsoil and vegetation in any in-filled stream channels consistent with surrounding landscape. Should 50% of any planted material not survive, it shall be replanted.

### **Wildlife and Fish:**

1. Locate water drafting sites to avoid adverse effects to in stream flows and depletion of pool habitat for Brook trout (SNFPA 63.101). Use screening devices 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 (SNFPA 64.110).
2. Require use of plant species native to the area or species approved for local use when revegetating disturbed sites and landscaping improvements.

### Botany:

1. The population of LTBMU sensitive moss species *Bruchia bolanderi* (Bolanders candle moss) will be buffered, flagged, and avoided to prevent restoration activities from impacting the occupied and surrounding habitat.
2. There are two populations of *Botrychium simplex*, (Yosemite moonwort or little grapefern) not a sensitive plant, but uncommon in the Basin within the footprint of the project. Its habitat is easily damaged with disturbance. The *Botrychium simplex* populations will be buffered, flagged, and avoided to prevent restoration activities from impacting the occupied and surrounding habitat.
3. Botany surveys will be completed prior to implementation. If any sensitive plants or noxious weeds are found additional design features and mitigations may be added to the project file.
4. Rehabilitation of sod borrowing areas will occur to prevent or mitigate the establishment of noxious weeds on newly disturbed areas.

### **Fuels Reduction**

#### Hydrology/Soils:

1. Temporary roads used for mechanical thinning will be completely restored following project activities.

#### Scenic:

1. Maintain a minimum of 10% of largest live, non-beetle affected trees per acre, where possible.
2. 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.
3. Minimize the size of mechanical harvest landings, and locate outside of views from the Tahoe Rim Trail, if possible.

#### Wildlife and Fish:

1. For treatments within aspen stands:
  - a. Any pilling 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. Logging 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. Broadcast burning of heavy loadings of 1000-hour fuels will likely kill too many shallow aspen roots and result in poor suckering.
2. 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

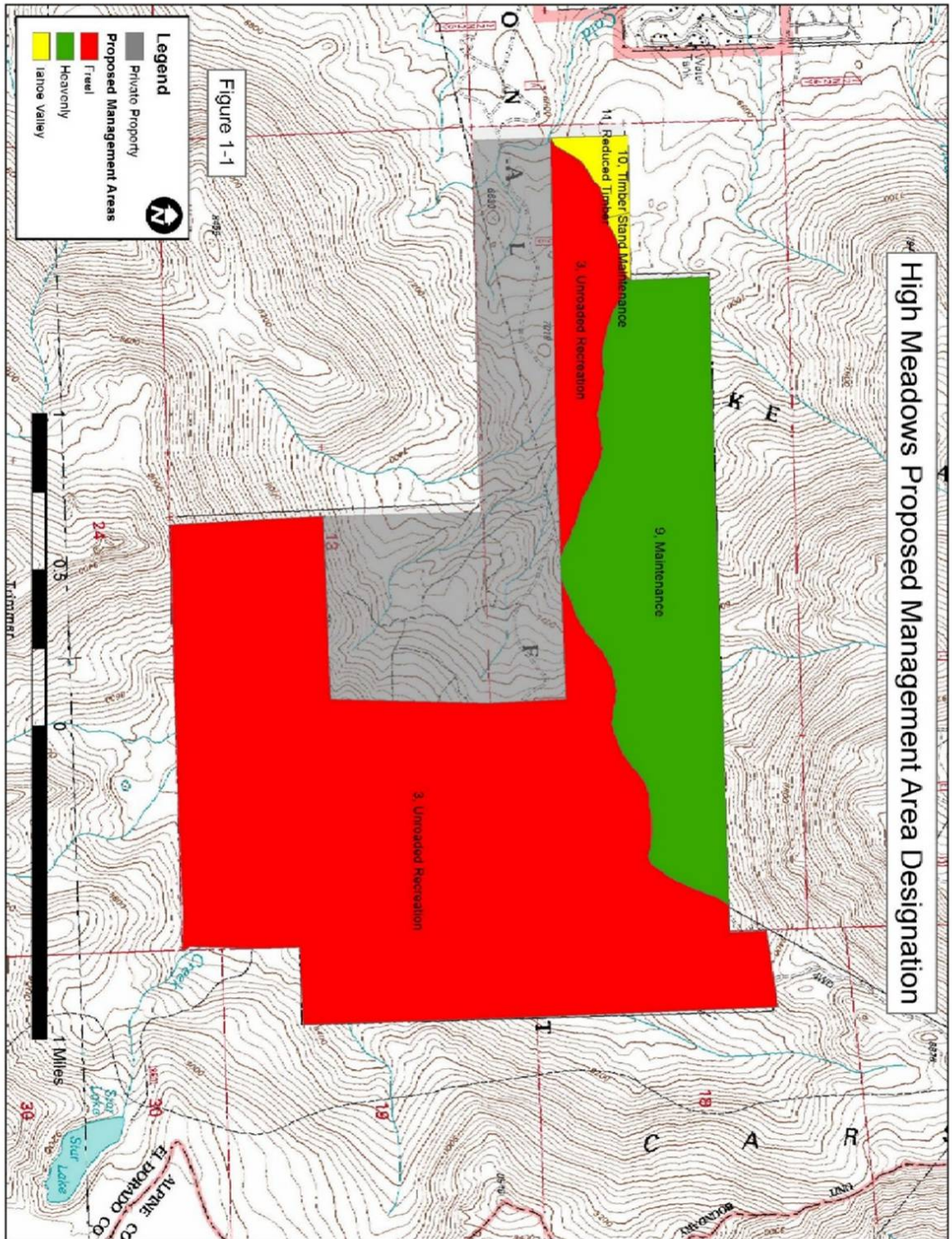
- actions could be damaging to habitat or long-term function of the riparian community (SNFPA 64.111)
- a. Prescribed burn activities in meadows and aspen stands are desired, however, should be designed to protect existing late seral vegetation (e.g., willow along streams and within meadows, larger overstory aspen trees).
  3. 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).
  4. Guidelines for large-snag retention for eastside pine and eastside mixed conifer are as follows:
    - a. Three of the largest snags (> 15" dbh) per acre.
  5. Snags should be clumped and distributed irregularly across the treatment units (SNFPA 52.11).
  6. Consider the ecological benefits of retaining small patches of mortality in old forest emphasis areas (SNFPA 53.17). Areas planned for retention of small patches of mortality include stand 1.
  7. Leave larger diameter trees (e.g., large coarse woody debris) on the ground (including recently felled trees) to the extent possible without exceeding a desired fuel load of 10 tons/ac, with the exception of areas within goshawk PACs where fuel loads may exceed this average level. 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).
  8. Within the assessment area or watershed, locate fuels treatments to minimize impacts to PACs. PACs may be re-mapped during project planning to avoid intersections with treatment areas, provided that the re-mapped PACs contain habitat of equal quality and include known nest sites and important roost sites (SNFPA 59.71).
    - a. The High Meadows goshawk PAC was remapped due to extensive stand replacing lodgepole pine die-off throughout much of the PAC. This PAC adjustment will be documented in the project biological evaluation.
    - b. Fuels treatments within the High Meadows goshawk PAC are designed to enhance habitat conditions for goshawks.
  9. For northern goshawk PACs: Conduct mechanical treatments in no more than 5 percent per year and 10 percent per decade of the acres in northern goshawk PACs in the 11 Sierra Nevada national forests. (SNFPA 61.8)
    - a. Areas within goshawk PACs planned for mechanical fuels treatments as part of this project comprise < 1% of basin-wide goshawk PAC acreage.
  11. 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

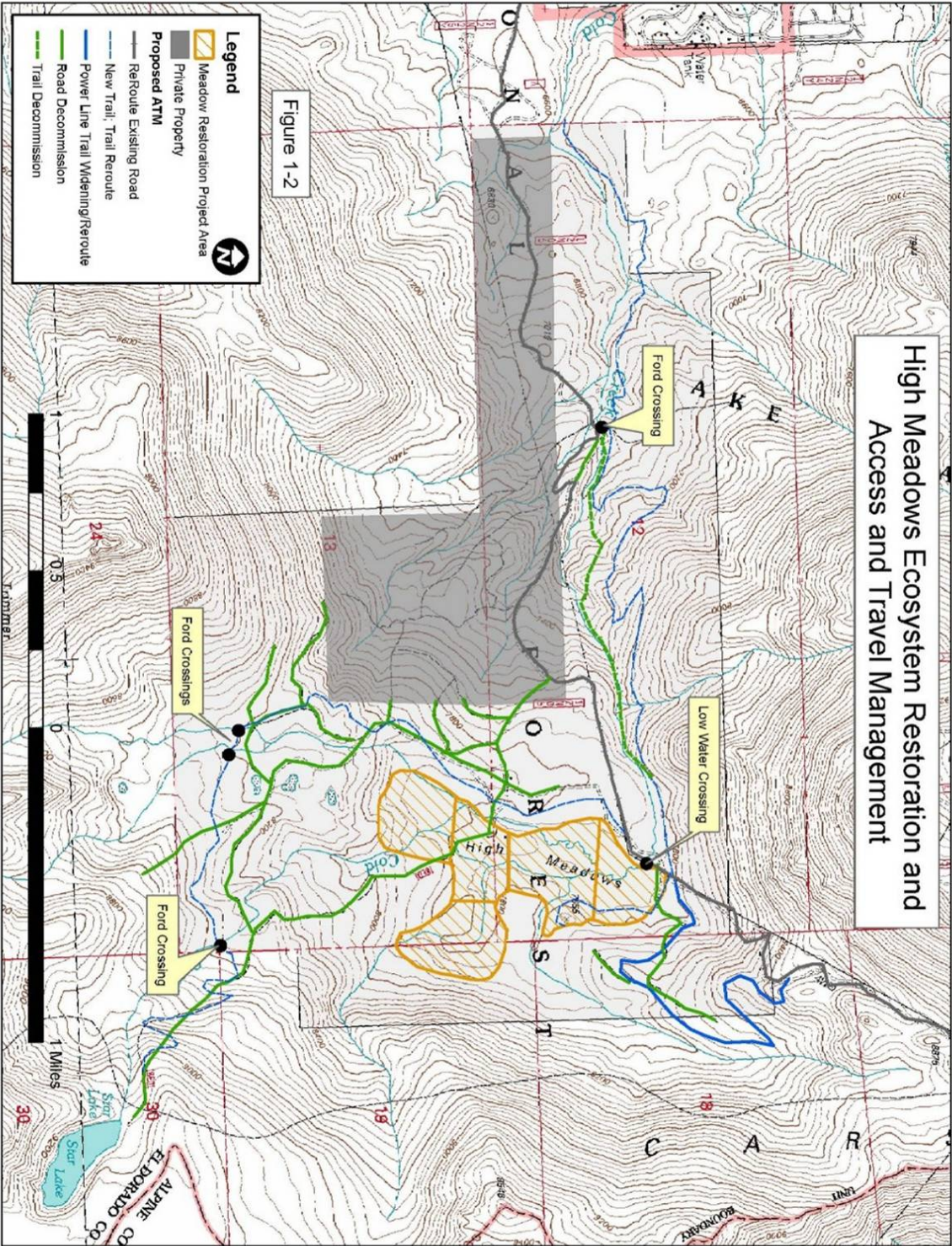
large snags (greater than 45 inches dbh); and (5) snag and down woody material levels that are higher than average (SNFPA 38: Desired Condition).

- a. Within PACs, maintain large snag (> 15" dbh) densities > 3/acre and down woody material levels  $\geq$  15 tons/acre where possible.

Botany:

1. Bear Glade fen ecosystem will be buffered, flagged, and avoided to prevent fuel reduction and prescribed fire impacts to hydrologic processes within this sensitive area. Trees outside of the buffered zone will be directionally felled away from fen and meadow. Fuels will be removed away from the buffer perimeter.





# High Meadows Hand and Mechanical Thinning and Underburn Units

