USDA Forest Service
Pacific Southwest Region
Lake Tahoe Basin Management Unit

Pre-Decision Memo for Implementation of the Aspen Community Restoration Project

Washoe and Douglas Counties, and Carson City, Nevada
Placer, El Dorado and Alpine Counties, California

BACKGROUND:
The Aspen Community Restoration Project originated from the Lake Tahoe Watershed Assessment (USDA 2000), which identified aspen stands as Ecologically Significant Areas because of their ecological value and relative scarcity on the landscape. The Lake Tahoe Basin Management Unit (LTBMU) initiated the Aspen Mapping and Condition Assessment Project (2002-2007) to address Lake Tahoe Watershed Assessment "Biological Integrity Issue 6: The Need to Understand the Integrity and Condition of Ecologically Significant Areas in the Basin." The Aspen Mapping and Condition Assessment Project identified that approximately 65% (by area) of aspen stands on the forest are currently at moderate, high, or highest risk of loss. Risk of loss is an assessment of the probability that an aspen stand may not persist on the landscape based on stand conditions such as conifer encroachment and lack of aspen regeneration.

The Aspen Community Restoration Project would restore aspen stands that are assessed to be at moderate, high, or highest risk of loss from the landscape on National Forest System lands within the LTBMU. An estimated 1,194 acres (74%) of the moderate, high, or highest risk aspen stands on the LTBMU are located outside other planned, proposed, and current vegetation treatment project areas or Wilderness areas. In total, the forest has identified approximately 2,391 acres including aspen stands and surrounding areas that may be treated to facilitate aspen stand restoration and expansion, as funding permits, by the Aspen Community Restoration Project described here. The project includes aspen stands discovered in the future that are located outside other project areas or Wilderness areas, as described above, or on lands acquired by the LTBMU, that are at moderate or greater risk of loss from the landscape.

This pre-decisional memo describes how the LTBMU would approach implementation of the Aspen Community Restoration Project. Pre-implementation work (e.g., stand-specific surveys and prescriptions) would be completed for treatment stands prior to implementation. This work would occur by grouping treatment stands in concert with available funding. For example, if funding for the treatment of 150 acres out of the 2,391 acres identified is available then pre-implementation work on those 150 acres would occur, followed by 150 acres of treatments. Pre-implementation work and treatments on the remainder of the 2,391 acres would then occur as additional funding is available. Pre-

implementation work and treatments for a group of treatment stands may occur in the same year or in subsequent years (e.g., wildlife surveys in 2009 followed by treatment in 2009, time permitting, or in 2010). The intent of using this approach for the Aspen Community Restoration Project is to reduce the amount of redundant documents produced in restoring aspen stands over a ten year period and to increase the amount of on-the-ground restoration possible given limited resources.

PURPOSE AND NEED:
The Aspen Community Restoration Project was initiated because the diversity and abundance of plant and animal species within aspen communities is a key component of the biological diversity and ecological condition of the Lake Tahoe Basin, yet aspen stands currently occupy less than two percent of the landscape and are deteriorating in condition.

Approximately 65% (by area) of aspen stands on the LTBMU are at moderate, high, or highest risk of loss from the landscape. Primary risk factors include overtopping of the aspen canopy by encroaching conifers and reduction of aspen stand regeneration. Herbivore browsing, a concern on other forests with greater concentrations of ungulates such as deer and elk, is not a primary risk factor on the LTBMU.

Historic land uses and practices such as Comstock-era logging (1860-1920), cattle and sheep grazing (1850's-1950's), rapid human development (1960-1980), and fire suppression (1911-present) have contributed to increases in the primary risk factors to aspen stands and to the deteriorated existing condition of aspen stands at moderate or greater risk of loss from the Lake Tahoe Basin. The legacy of Comstock-era logging is that some aspen stands were eliminated from the landscape (e.g., an aspen stand that appeared in photos behind the timber mill site on Spooner Summit) and remaining aspen are often encroached by conifers that have matured and grown large enough over the past 80 to 150 years to dominate aspen over-story canopies. Widespread cattle and sheep grazing reduced aspen survival and regeneration for approximately 100 years. The effects of grazing on the condition, structure, and extent of aspen stands have decreased over the past several decades as large-scale grazing operations were gradually eliminated from the Lake Tahoe Basin. Rapid human development often split, truncated or eliminated aspen stands as can be seen where stands are split by roadways or where aspen stands abruptly end at the boundary of the urban environment. Yet, perhaps the greatest factor influencing aspen stands within the Lake Tahoe Basin is the suppression of wildland fires. The removal of fire from stands of this fire-adapted species has allowed conifers to encroach and, where encroachment persists long enough, for conifers to overtop aspen and reduce or eliminate aspen regeneration, eventually causing stand type-conversions and the loss of aspen stands.

The purpose of the Aspen Community Restoration Project is to reduce conifer encroachment in aspen stands, and to increase aspen regeneration, the spatial extent of aspen stands, and the diversity and abundance of aspen community species.

GOAL AND OBJECTIVES:

The goal of the Aspen Community Restoration Project would be to restore aspen stands that are assessed to be at moderate, high, or highest risk of loss from the landscape on National Forest System lands within the LTBMU. Approximately 2,391 acres, including aspen stands and surrounding areas, have been identified for treatment, as funding permits, by the Aspen Community Restoration Project.

Objectives for aspen restoration include the following:

1. Aspen dominate the upper canopy for the next 15 years;
2. Conifers comprise less than 25% of the canopy for the next 15 years;
3. Aspen regeneration is vigorous (i.e., ≥ 500 stems/acre) within three years;
4. Aspen stand expansion is initiated within three years;
5. Aspen stands regenerate and mature toward a low or negligible risk of loss during the 15 years following treatment; and
6. Aspen and associated deciduous tree, shrub, and herbaceous habitats are improved and benefit the biological diversity and ecological condition of the forest.

Secondary benefits anticipated to result from the restoration of aspen stands include:

1. Aspen stand resilience to wildfire would be improved and wildfire behavior within and adjacent to treated stands would be moderated through conifer removal.
    a. Wildland fire burn severity and duration within treated aspen stands would be reduced;
    b. Risks to heritage resources and visual resources from wildland fire would be reduced; and
    c. Aspen stands in the desired condition would act as natural fire-breaks on the landscape.
2. Aspen community health and vigor would be improved as sunlight and subsurface water become more readily available to aspen and associated understory plant communities (i.e., mountain pennyroyal and California corn lily).
    a. Greater availability of subsurface water would improve the ability of aspen to repel insects and diseases, especially during periods of drought;
    b. Resistance to conifer invasion would be improved in treated stands where reduced transpiration rates lead to increased subsurface water, as conifers generally prefer drier soils than aspen do; and
    c. Infiltration and hydrologic function would improve in treated stands with healthy aspen understory plant communities.
3. The composition, species richness, and function of forested areas and associated wildlife and plant communities would be improved.
4. Visual resources would be improved as treated aspen stands regenerate and mature.

The goal, objectives, and secondary benefits of the Aspen Community Restoration Project, as described above, are connected to and are consistent with Forest Service management direction and goals, specifically for:

LTBMU Land and Resource Management Plan (LRMP)

1. #15. Historical and Cultural Resource Goal – Protect our historical and cultural heritage;
2. #23. Riparian Area Goal – Riparian areas are able to perform their natural function in the environment, such as habitat for dependent species and for watershed protection;
3. #26. Timber Goal – Maintain healthy, diverse forest conditions through timber management practices designed primarily to achieve scenic, water quality, recreation, wildlife habitat, vegetative diversity, pest, and fire protection benefits rather than for wood fiber production;
4. #27. Visual Goal – Maintain an attractive forest appearance by meeting or exceeding established visual quality objectives; and
5. #31. Wildlife Goals – Maintain habitat for the existing variety of wildlife without preference to game or non-game species. Preserve and enhance populations of threatened, endangered, and sensitive species.

LRMP as amended by the Sierra Nevada Forest Plan Amendment, 2004 (SNFPA) Goals for aquatic, riparian, meadow communities:

1. Maintain and restore habitat to support viable populations of native and desired non-native plant, invertebrate and vertebrate riparian-dependent species. Prevent new introductions of invasive species. Where invasive species are adversely affecting the viability of native species, work cooperatively with appropriate State and Federal wildlife agencies to reduce impacts to native populations;
2. Maintain and restore the species composition and structural diversity of plant and animal communities in riparian areas, wetlands and meadows to provide desired habitats and ecological functions;
3. Maintain and restore spatial and temporal connectivity for aquatic and riparian species within and between watersheds to provide physically, chemically, and biologically unobstructed movement for their survival, migration and reproduction;
4. Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats; and
5. Maintain and restore soils with favorable infiltration characteristics and diverse vegetative cover to absorb and filter precipitation and to sustain favorable conditions of stream flows.

PROPOSED ACTION:

The Aspen Community Restoration project would restore aspen stands assessed to be at moderate, high, or highest risk of loss on LTBMU National Forest System lands in Douglas and Washoe counties, and Carson City, Nevada; and Alpine, Eldorado and Placer counties, California. Locations of known aspen stands at moderate, high, or highest risk of loss from the landscape within the LTBMU are shown in Figure 1.

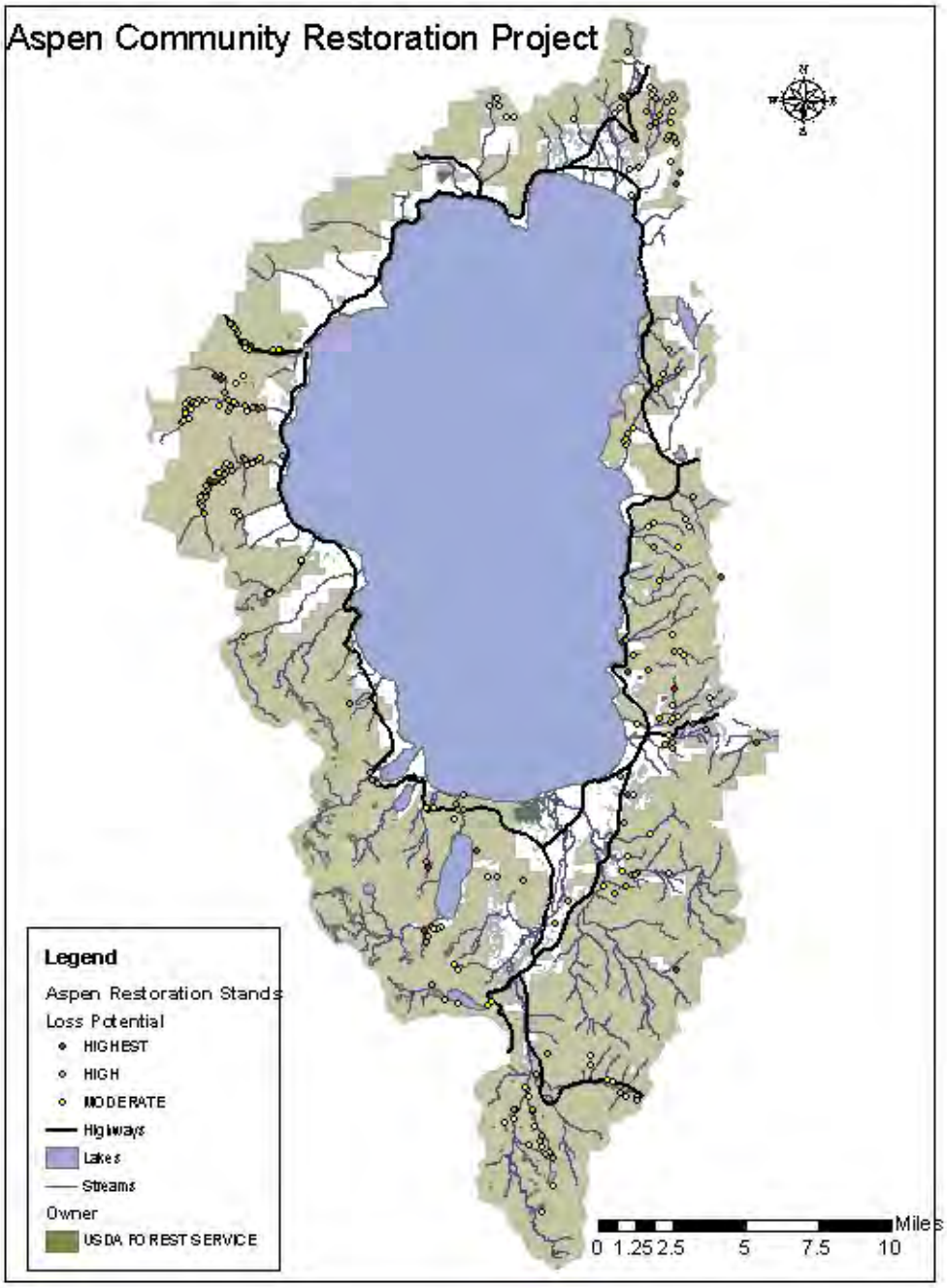

Figure 1. Current map of aspen stands at moderate, high, or highest risk of loss from the landscape within the Aspen Community Restoration Project.

Vegetation would be treated within and/or adjacent to aspen stands that are determined to be at moderate, high, or highest risk of loss from the landscape (Fig. 1). The Aspen Community Mapping and Condition Assessment Project, completed in March 2007, identified that approximately 1,603 acres (65%) out of a total 2,485 acres of aspen on the LTBMU are at moderate, high, or highest risk of loss. The project area would include aspen stands at moderate, high, or highest risk of loss on National Forest System lands throughout the LTBMU with the exception of aspen stands located within other project areas that have or will be incorporating aspen vegetation treatments as part of their proposed action (i.e., current fuel reduction and forest health projects – South Shore Hazard Fuel Reduction and Healthy Forest Restoration Project, future fuel reduction and forest health projects – Carnelian, Spooner, & Incline Village Projects, Angora Fire Restoration Project, or watershed restoration projects – Blackwood Stream Restoration Project). Stands located within designated Wilderness areas would also be excluded from the proposed action. Aspen stands within the Grass Lake Research Natural Area (RNA) would be included in this project. An estimated 1,194 acres (74%) of the moderate, high, or highest risk aspen stands on the LTBMU are located outside other planned, proposed, and current vegetation treatment project areas or Wilderness areas. In total, the forest has identified approximately 2,391 acres including aspen stands and surrounding areas that may be treated to facilitate aspen stand restoration and expansion, as funding permits, by the Aspen Community Restoration Project described here. The project would include aspen stands discovered in the future that are located outside other project areas or Wilderness areas, as described above, or acquired in the future by the LTBMU, that are at moderate or greater risk of loss from the landscape.

The Aspen Community Restoration Project would move aspen stands from an existing condition of moderate, high, or highest risk of loss toward the desired condition where: 1) the upper canopy is dominated by aspen; 2) conifers comprise less than 25% of the canopy; and 3) aspen regeneration is vigorous. Treated aspen stands would be expected to regenerate and mature toward a low or negligible risk of loss during the estimated 15-year lifespan of the treatments.

The LTBMU currently has funding from multiple sources for implementation on an estimated 250-300 acres. Treatment of approximately 160 acres of selected aspen stands at risk would begin in summer 2009 and is expected to be completed in fall 2009 (hand treatments) or in summer/fall 2010 (mechanical treatments). Implementation on the remaining estimated 90-140 acres would begin in summer 2010 and is expected to be completed in 2010 (hand treatments) or 2011 (mechanical treatments). Additional funding would be sought to continue implementation on approximately 250 acres per year thereafter, as funding is available, until treatments are completed.

Vegetation treatments (Figures 2 – 4) designed to restore aspen communities may include (1) conifer removal to reduce or eliminate conifer encroachment, (2) aspen removal to promote root stimulation and stand regeneration, (3) aspen root separation, and/or (4) prescribed fire. Vegetation treatments may occur either by hand or mechanically as described next.

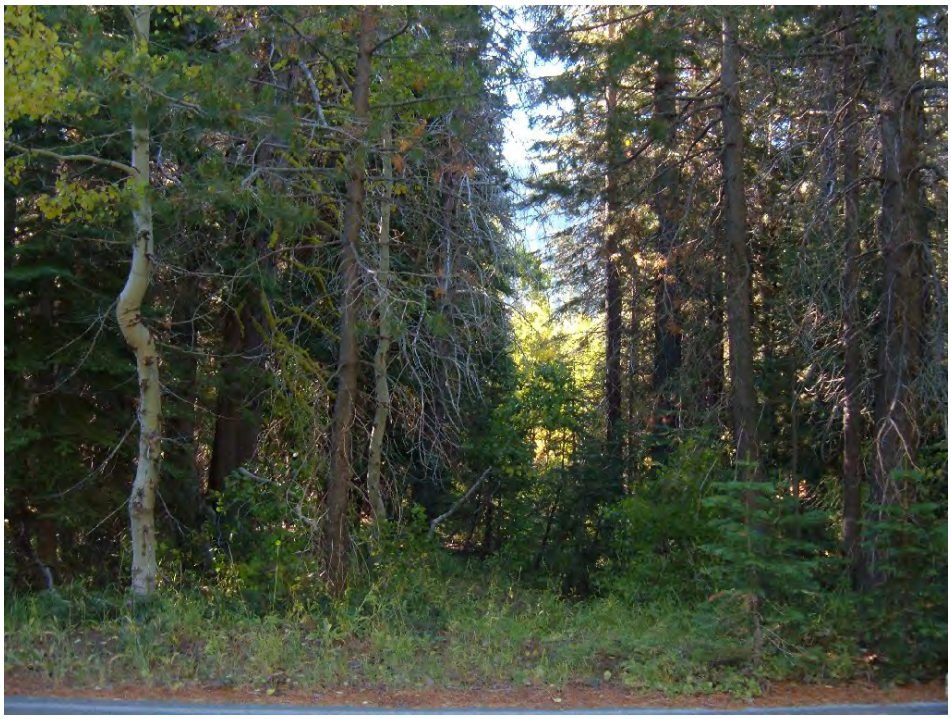

Figure 2. An aspen stand at high risk of loss from the landscape before treatment in Blackwood Canyon (note white aspen tree bole on left side of the photo).

Figure 3. An aspen stand formerly at high risk of loss from the landscape shown immediately after treatment in Blackwood Canyon (note white aspen tree bole on left side of the photo).

Figure 4. An aspen stand at formerly high risk of loss from the landscape three years after treatment in Blackwood Canyon (note white aspen tree bole on left side of the photo).

Hand treatments would remove live trees up to 18 inches in diameter at breast height (dbh) and dead and down trees up to 20 inches dbh. Live trees larger than 18 inches dbh may be felled, but may not be removed due to practical constraints of moving trees with hand crews. Manageably-sized portions of felled live trees (e.g., branch wood and portions of boles smaller than 18 inches dbh) may be removed to increase the amount of sunlight reaching the forest floor, promote aspen stand regeneration, and reduce potential fuel hazards.

Mechanical treatments would not be constrained by an upper diameter limit, though live trees larger than 30 inches dbh would be removed only as described in the project design features (below).

Vegetation treatments may extend beyond the perimeter of an aspen stand up to (1) 1½ 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 (to conduct treatments or process treatment by-products), whichever is greater. The additional spatial extent of vegetation treatments would allow more sunlight to reach the forest floor, stimulate aspen regeneration, promote expansion of aspen stands, and provide space to operate and process materials (e.g., boles and branch wood) outside of the stream environment zone (SEZ). Treatment by-products would be processed on (e.g., chipped, masticated, lop-and-scattered, or piled for burning) or removed from (i.e., for commercial processing or other uses) treatment areas.

Treatments that remove up to 75% of the existing basal area of aspen trees within an aspen stand would promote root stimulation and stand regeneration in stands – a valuable tool in late seral stands with healthy root systems, but lacking regeneration. The removal of more than a small fraction of existing aspen basal area would be expected to be the exception rather than the rule. Aspen removal would be accomplished in the same way as described for conifer removal.

Snags and coarse woody debris would be retained for wildlife and fisheries resources as described below in the project design features. Furthermore, snag and coarse woody debris retention in the general forest, in areas outside those described for the wildlife and fisheries design features, would occur as described in the vegetation design features.

Aspen root separation, the physical separation of roots from the nearest trees, stimulates aspen suckering and is typically accomplished mechanically, but may be accomplished by hand in very small stands. Root separation is achieved in the upper soil layers (typically within the upper 8 inches) as aspen roots occur just below the ground surface. Root separation treatments would occur within the maximum extent of lateral roots as described above.

Prescribed fire, which is very effective in stimulating aspen regeneration, may be used as the primary treatment method or subsequent to other treatments. Prescribed fire would be permitted to back into aspen stands as a surface fire only. In order to maximize aspen tree survival and root stimulation, fire intensity would be light to moderate and residence time would be limited. Pile burning would occur within treated areas, including limited portions of the SEZ, as described below. Existing roads and trails would be utilized as fire lines to minimize new ground disturbance, though additional fire lines may be constructed with hand tools. All constructed fire lines would be rehabilitated after implementation following Best Management Practices (BMPs) and resource-specific design features (described below). Rehabilitation activities would include using hand crews and hand tools to rake in berms, install water bars, and scatter downed wood where appropriate.

PROJECT DESIGN FEATURES:
Project design features are elements of the proposed action and 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.

Scenic

1. Minimize cut tree stump heights to six inch maximum when measured from the uphill side, when cut stumps are visible in foreground views from FS System roads and trails.
2. Locate burn piles a minimum of 100 feet from Forest Service System roads and 50 feet from Forest Service System trails.
3. Implement fire prevention measures (e.g., clearing fuels or using fire resistant materials) to protect aspen trees intended for retention, and located within foreground views from Forest Service System roads and trails, from scorching during prescribed fire activities.

4. Rehabilitate all temporary road surfaces and areas of disturbance following management activities. Lop and scatter vegetation on temporary road surfaces and surrounding areas to reduce visual contrast between temporary road alignment and surrounding landscape.
5. Rehabilitate all mechanical treatment landing/staging areas following management activities. Lop and scatter vegetation on landing/staging areas to reduce visual contrast between area of management activity and surrounding landscape.

Recreation

1. Public Safety – Public safety is a priority. If recreational activities occur in project areas, signs would be posted to notify the public of project objectives and safety concerns. Temporary area closures and/or temporary forest closures may be necessary to protect the public.
2. Wilderness – Treatments would not occur in designated Wilderness areas.
3. Recreation Access –
    a. Access to recreation locations would not be altered permanently once restoration activities are completed.
    b. Project information (e.g., educational materials) would be provided in areas where the project may affect recreation activities.
    c. Thinning operations in high recreational use areas would be scheduled during non-peak use times and the public would be notified in advance.
    d. Mountain bikes would be allowed on system roads and trails in the project area during activities, but away from equipment operations and only when a forest area closure is not specified.
    e. To prevent user-created trails that are not on system roads and trails, barriers (e.g., boulders, split rail fence, and barriers/signs) would be established in treated areas adjacent to system roads and trails and on temporary roads if operations are halted for the season (e.g., for the winter) and/or when vegetation treatments are completed.
4. Special Uses – The project would adhere to special use clauses where applicable (e.g., meet requirements or management direction of special use permits).

Engineering

1. No permanent roads would be constructed.
2. Under a categorical exclusion, one mile or less of ‘low standard construction’ temporary roads may be constructed for the entire project (i.e., total mileage for all stands restored). For the purpose of this project, temporary roads are considered ‘low standard construction’ as they would meet Service Level D (FSH 7709.56) standards (e.g., volume is limited to that associated with the single purpose).
3. Temporary roads constructed for the project would be restored after stand treatments are completed. Restoration may include boulder placement, bark mulching, etc.

4. Project activities on permanent and temporary roads would obey road closures, as described in the LTBMU Gate Management Plan and in consultation with the LTBMU Engineering Department, to protect forest resources.
5. Additional design features for temporary roads and landings:
    a. No temporary roads would be built in designated Roadless areas.
    b. Locate temporary roads and landings on existing disturbed areas and alignments to minimize new ground disturbance where possible.
    c. Construction of temporary roads and landings:
        i. Locate temporary roads and landings outside of the SEZ.
        ii. Remove vegetation from the alignment or landing in a manner consistent with project vegetation design features.
        iii. Minimize cut-and-fill slopes while grading the surface of the road or landing, out-sloping roads where feasible.
        iv. Install features such as water bars and rolling dips on road surfaces to reduce storm water run-off velocity and minimize erosion.
        v. Install road features such as culverts and stream crossings to facilitate the free flow of perennial and seasonal drainages and ditches.
            1. If installation of a 24" diameter culvert meets or exceeds the flow capacity anticipated for a 100-year run-off event, the forest may leave the culvert in place over winter (generally defined as after October 15). If not, the culvert would be removed and BMPs applied to the crossing.
            2. Stream crossings would be roughly perpendicular to watercourses, spaced widely as possible, and marked.
        vi. Landings would not exceed one acre in size.
        vii. Identify vehicle turn-around locations.
    d. Maintenance
        i. Monitor and maintain BMPs as described below.
    e. Restoration
        i. Remove all installed features such as culverts.
        ii. Re-contour the road to closely approximate the local land surface.
        iii. Rip the road surface to a depth recommended by a soil scientist or designee.
        iv. Seed and mulch treatment areas in consultation with soil, botany, and vegetation specialists.

<u>Urban Lots</u>

1. Treatment prescriptions in urban lots would have the same objectives as elsewhere in the project area.
2. Ground-based mechanical treatments would be considered in urban lots.
3. Trees that pose a hazard to life or property may be removed. No upper dbh limit would apply to hazard trees.
4. Road shoulders may be used to process materials taken from urban lots when feasible.

5. Chipped or masticated material may be broadcast in upland urban lots, but not in urban lot SEZs. Chipped or masticated materials would not average more than 3 inches deep on affected urban lots.

Vegetation

1. Design vegetation treatments to restore aspen communities where applicable through the removal of encroaching conifers up to (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 (to conduct thinning operations or process treatment by-products), whichever is greater.
2. To promote aspen regeneration, tree removal would not be constrained by an upper diameter limit. In most cases, trees marked 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 would 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.
3. Hand and/or ground-based mechanical vegetation treatments may be used to restore aspen stands. Site-specific suitability for mechanical treatment would be determined prior to implementation as follows:
    a. Mechanical treatments may occur on slopes of less than 30%.
    b. Mechanical treatments may occur when soil moisture at 6-10 inches depth is suitable for operations prior to the start of implementation and expected to remain so during operations (see Table 1 in Appendix 1 for a description of suitable soil moistures for a range of soil types – corresponding to cells in the table that are not highlighted).

c. Mechanical treatments may occur if implementation would be feasible given consideration for at least the following additional factors: 1) proximity to existing access routes; 2) location and orientation of stream channels, wet areas, and steep slopes; and 3) the size, distribution, and extent of boulders in the treatment stand.

4. 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).
5. All vehicles used for tree removal would be restricted to areas outside SEZs or to existing roads within SEZs, except as follows:
   a. During over-snow operations
      i. When snow conditions (e.g., depth, compaction, and temperature) are determined by the soil scientist or designee as suitable for the site for over-snow operations.
   b. When, using the SEZ sensitivity scoring system developed for the Heavenly Valley Creek SEZ Demonstration Project (HSEZ), the SEZ sensitivity score is equal to or less than that found in the HSEZ project.
      i. The SEZ sensitivity scoring system is designed to evaluate the sensitivity of mechanical treatment units that contain SEZs in comparison to HSEZ mechanical treatment units, using the same criteria. If aspen units have an equal or higher sensitivity rating than HSEZ units, they would either be considered for more intensive monitoring to evaluate the impacts of mechanical equipment operations, or changed to hand treatment.
      ii. Work in SEZs would be limited to the time of year when soils are dry enough to operate (based on the guidelines developed in the HSEZ sensitivity scoring system).
      iii. Mechanical equipment would not be allowed within 25 feet of watercourses. However, endlining within 25 feet would be permitted.
6. Snag and coarse woody debris (CWD) retention in the general forest, in areas outside those described for the wildlife and fisheries and aquatic habitats (design features for these resources are described further below), would occur as follows:

a. The largest snags present within treatment areas would be retained in clumps and distributed irregularly across treatment stands at the following rates (averaged across each treatment stand) by forest vegetation type:
    i. Westside mixed conifer and Jeffrey pine: four snags per acre.
    ii. Red fir – six snags per acre.
    iii. Eastside pine and eastside mixed conifer – three snags per acre.
    iv. Westside hardwood – four snags per acre.
        1. Where standing live hardwood trees lack dead branches – six snags per acre (where they exist to supplement wildlife needs for dead material).
b. Five to ten tons per acre of CWD (averaged across each treatment stand) would be retained, emphasizing retention of the largest size classes and decay classes 1-4.

7. 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.
8. Root separation
    a. Root separation would occur only within the extent of lateral aspen roots.
    b. Root separation would occur within the upper soil layers (typically within the upper 8 inches) where lateral aspen roots occur.
    c. Root separation would not occur in perennial, ephemeral or intermittent stream channels. Mechanical equipment would not be allowed within 25 feet of watercourses as described above.
    d. Mechanical root separation in SEZs may occur only when an erosion hazard evaluation determines that a low erosion hazard condition exists (Erosion Hazard Rating system describing low, moderate, high, and very high ratings attached in Appendix 2). Site-specific BMPs would be determined and implemented prior to the initiation of root separation treatments.
9. Trees would be felled away from watercourses.
10. Materials and equipment would be staged in disturbed areas where available.
11. Chipped or masticated material may be broadcast in uplands, but not in SEZs. Chipped or masticated materials would not average more than three inches deep.
12. Apply borax (or approved equivalent) by hand, to a minimum stump size of 12 inches in diameter at the recommended rate, to all conifer species within four hours of felling to reduce the spread of annosus root disease caused by the fungus Heterobasidion annosum (Fr.) Bref. (Fomes annosus) in adjoining stands.
13. Applications of borax (or approved equivalent) would follow all state and federal rules and regulations.
14. Applications of borax (or approved equivalent) would not occur near running water or during sustained rainfall.

15. Storage of fuels or refueling would not be allowed in SEZs, specifically Riparian Conservation Areas or Critical Aquatic Refuges.

Fire

1. Use of fire would follow an approved burn plan.
2. 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, fire may be allowed to creep between piles and into this buffer, maintaining flame lengths of less than two feet in height.
    b. Piles would be placed in a non-linear pattern in each unit.
    c. Maximize the distance between piles to the extent feasible, maintaining approximately 20 foot average spacing between piles in each unit.
    d. Burning piles in aspen would 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. Maximum pile size in aspen stands is 6 feet in diameter by three feet in height.
            2. Piles would be located outside the extent of lateral roots to the greatest extent possible.
    e. Maximum pile size in conifer stands is 10 feet in diameter by five feet in height.
    f. Within SEZs
        i. No more than 15% of any acre may be burned within SEZ units each year. Therefore, if 30% of each SEZ acre is covered with piles, only half of those piles may be burned each year.
        ii. Piling and burning would be permitted up to the edge of, but not within, ephemeral channels.
        iii. Up to one “chunk” may be reintroduced per pile in SEZs (i.e., only large pieces may be thrown back into the fire once per pile, then let the fire burn out and leave what does not burn on site).
        iv. Hot piling of burn piles would not be allowed within SEZs (i.e., do not feed one pile with the material from other piles or ground material).
3. 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.

c. Fire would not be directly applied to SEZs; however, fire in underburn units would be allowed to creep into SEZs.

4. No fire line construction would take place within SEZs.
5. Rehabilitate control lines using hand tools and hand crews.
6. 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.
7. Fire retardant and/or foam would not be applied within SEZs, unless required for fire suppression.
8. 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.
9. Chipped or masticated material would not be piled and burned.

Wildlife

1. Vegetation treatments located within northern goshawk and California spotted owl Protected Activity Centers (PACs) and TRPA goshawk disturbance zones would, where existing conditions permit, result in at least the following: 1) two tree canopy layers; 2) dominant and co-dominant trees with average diameters of 24 inches dbh; 3) 60 to 70 percent canopy cover; 4) an average of five to eight snags (five in eastside pine and mixed conifer, six in Westside pine and mixed conifer, and eight in red fir forest types) per acre larger than 20 inches dbh and of variable decay classes; and 5) 15 tons of coarse woody debris (CWD) per acre larger than 20 inches in diameter (at the large end) and of variable decay classes.
2. Vegetation treatments located within California spotted owl Home Range Core Areas (HRCAs) would, where existing conditions permit, result in at least the following: 1) two tree canopy layers; 2) dominant and co-dominant trees with average diameters of 24 inches dbh; 3) 50 to 70 percent canopy cover; 4) an average of three to six snags (three in eastside pine and mixed conifer, four in Westside pine and mixed conifer, and six in red fir forest types) per acre larger than 20 inches dbh and of variable decay classes; and 5) 10 tons of coarse woody debris per acre larger than 20 inches in diameter (at the large end) and of variable decay classes.
3. Vegetation treatments located within bald eagle wintering habitat mapped in the vicinity of Tallac Creek and Taylor Creek and in the Fallen Leaf Management Area adjacent to wetland, wet meadow, and open water habitats would, where existing conditions permit, result in the following: 1) retention of trees greater than 40 inches dbh and greater than 98 feet tall; and 2) and an average of six snags per acre larger than 20 inches dbh in variable decay classes.
4. Vegetation treatments within osprey nest stands would, where existing conditions permit, result in the following: 1) retention of all known standing osprey nest trees; and 2) retention of an average of three trees per acre that are

5. Restore aspen stands to retain or develop forested linkages between old forest habitats, reducing old forest habitat fragmentation and increasing connectivity in the long term.
6. Conduct wildlife surveys in suitable habitat(s) for threatened, endangered, candidate, sensitive, and special interest species prior to implementation as directed by the project biologist or use Limited Operating Periods (LOPs) to protect the breeding activities of these species.
7. Discovery of federally-listed threatened or endangered species, LTBMU sensitive species, or TRPA special interest species, or their reproductive sites, would be reported to a USFS wildlife biologist and managed as directed in the Forest Plan.

Fisheries and Aquatic Habitat

1. Use hand treatments in SEZs or evaluate for the time of year for mechanical treatments to avoid impacts to fish migration and/or spawning.
2. Remove vegetation in streamside zones and over streams with an excess of standing and down vegetation, such as stream reaches that exceed 75% stream shading from dead and down or ladder fuels.
3. For streams lacking large woody debris for fish habitat, place trees larger than 12" dbh into the stream, in locations prescribed by a USFS fisheries biologist.
4. Leave or reposition large woody debris in stream channels unless doing so would adversely affect channel stability.
5. To maintain shading of stream banks along streams containing rainbow trout, retain at least 50% of the potential herbaceous and shrub cover and at least 20% of the potential tree canopy cover within treated stands. Where existing tree canopy cover is less than 20%, 80% of the potential would be retained. Between 35-70% of the stream should be shaded from 1100 to 1600 hours.
6. Incorporate Best Management Practices (BMPs) prior to implementation to meet water quality objectives and maintain and improve the quality of surface water on the forest.

Hydrology

1. Conduct site evaluations to assess hydrologic impact potential. Evaluate in terms of hydrologic connectivity to perennial channels, stream bank stability, soil stability, suitability for the treatment type (e.g., mechanical or hand treatment), and depth to ground water. Site evaluation reports would provide sufficient detail for developing a water quality protection strategy.
2. Develop a site-specific BMP strategy. Each strategy would include a description of BMP-type and application, location, and specifications for application.
3. Install and maintain soil and water best management practices concurrent with operations or prior to forecast precipitation events. BMP monitoring would include Regional Best Management Practices Evaluation Program (BMPEP) monitoring as described in the Regional BMPEP Monitoring Protocols,

4. BMPs would require monitoring and maintenance throughout the life of the project and/or until the newly exposed soils have been stabilized. The following BMPs would be used on each temporary road.
    a. Install silt fencing or coir logs on downhill side of roads during temporary road construction. Maintain silt fencing during temporary road use and decommissioning.
    b. Delineate the boundary and extent of temporary roads with fencing or flagging.
5. Develop a water diversion, dewatering, and re-watering plan, if necessary, for sites located along perennial streams. The Forest Service would consult with LRWQCB for sites located adjacent to 303D-listed streams and implement additional BMP measures as agreed between the agencies.
6. Conduct mechanized ground-disturbing activities during periods of low stream flow and deep ground water, generally from August 15 to October 15, in SEZs. Ground-disturbing activities may occur earlier or later if field conditions permit as coordinated with LRWQCB.

Sensitive Plants

1. Survey treatment areas, including temporary roads, landings, and other areas where ground-disturbance has occurred, which have not been previously surveyed, for sensitive plants prior to implementation. Surveys would remain valid for five years.
2. If any LTBMU sensitive species, special interest species, or sensitive communities (fens) are identified during surveys or project implementation, they would be flagged and avoided.
3. If any LTBMU sensitive species, special interest species, or sensitive communities (fens) are identified, a buffer of up to 100 feet in diameter would be flagged around the sensitive resource. The spatial extent of each buffer would be determined on a site-specific basis. The goal of the buffer is to prevent direct disturbance to the plants and to protect the local habitat by minimizing disturbance to the soils, hydrology and mychorrhizal community.
4. A USFS botanist would be consulted prior to implementation of prescribed fire treatments within 400 meters of *Rorippa subumbellata* to develop site-specific recommendations with the intention of minimizing the risk of unintentional fire-related impacts to this species.
5. Depending on the species and habitats identified, hand thinning could be used in buffered areas as long as impacts to hydrology, soils, and the mychorrhizal community are prevented.
6. Prescribed fire would be excluded from the buffered zones.
7. Directionally fell trees away from sensitive plant populations, sensitive plant communities (fens), or special interest plant species.

Noxious Weeds

1. Survey treatment areas, including temporary roads, landings, and other areas where ground-disturbance has occurred, which have not been previously surveyed, for noxious weeds prior to implementation. As part of the surveys, weed infestations within the treatment area or along associated travel routes would be manually controlled/removed or flagged so they may be avoided during project implementation.
2. Do not locate staging areas (e.g., for equipment, materials, or crews) in weed infested areas.
3. All off-road equipment used on this project would be washed before moving into the project area to ensure that the equipment is free of soil, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds. Off-road equipment includes all logging and construction equipment and such brushing equipment as brush hogs, masticators, and chippers; it does not include log trucks, chip vans, service vehicles, water trucks, pickup trucks, and similar vehicles not intended for off-road use. Equipment would be considered clean when visual inspection does not reveal soil, seeds, plant material, or other such debris. When working in known weed infested areas equipment shall then be cleaned at a washing station before moving to other Forest Service System lands which do not contain noxious weeds.
4. All earth-moving equipment, gravel, fill, or other materials are required to be weed-free. Use onsite sand, gravel, rock, or organic matter when possible.
5. Where feasible, reestablish vegetation on disturbed bare ground to minimize potential weed establishment. Revegetation is especially important where the potential for weed introduction may be highest, such as at staging areas.
6. Weed-free mulches and seed sources would be used. Salvage topsoil from project area for use in onsite revegetation when possible, unless contaminated with noxious weeds. All activities that require seeding or planting must utilize locally collected native seed sources when possible. Plant and seed material should be collected from or near the project area, from within the same watershed, and at a similar elevation when possible. Persistent non-natives such as *Phleum pratense* (cultivated timothy), *Dactylis glomerata* (orchard grass), or *Lolium* spp. (ryegrass) would not be used. This requirement is consistent with the USFS Region 5 policy that directs the use of native plant material for revegetation and restoration for maintaining "the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems". Seed mixes must be approved by a Forest Service botanist.

Heritage

1. Survey all treatment areas, including all temporary roads, lands, and associated ground disturbing activities, which have not been previously surveyed, for cultural resources prior to implementation.
2. Protect all cultural properties from any impacts related to project activities. Design and implement site-specific protective measures (such as flagging and

3. Comply with Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulations (36 CFR Part 800) and all applicable laws and regulations before project activities are implemented. Accomplish compliance with law and regulation as follows:
    a. In California, use the Region 5 Programmatic Agreement (PA) with the California State Preservation Officer and the Advisory Council on Historic Preservation to comply with Historic Preservation laws and regulations.
    b. In Nevada, use site-specific protective measures for cultural properties that result in a determination of "no historic properties affected" in consultation with the Nevada State Preservation Officer. Note: use the Programmatic Agreement with the Nevada State Historic Preservation Office, which is currently in review, if the agreement is authorized.

Lands

1. Review property boundaries located adjacent to non-National Forest System lands prior to implementation.
2. Property lines would be flagged and monuments would be recorded.
3. If monuments have been removed, these would be recorded and set at a later date.

Monitoring

1. This project would include implementation monitoring to verify that all design features, including BMPs, are implemented as described.
2. This project would include effectiveness monitoring: avian community response to treatments would be assessed in partnership with the University of Nevada, Reno. Response to treatments would be assessed in terms of changes within avian communities using metrics such as abundance, species richness, and composition. Differences in avian community response may be assessed by treatment types, risk of loss category, and/or canopy cover as feasible.
3. Pile burning in aspen would be monitored as part of an adaptive management strategy. Details of the monitoring plan (e.g., design, metrics, and thresholds) are being developed in partnership with Humboldt State University. The monitoring program would analyze the effects of a range of pile burning prescriptions (e.g., varying the size of the piles and/or burning at different times of the year) in aspen. The results of the monitoring program would change project implementation (e.g., maximum size or distribution of the burn piles) or eliminate pile burning in aspen – and contribute to the best available science.

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. I have determined that this proposed action fits under Forest Service Handbook (FSH 1909.15) Chapter 31.2 - Categories of Actions Excluded in an EA or EIS for which a Project File and Decision Memo are required. The category used is Category 6 - Timber Stand and Wildlife Habitat Improvement activities that do not include the use of herbicides or do not require more than one mile of low standard road construction (Service level D, FSH 7709.56). The project is consistent with this category as tree thinning, root separation, and underburning are intended to improve the condition and spatial extent of aspen stands, increase the diversity and abundance of understory herbaceous vegetation, and improve wildlife habitats to benefit the biological diversity and ecological condition of the forest.

EXTRAORDINARY CIRCUMSTANCES:
This project is categorically excluded because no extraordinary circumstances exist potentially having effects which may individually or cumulatively have a significant affect on the human environment based on the following:

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). The only threatened or endangered species known to occur on the LTBMU is Lahontan cutthroat trout (*Oncorhynchus clarkia henshawi*; LCT). There would be no effect to LCT, though they occupy some stream reaches and lake habitat within the project area, because of LCT-specific project design features. Critical habitat has not been designated by the U.S. Fish and Wildlife Service for LCT.

   Project design features, described in this memo, are intended to minimize potential effects to sensitive species. 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. Effects to wildlife, aquatic and sensitive plant resources are discussed in the Wildlife BE/BA and Sensitive Plant BE, which are found in the project record.

2. Flood plains, wetlands, or municipal watersheds – This project is intended to restore aspen stands, which are often located within or adjacent to floodplains, wetlands and municipal watersheds. No significant effect on the quality of the human environment is expected because of the limited scope and dispersed nature of this project.

   Floodplains: Executive Order 11988 is to avoid adverse impacts associated with the occupancy and modification of floodplains. Floodplains are defined by this order as, ". . . the lowland and relatively flat areas adjoining inland and coastal waters include flood prone areas of

offshore islands, including at a minimum, that area subject to a one percent [100-year recurrence] or greater chance of flooding in any one year."

The project area contains floodplains. This has been validated by map and site-review. Best Management Practices would be incorporated to ensure that floodplain-related impacts are minimized. Potential effects of the proposed action have been evaluated and would not result in extraordinary circumstances.

Wetlands: Executive Order 11990 is to avoid adverse impacts associated with destruction or modification of wetlands. Wetlands are defined by this order as, "areas inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or will 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."

There are no swamps, marshes, bogs, or similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds in the project area. However, project activities would occur adjacent to wetland habitats. This has been validated by map and site-review. This project is expected to benefit the ecological condition of adjacent wetland habitats through improvements in the infiltration of snow melt and precipitation and the retention and filtration of surface and ground water.

Municipal Watersheds: BMPs would be utilized to protect municipal watersheds from impacts during implementation. This project is expected to benefit municipal watersheds through improvements in infiltration of snow melt and precipitation and retention and filtration of surface and ground water.

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

4. Inventoried roadless areas – The project includes treatments in roadless areas; however, no vehicles would be utilized in these areas and no temporary roads would be constructed.

5. Research Natural Areas – Grass Lake RNA is included in this project as aspen stands at moderate or greater risk of loss occur in the RNA due to the wildland fire suppression and conifer encroachment. The Grass Lake RNA is considered the largest *Sphagnum* bog in California and the best representative

6. American Indians and Alaska Native religious or cultural sites – Surveys for archaeological sites and historic properties have been completed for most of the project area and would be completed in the remainder prior to project implementation. American Indian religious or cultural sites have not been detected within the project area. However, if these types of sites are detected project heritage design features would be implemented. Alaskan sites do not apply to the California region.

7. Archaeological sites, or historic properties or areas – The State Historic Preservation Offices of California and Nevada concurred that this project would not adversely affect cultural resources. Project design features require surveys for cultural resources prior to implementation and protection of these resources when they occur and could be affected by project activities. Surveys for cultural resources have been completed for most of the project area and would be completed in the remainder prior to project implementation.

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 Lake Tahoe Basin Management Unit 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. 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 evaluation contains the sensitive species list and analyses of potential effects to species and their habitats.

Clean Water Act – The purpose of this Act is to restore and maintain the integrity of waters. The proposed action is expected to benefit waters within the project area through the lifetime of the treatments and includes BMPs to protect soil and water resources during project implementation. Stand-specific BMPs would be determined as described in the project design features during field assessments prior to implementation.

Clean Air Act – Under this Act, areas of the country were designated as Class I, II, or III airsheds 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. However, because of the limited scope and dispersed nature of this project, no impacts to air quality are expected.

National Historic Preservation Act – The State Historic Preservation Offices of California and Nevada concurred that this project would not adversely affect cultural resources. Project design features require surveys for cultural resources prior to implementation and protection of these resources when they occur and could be affected by project activities. Surveys for cultural resources have been completed for most of the project area and would be completed in the remainder prior to project implementation.

PUBLIC INVOLVEMENT:
This project was listed on the LTBMU's Schedule of Proposed Action (SOPA) in January 2008. A 30-day public scoping period was announced by legal notice in the local paper of record, the Tahoe Daily Tribune, and began on September 16, 2008. The scoping package was posted on the LTBMU website during the scoping period. Comments were received from Tahoe Regional Planning Agency, Lahontan Regional Water Quality Control Board, the League to Save Lake Tahoe, the Sierra Forest Legacy, and two individual members of the public. The Forest received comments requesting project clarifications and expressing support for the project.

The LTBMU solicited public and agency comments for Aspen Community Restoration Project based on a preliminary proposed action in September 2008 as part of the National Environmental Policy Act (NEPA) process. The project has been refined since that time based on comments that were received and internal inter-disciplinary review. Primary refinements in the project include the following:

1. Increased treatment area (described below);
2. Clarification of design features (DFs) for:
    a. Removal of large, late seral trees (see Vegetation DF #2);
    b. Site-specific suitability for mechanical treatment (see Vegetation DF #3);
    c. Stream Environment Zone (SEZ) delineation (see Vegetation DF #4);
    d. Vehicle use in SEZs (see Vegetation DF #5);
    e. Root separation in SEZs (see Vegetation DF #8); and
3. Inclusion of pile burning in aspen (described below; also see Fire DF #1).

The treatment area in the proposed action was increased from 1,115 acres to 2,391 acres. Aspen stand mapping refinements increased the acreage from 1,115 to 1,194 acres. Mapping and inclusion of treatments adjacent to aspen to facilitate treatment and expansion of aspen stands increased the acreage from 1,194 to 2,391 acres. The 2,391-acre treatment area is an estimate based on a 100 foot buffer around mapped aspen stands (see Vegetation DF #1) and is thought to over-represent the total treatment area. Treatment areas would be determined on a stand-specific basis as described in the project design feature, precluding further refinement of treatment acres.

Pile burning in aspen stands was added to the proposed action for 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. An example of a scenario where pile burning in aspen may be a desirable treatment option is where conifer densities in the aspen stand and the associated adjacent treatment area are too great to accommodate pile burning exclusively where the conifers are to be removed. Another example would be where removal of the treatment by-products from the site is not feasible because roads are not permitted and or do not exist in proximity to the area. In this scenario, the amount of pile burning in aspen stands would be kept to a minimum (following Fire DF #1) as aspen trees, ramets, and roots are susceptible to fire damage. The intent of including this treatment type in the proposed action is to permit treatment of aspen stands, which result in net benefits to aspen, in stands that could not otherwise be treated feasibly and would, therefore, remain at moderate, high, or highest risk of loss from the landscape.

The best currently available science and management experience does not preclude pile burning in aspen. The LTBMU contacted the Lassen National Forest (as suggested by a commentor), where pile burning in aspen has been discontinued, and determined that pile burning in aspen is feasible though care must be exercised. A monitoring program and adaptive management strategy for pile burning in aspen is in development as part of this project in coordination with Humboldt State University and in consultation with the Forest Service Region 5, Regional Office and Wayne Shepperd, lead author of Ecology, Biodiversity, Management, and Restoration of Aspen in the Sierra Nevada (RMRS-GTR-178). The monitoring program would analyze the effects of a range of pile burning prescriptions (e.g., burning three-foot tall versus two-foot tall piles) in aspen. The results of the monitoring program would be part of an adaptive management strategy – supporting, improving or eliminating pile burning in aspen as project implementation continues – and contribute to the best available science on the topic in the Sierra Nevada Mountains and similar western ecosystems.

A 30-day public comment period was initiated April 3, 2009. Legal notice was published in the Tahoe Daily Tribune and the pre-decisional memo made available on the LTBMU website.

IMPLEMENTATION DATE:
This project may be implemented immediately or upon issuance of pertinent permits.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES:
A 30 day comment period is 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).

CONTACT PERSON:
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