

**Decision Memo**  
**Amador Aspen Restoration Project**  
**USDA Forest Service**  
**Amador Ranger District**  
**Eldorado National Forest**  
**Amador, Alpine and El Dorado Counties, California**



## Introduction

The Amador Aspen Restoration Project (hereinafter referred to as the project) will restore five clusters of aspen stands, totaling 604 acres of aspen, by removing encroaching and overtopping conifers, selectively girdling conifers, installing temporary fencing, and implementing prescribed fire treatments. The project also will erect temporary fencing generally around individual or small groups of aspen suckers within an additional 124 acres of aspen that are heavily browsed, for a total proposed project area of 728 acres. The project was designed by the Upper Mokelumne River Watershed Authority (UMRWA) in cooperation with the Eldorado National Forest, Amador Ranger District (ARD) and the Amador Calaveras Consensus Group (ACCG). The project objectives are to reestablish historic aspen stands and promote regeneration and sustainability of aspen stands that are currently either limited in age classes, suppressed, stunted, or declining in acreage, or a combination of these conditions due to conifer encroachment, overtopping, intense herbivory<sup>1</sup>, and suppression of wildfire.

The project's aspen stands are situated entirely within National Forest System lands administered by ARD within El Dorado, Alpine, and Amador Counties, California. The project is southwest of Lake Tahoe and east of Jackson, in the vicinity of the Highway 88 corridor at the headwaters of the Mokelumne, Cosumnes and South

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<sup>1</sup> Herbivory refers to the act of an animal consuming plant material.

Fork American Rivers (Figure A1). The aspen stands proposed for treatment are situated above 7,000 feet elevation, in three headwater areas of statewide significance, supplying water to over 1.3 million downstream users.

## Background

Aspen are a keystone species and a critical component of a thriving forest ecosystem in the Sierra Nevada. Aspen stands support a high number of plant and animal species, especially when compared to associated coniferous forests of the west (USDA Forest Service 2021). Aspen forests are characterized by moist habitat even when surrounding vegetation is relatively dry, serving an ecological function similar to a desert oasis but within the high elevations of the Sierra Nevada. These aspen forests are beautiful, providing an ecotourism attraction in rural counties. They are also exceptionally resilient to wildfire, often providing a critical sanctuary during fire suppression and influencing the way fire moves across the landscape (Fechner and Barrows 1976, Nesbit et al. 2023). An effective response to wildfire resiliency in the Sierra Nevada must incorporate this keystone habitat on a landscape level.

Like other watersheds in the Sierra Nevada, the upper Mokelumne River watershed has experienced extensive conifer encroachment into aspen communities due to historic fire suppression, drought, and lack of vegetation treatment, while simultaneously experiencing catastrophic wildfires over the past two decades. Taken together, these factors have led to a marked decrease in aspen regeneration and stand condition, affecting the distinct wildlife and plant species that are associated with this habitat type.

The 728 acres proposed for restoration were evaluated as part of a larger, detailed, watershed-wide mapping and condition assessment of aspen stands across the Upper Mokelumne and adjacent areas of the upper South Fork American and Cosumnes River watersheds. The in-field mapping and conditions assessment was initiated in August of 2022 and was completed in October 2024. This in-field assessment identifies and maps existing stands, assesses their condition, prioritizes stands for restoration, and recommends treatment methods.

## Purpose and Need for Action

As described above, the in-field condition assessment, completed in the fall of 2024, identified the existing conditions and opportunities to move the landscape toward desired conditions for aspen stands which include expanding the number of acres of aspen stands and the wildlife habitat they provide and promoting long-term health and sustainability of aspen through regeneration and development of multiple age classes. Based on this assessment, the purpose and need for action are to:

### **Promote the expansion of aspen stands and protect important wildlife habitat provided by aspen stands.**

As found across the Sierra Nevada, most aspen stands within the project area are severely threatened by conifer encroachment including high density ladder fuels<sup>2</sup>. Aspen communities thrive in conditions with high moisture levels and abundant sunlight. Conifer encroachment leads to too much shading of the aspen stands, which suppresses and stunts the growth of aspen trees. Conifer trees and shrubs also compete with aspen for moisture in the soils. Taken together, these factors have led to a marked decrease in aspen regeneration resulting in homogeneity of aspen age classes. These changes adversely affect the distinct wildlife and plants species that are associated with this habitat type.

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<sup>2</sup> “Ladder fuel” is a firefighting/forestry term for live or dead vegetation that allows fire to climb up from the landscape or forest floor and into the canopy. The removal of ladder fuels is an important part of forest health practices and leads to a more fire resilient landscape. Prior to fire suppression efforts, natural, low-intensity wildfires would have reduced the density of ladders fuels.

Recent findings highlight the negative effects of fire suppression, and the potential for restoration through thinning and fencing of aspen communities (Shepperd et al. 2006, Rogers et al. 2007, Krasnow et al. 2012, Berrill et al. 2017). There is a need to remove encroaching conifers within and adjacent to aspen stands to allow the stands to expand, regenerate and develop multiple age classes (Shepperd et al. 2006, Berrill et al. 2017).

Aspen stands provide critical wildlife and plant habitat and support greater biological heterogeneity than the surrounding upland areas (Shepperd et al. 2006; Kuhn et al. 2011, McCullough et al. 2013, Rogers et al 2020). There is a need to release aspen from encroaching conifers in order to facilitate the expansion of flowering plants important for western bumble bee, improve nesting and foraging conditions for northern goshawk and provide important fawning habitat for deer (Shepperd et al 2006).

**Promote long-term health, resilience, and sustainability of aspen stands, thereby reducing the risk of high severity wildfire.**

There is a need to encourage aspen regeneration, improve aspen health, increase stand size, and develop multiple age classes in order to reduce high-intensity fire risk to aspen stands and adjacent forest areas, and restore the natural fuel breaks provided by this more mesic vegetation community<sup>3</sup> (Bigler et al. 2005). In addition, there is a need to promote health and resilience of aspen stands in order to reduce the likelihood of loss of this important tree species and the unique communities it supports.

Photos of representative aspen stands within the Mokelumne River watershed are shown in Figures 1 and 2.



*Figure 2. Multi-age aspens in the foreground and encroaching conifers in background. (Photo: H. Loffland)*



*Figure 1. An aspen stand at risk of loss from conifer competition and shading, and containing heavy fuel loads contributing to the risk of high intensity fire. (Photo: H.Loffland)*

## Decision

My decision is to approve the Amador Aspen Restoration Project on the Amador Ranger District of the Eldorado National Forest. Treatments include conifer cutting and removal, girdling, temporary fencing, and prescribed fire as described below.

**Selection and delineation of treatment stands (on-the-ground boundary marking for treatments):**

The following selection guidelines are general and should be viewed as maximum allowable treatment areas based on conditions. Modified treatments are always an option where other resource concerns, accessibility, or interests would drive modified buffering boundaries and applied treatments from options below. In general,

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<sup>3</sup> A mesic community is an ecological community with a moderate or well-balanced amount of moisture throughout the growing season.

applying a 50' buffer on all sides roughly doubles the treatment footprint over the original stand size.

Where there are extensive mapped stands in a single locale, treatment areas may be delineated into smaller subproject areas. Treatments in these areas may be implemented using a phased approach over a period of up to 10 years, completing concurrent implementation on non-adjacent stands. All work performed will be consistent with the Visual Quality Objectives set by the Highway 88 Scenic Byway Management Guidelines.

Where stands are  $\geq 2$  acres and isolated  $>300'$  from nearby aspen delineated stands:

- Treat within the mapped stand (where mature stems are present and/or suckering is detected).
- Buffer the southern end of the stand by up to 100' to allow maximum sunlight in and to reduce competition from conifers (minimum of 30').
- Buffer north, east and west sides with 30-50' buffers to promote suckering and expansion of stand (The maximum buffer is appropriate where there is evidence of previous mature aspen and downed aspen logs).

Where stands are  $<2$  acres and isolated ( $>300'$ ) from nearby aspen delineated stands:

- Treat within the mapped stand (where mature stems and/or detected suckering is occurring presently).
- Buffer the southern end of the stand by up to 50' to allow maximum sunlight in and reduce competition from conifers (minimum of 30').
- Buffer north, east and west with 30-50' buffers to promote suckering and expansion of stand (where there is evidence of previous mature aspen, such as downed aspen logs, maximum buffer is appropriate).

Where stands are  $<2$  acres but are in close proximity ( $< 300'$  or close enough that the buffers identified below may connect them) to other small ( $<2$  acre) or larger ( $\geq 2$  acre) aspen delineated stands:

- Treat within the mapped stand (where mature stems and/or detected suckering is occurring presently).
- Buffer the stand where possible by up to 150' in the direction of nearest stands, to connect isolated stands (or move them closer to connection) when they are strung upstream and downstream along a narrow riparian corridor. Although this portion of the buffer is likely to follow drainage patterns (based on experience in the project area), it could link isolated stands spread across slope from one another as well. The intent is to link multiple small patches that are believed to have once been a single larger stand.
- Buffer remaining sides with 30-50' buffers to promote suckering and expansion of stand (where there is evidence of previous mature aspen, such as downed aspen logs, maximum buffer is appropriate).

## Treatments

Treatments listed below apply to the mapped stand and buffer unless otherwise stated.

Conifer Cutting and Removal:

- Remove encroaching and overtopping conifers to reestablish the historic aspen stand edge, enhance stand function, increase the number of age classes, and promote aspen growth.
- Where possible, whole tree yarding or cut to length logging and removal of conifers from the stand is more desirable than chipping, masticating, lop and scatter, or piling in the stand. To meet the project purpose and need and/or to protect sensitive resources, over the snow logging may be utilized.
  - A minimum 2' snow depth will be required.
  - There must be consistent overnight freezing temperatures preferably  $\leq 28^{\circ}\text{F}$ .
- Utilize hand or machine cutting, ground-based logging equipment (e.g., masticator, feller buncher, skidder), chipping, and/or lopping and scattering in stands on slopes generally  $\leq 40\%$  to remove trees  $< 30''$  diameter. In aspen stands in meadows and riparian or similar areas, use low-impact machinery

designed to minimize soils disturbance, such as cut-to-length (CTL) harvester with forwarder, shovel-excavator, or rubber tire skidders. Remove merchantable logs for wood product utilization if marketable or deck for future disposal.

- Use hand cutting on slopes generally >40%. Where possible, mechanically remove hand cut trees. Where mechanical removal is not possible, remove and pile material <8" diameter (including tops and limbs of larger trees) outside of the stand or pile linearly within the stand for later burning, or lop and scatter. Use selective cutting to maintain species heterogeneity and visual resources in high recreational use areas.
  - Select individual conifers <30" diameter for retention.
  - In dense lodgepole pine thickets where aspen trees are present, select small groups of conifers for retention. Total conifer extraction may occur in all other areas.
- Limit conifer removal in areas with low potential for aspen recruitment (based on the lack of existing suckers) during initial entry.
- Use cut trees for small-scale stream restoration actions in waterways adjacent to aspen stands. Place trees in streams, in locations prescribed by a Forest Service aquatic biologist, to help stabilize the channel, capture sediment to aggrade incised channels, improve floodplain connectivity, or benefit aquatic habitat and develop habitat heterogeneity.
- Limit residual conifer stumps to a maximum height of 6-8", but preferably as low as possible consistent with safety. (Refer to Appendix B – Design Criteria for additional restrictions within visually sensitive areas).
- Do not disperse or spread chips in meadows under any circumstances.
- Limit the maximum chip depth is 4".
- Within meadows and riparian areas:
  - Allow extraction only during dry or frozen soil conditions to avoid soil disturbance, except when utilizing over the snow extraction.
  - Place small conifer trees that are extracted as matting to encroach into dry meadows, cross dry stream courses, and protect riparian areas and minimize soil disturbances.
  - Identify and flag yarding roads prior to laying down small tree mats. Limit machine access to these routes to minimize the area impacted during extraction.
  - Delimb all tree boles >10" at the large end, cut to a top diameter of 8" and deck.
  - Remove all tops and small trees < 8" to disposal sites.
  - Generally, remove slash mats to disposal sites at the end of operations; however, in some instances the slash mats may be left in place to prevent erosion as approved by a Forest Service watershed specialist. After extraction, monitor for signs of soil erosion, presence of invasive species or other ecological change in meadows and riparian areas.
- Within dispersed recreation areas:
  - Where the removal of conifer trees creates openings that allow for expanded dispersed recreation, place imported barricades such as rock boulders or large logs strategically to limit expanded access.
    - When logs are used, incorporate soil into the barricade as feasible to discourage woodcutting/removal of the barricade.
- Within potentially visually sensitive areas:
  - The Forest Service may individually mark trees to selectively extract or retain.
  - Conifer trees may be retained to screen facilities.
- Construct up to 2.5 miles of temporary road where needed to access treatment areas. Following use, block temporary roads to vehicular traffic, and employ erosion control and restoration measures (e.g., remove ruts and berms, scarify the road surface, and construct cross ditches and/or water bars).
- Maintain existing National Forest System roads commensurate with use and as needed to prevent or address ongoing resource impacts. Work may include dust abatement, clearing and removing encroaching vegetation, grading and shaping the road surface, cleaning culverts, and restoring road drainage.

### Girdling:

- Girdle and leave standing select conifer trees <30” diameter that cannot be hand cut in riparian exclusion zones or in areas where it is not practical or feasible to remove cut conifers and leaving them on the ground would create an unacceptable fuel load or inhibit aspen suckering.
- Girdling may consist of a cut or series of parallel cuts using a chainsaw or axe encircling the bole of a conifer, that is sufficiently deep to sever the cambium layer, or generally 1” deep for trees <14” in diameter, and not deeper than 1.5” for trees >14” in diameter. The girdle width should be at least equivalent to or greater than the conifer DBH.
- Strip or pry the bark and cambium layer within the cut, leaving no connecting material.
- Remove all live foliage below the girdle.

### Fencing:

- Install temporary fencing for livestock and or wildlife where heavy browsing is indicated in rapid assessment. In general, fence only in targeted locations within the treatment area rather than around the entire treatment perimeter.
- Locations prioritized for fencing are:
  - Areas where existing suckers have been heavily browsed over multiple years and have taken on a hedged and stunted growth form (often less than 1.5 ‘ in height), or are otherwise unable to grow beyond the height of browse pressure (approximately 6’ in height).
  - Locations where the only remaining mature aspen stems are unhealthy or dead, protecting remaining suckering vegetation (and its ability to photosynthesize) is critical to retaining the stand. Research suggests that once released, aspen suckers require 3-5 years to grow to a height that is less susceptible to browse pressure. In general, leave fencing in place for 5 years, or until >50% of suckers are at least 6’ in height, whichever is first.
- Fencing may be a stand-alone treatment or applied either before or after conifer removal.
- Construct all fencing for aspen in a manner that allows it to be put up (summer) and taken down (winter) to prevent snow loading from destroying fences.
- Vary fencing materials and heights depending on animals being excluded.
  - Deer fence: erect 10’ tall T-posts with posts set an average of 15’ apart  $\pm$  3’ depending on topography and rock in the unit. Incorporate existing trees into the fences as appropriate, utilizing removable attachments, such as wire. Install 7 to 8’ deer mesh fencing.
  - Cattle: erect 6’ tall T-posts with posts set an average of 10’ apart  $\pm$  2’ depending on topography and rock in the unit. Incorporate existing trees into the fences as appropriate, utilizing removable attachments, such as wire. Install either three-strand wire fencing or single solar-powered electric wire/tape. For three strand wire fencing, the upper two strands of wire shall be barbed while the lowest strand of wire shall be smooth braided.
  - In stands subject to both deer and cattle grazing, combine fencing materials consisting of 10’ tall T-posts with posts set an average of 10’ apart  $\pm$  2’, with 7 to 8’ deer mesh fencing overlaid with three strand wire fencing or single solar-powered electric wire/tape with the upper two strands barbed and the lowest strand smooth braided.
  - Cage individual or small groups of suckers with 6” welded wire and T-posts.

### Prescribed Fire:

- Allow prescribed fire in suitable aspen stands in areas where prescribed burning is being applied to adjacent conifer stands. This may take the form of active lighting, or passively letting fire back into aspen stands as deemed appropriate for the site and burning conditions.
- Prescribed burning may only take place following mechanical or hand cutting, and after the restoration response has been assessed by the Forest Service.
- Construct hand or machine fire lines where needed to contain the fire. Utilize natural barriers and roads as fire containment lines where possible.

The actions have been categorized into two treatment types for the purpose of organizing the mapped and assessed stands into project areas and prioritizing them for restoration: 1) All treatments consisting of conifer cutting and removal, girdling, fencing, and/or prescribed fire, and 2) Fencing-only treatment. Fencing-only aspen stands generally do not contain treatment buffers. Refer to Table 1 below for acres by treatment type. Acres are estimates based on mapping and may increase or decrease upon field layout of stands.

**Table 1. A summary of the restoration extent by treatment type and by project area.**

Treatment Description	Location of Treatment	Estimated Project Area Acreage (Stand Count)					Fencing-only Acreage (Stand Count)	Total Estimated Acreage (Stand Count)
		1	2	3	4	5		
Conifer cutting and removal, girdling, fencing, and/or prescribed fire	Aspen stands and their buffers.	3.5 (2)	449.5 (26)	35.3 (8)	8.6 (7)	106.8 (4)	Not applicable	<b>604 acres (47 stands)</b>
Fencing only	Aspen stands only.	Not applicable					124 (93)	<b>124 acres (93 stands)</b>
<b>TOTAL RESTORATION EXTENT ACREAGE (STAND COUNT)</b>								<b>728 acres (140 stands)</b>

Individual project area maps of the five clusters of aspen stands proposed for restoration are shown in Appendix A, Figures A2 – A6. The locations of fencing-only treatment areas that are not within Project Areas 1-5 are displayed in Appendix A, Figure A7.

## Environmental Analysis

This action is categorically excluded from documentation in an Environmental Assessment or Environmental Impact Statement in accordance with the requirements of Public Law 91-190 (42 USC 4321 et seq.). The applicable category of actions is identified in agency procedures as *Forest and Grassland Management Activities with a Primary Purpose of Meeting Restoration Objectives or Increasing Resilience* (36 CFR § 220.6(e)(25)).

I find that there are no extraordinary circumstances that will warrant further analysis and documentation in an EA or EIS. I took into account resource conditions identified in agency procedures that should be considered in determining whether extraordinary circumstances might exist:

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.*

A Programmatic Consultation for Sierra Nevada Yellow-legged Frog (SNYLF) (USDA 2025) was prepared for this project to analyze effects to SNYLF and Designated Critical Habitat. Due to the ecology of Aspen, some work will necessarily occur close to water features and within Sierra Nevada yellow-legged frog suitable habitat. For this reason, the analysis determined the project may affect and is likely to

adversely affect SNYLF and its Critical Habitat. However, any effects to habitat would be temporary and short-lived and the likelihood of occurrence of adverse effects is quite low. The analysis concluded that the implementation of best management practices and other Design Criteria that limit the potential for adverse effects to suitable habitat, and the required pre-implementation surveys prior to work within occupied habitat or stream channels, would likely keep impacts to a level that is insignificant (i.e., never reach the scale where take occurs). **The United States Fish and Wildlife Service....**

The Biological Evaluation/Assessment (BE/BA) for Terrestrial and Aquatic Wildlife (Stringer 2025a) addressed effects of the project to other Federally listed, proposed, and Forest Service Sensitive species (FSS). The BE/BA determined that the project will have no effect on the following Federally listed species and associated critical habitat: gray wolf, North American wolverine, Sierra Nevada red fox, northwestern pond turtle, foothill yellow-legged frog, Yosemite toad, Lahontan cutthroat trout, and Monarch butterfly. The BE/BA determined that the project will have no effect on, will not affect species viability, and will not lead to trend toward federal listing for the following FSS species: Pacific lamprey, hardhead, willow flycatcher, and fisher. In addition, the project may affect, but will not affect species viability nor lead to a trend toward federal listing of western bumble bee, California spotted owl, American goshawk, bald eagle, Pacific marten, great gray owl, pallid bat, fringed myotis bat, and Townsends' big-eared bat.

The project will not affect any Federally listed or proposed plant species and formal consultation with the USFWS pursuant to Section 7 of the Endangered Species Act is not required. Suitable habitat occurs in the project area for thirteen FSS botanical species but no occurrences have been documented. The Botanical BE (Stringer 2025b) concluded that it is possible that the project could affect undetected individuals in the project area. Therefore, the project may affect undiscovered individuals but is not likely to result in a trend toward Federal listing or loss of viability for any of the species.

2. *Flood plains, wetlands, or municipal watersheds.*

This project will have no adverse effects to floodplains, wetlands, and municipal watersheds. The project is designed to meet the requirements of the Sierra Nevada Forest Plan Amendment (2004) and the National Best Management Practices for Water Quality Management on National Forest System lands (2012). The project is also designed to comply with the Eldorado National Forest Land and Resource Management Plan (LRMP), uses methods that maintain soil cover and minimize erosion, and includes design features to protect stream courses and water quality (Appendix B). Beneficial uses of surface waters exist, including downstream domestic water supply and hydroelectric power. These beneficial uses will not be adversely affected.

3. *Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas.*

The project will not occur within any Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas.

4. *Inventoried roadless areas or potential wilderness areas.*

The project will not occur within an inventoried roadless area or potential wilderness area.

5. *Research natural areas.*

The project will not occur within a research natural area.

6. *American Indians and Alaska Native religious or cultural sites.*

There are no known American Indian or Alaska Native religious or cultural sites within the project area.

7. *Archaeological sites, or historic properties or areas.*

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region (USDA 2018)*.

A comprehensive Cultural Resource Management Report (R2024-0503-51028) was completed. Cultural resource surveys and site monitoring for the project took place in fall of 2024. The cultural resource inventory strategy utilized the Region 5 Hazardous Fuels Protocol for Non-Intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Projects (Appendix H of the Regional PA 2018). Cultural resources will be protected by flagging and avoiding sites during project implementation. Based on the analysis documented in the Cultural Resource Management Report, the project will not result in adverse effects to historic properties.

## Public Involvement

This action was listed as a proposal on the Eldorado National Forest Schedule of Proposed Actions early August 2024 and updated periodically during the analysis. UMRWA met with the ACCG on April 23, 2023, June 2, 2023, May 22, 2024, and August 8, 2024, to discuss the project and receive feedback on the proposed action. These collaborative efforts resulted in fine tuning the treatment prescriptions of the initial project. Scoping was initiated December 13, 2024. Letters were sent to 140 individuals, groups, and government entities. One written response to scoping was received from Steve Brink on behalf of the American Forest Resource Council. His comments were supportive of the project and encouraged consideration of the extent of lateral roots for each of the five clusters in order to identify the true extent of the historic clones, and an analysis of the Project's impacts to climate change, carbon sequestration, and greenhouse gas emissions. I have determined that further analysis is not warranted in accordance with Forest Service and Department of Agriculture policy.

Tribal Consultation was initiated during the scoping process for this project. Letters from the Amador District Ranger were emailed or otherwise provided to Tribal Officials and Cultural Representatives of the following tribes and organizations: The Jackson Rancheria Band of Miwuk Indians, Buena Vista Rancheria (BVR) of Me-Wuk Indians, Washoe Tribe of Nevada and California, Wilton Rancheria, and Ione Band of Miwuk Indians. BVR responded that they conducted an internal review of the notification and location of the project and had no objection to project commencement. If Tribal Cultural Resources (TCR) should be inadvertently encountered, during the project, BVR requested additional notification so steps may be taken to protect and preserve them.

## Findings Required by Other Laws and Regulations

This action is found to be consistent with all applicable laws and the Eldorado National Forest Land and Resource Management Plan (1989), as amended by the Sierra Nevada Forest Plan Amendment (2004).

The National Forest Management Act (NFMA) directs the Forest Service “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives.” (P.L. 94-588, Sec 6 (g) (3) (B)). Direction for integrating migratory bird conservation into forest management and planning includes the January 2000 USDA Forest Service Landbird Conservation Strategic Plan; the 2002 and 2004 Partners in Flight Landbird Conservation Plans; the 2001 Executive Order (EO)13186; and the 2017 Department of Interior Solicitor's Opinion M-37050. The Migratory Bird Report

prepared for this project (Stringer 2025c) concludes that the project will not adversely impact migratory landbird species or their associated habitats, and will provide long-term net benefits to migratory birds by protecting aspen stands that increase habitat diversity and ameliorate the effects of future wildfires. The project is not expected to affect golden eagle or bald eagle (Stringer 2025d).

The Management Indicator Species Report for the project (Stringer 2025e) evaluated and disclosed the impacts of the project on the habitat of Management Indicator Species (MIS) identified in the ENF LRMP as amended by the 2007 Sierra Nevada Forests Management Indicator Species Amendment Record of Decision. The report concludes that the effects of the project on the habitat of these MIS is minimal and will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of MIS.

Appendix A of the Botanical BE (Stringer 2025b) determined that Special Interest plants could potentially be directly or indirectly affected by the project. Design Criteria including pre-implementation surveys and subsequent protective measures will minimize the potential for effects to Special-Interest plant species. Appendix B of the BE addresses the risk of non-native invasive plants (NNIP) becoming established and spreading in the project area. With incorporation of design criteria, it is anticipated that the risk of spreading and/or introducing noxious weeds will be low within forested habitats.

The project will comply with the Clean Water Act and California Water Quality Law because design criteria and the methods of treatments ensure that the project will have no adverse effects on water quality or riparian and aquatic habitats. This project falls under the Central Valley Regional Water Quality Control Board Waste Discharge Requirements Order R5-2024-0059 For Nonpoint Source Discharges Related To Certain Activities Conducted By The United States Forest Service And The Bureau Of Land Management.

This decision is in compliance with the Endangered Species Act. Threatened and endangered species have been addressed under "Environmental Analysis", sub-section 1. above.

No historic properties (prehistoric, historic, or traditional cultural properties) will be adversely affected (refer to "Environmental Analysis", sub-section 7. above).

This decision is consistent with the Clean Air Act. A Smoke Management Plan from the El Dorado County Air Quality Management District will be required for any prescribed burning activities, in accordance with Title 17, Smoke Management Guidelines for Agricultural and Prescribed Burning as required by the California Air Resources Board. The project will also comply with additional requirements set forth by the Mountain Counties Air Basin and the Great Basin Air Pollution Control Districts and the Eldorado National Forest Land and Resources Management Plan. Federal clean air laws require areas with unhealthy levels of pollutants to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain national ambient air quality standards. Pursuant to 40 CFR 93.153(i)(2), prescribed fire conducted in accordance with a smoke management program is presumed to conform to the SIPs, therefore the pollutant thresholds do not apply to prescribed burning.

In addition, the project has limited context and intensity (40 CFR 1508.27), and this action will produce little or no individual or cumulative environmental effects, to either biological or physical components of the human environment (40 CFR 1508.14).

## Administrative Review (Objection) Opportunities

This decision is not subject to legal notice and comment procedures of 36 CFR 218.22 and is not subject to the pre-decisional administrative review process pursuant to 36 CFR 218.



## Implementation Date

The project may be implemented immediately. Implementation is expected to begin in 2026, pending available funding.

## Contact

For additional information concerning this decision, contact: Susan Durham, NEPA Planner, Eldorado National Forest at (530) 642-5187 or by email at [susan.durham@usda.gov](mailto:susan.durham@usda.gov) or by mail at 100 Forni Road, Placerville, CA 95667.

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LINDA HELM  
District Ranger

Date

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## References

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# Appendix A. Project Maps and Treatment Types

Figure A1. Vicinity map of Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project.

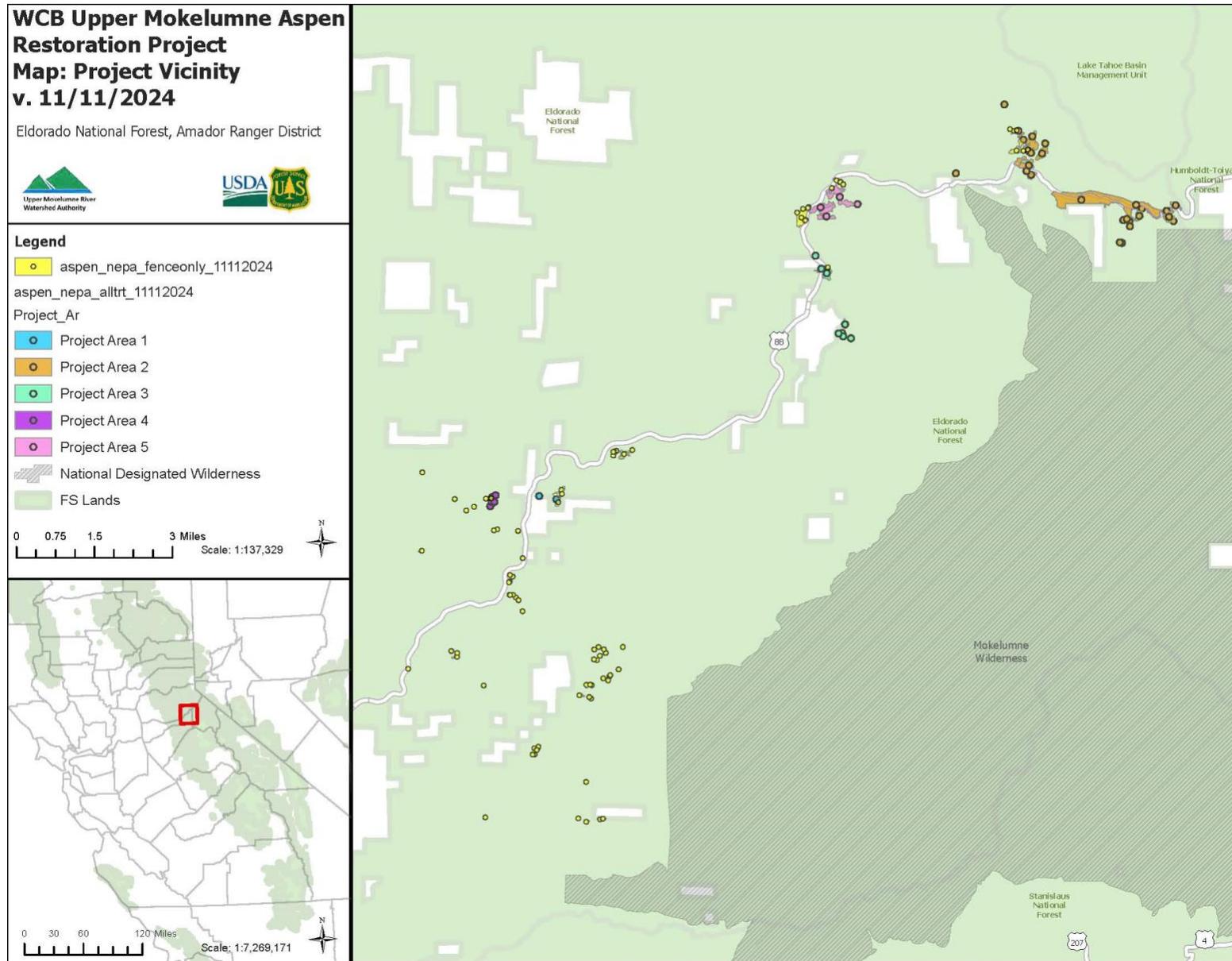


Figure A2. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Project Area 1.

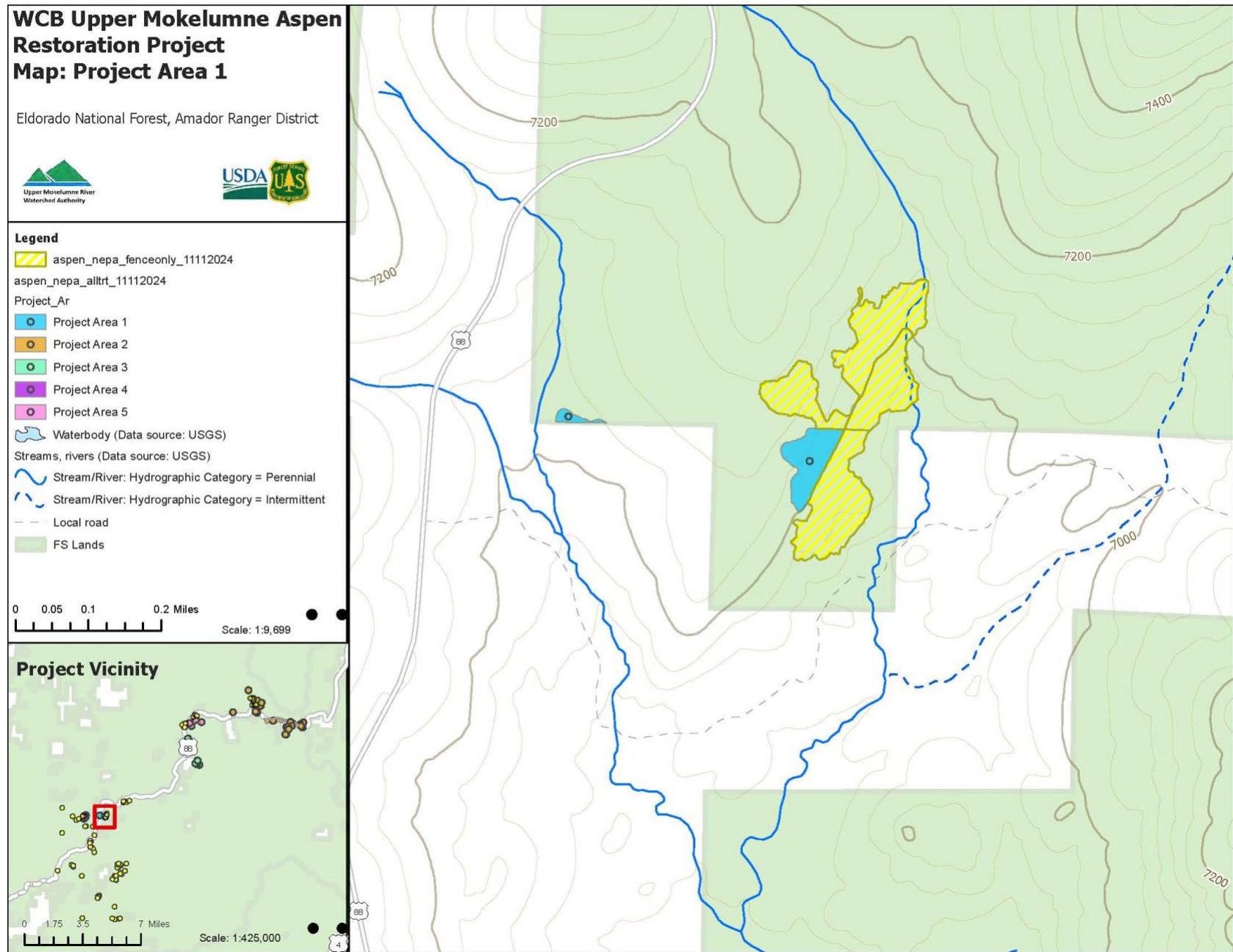


Figure A3. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Project Area 2.

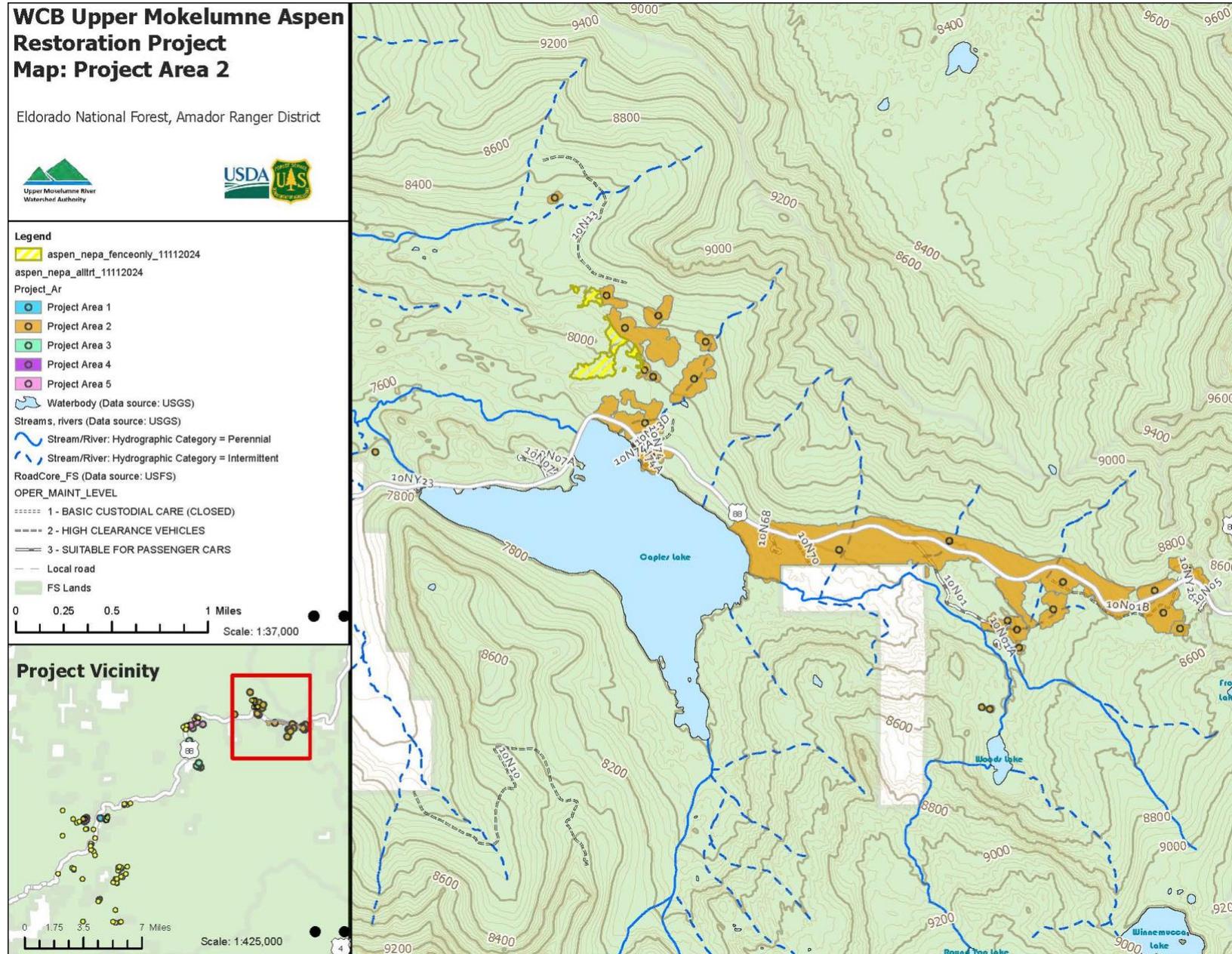


Figure A4. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Project Area 3.

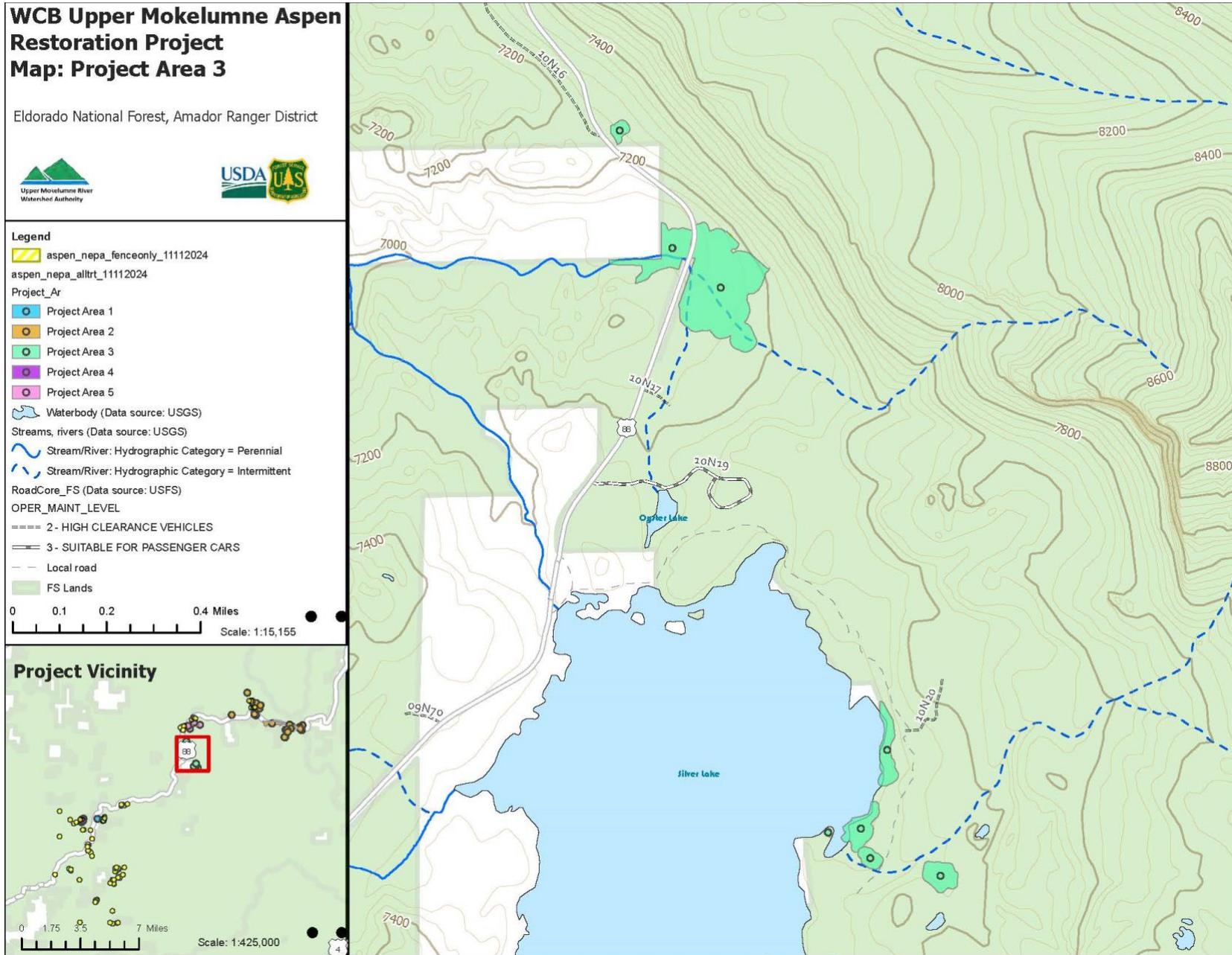


Figure A5. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Project Area 4.

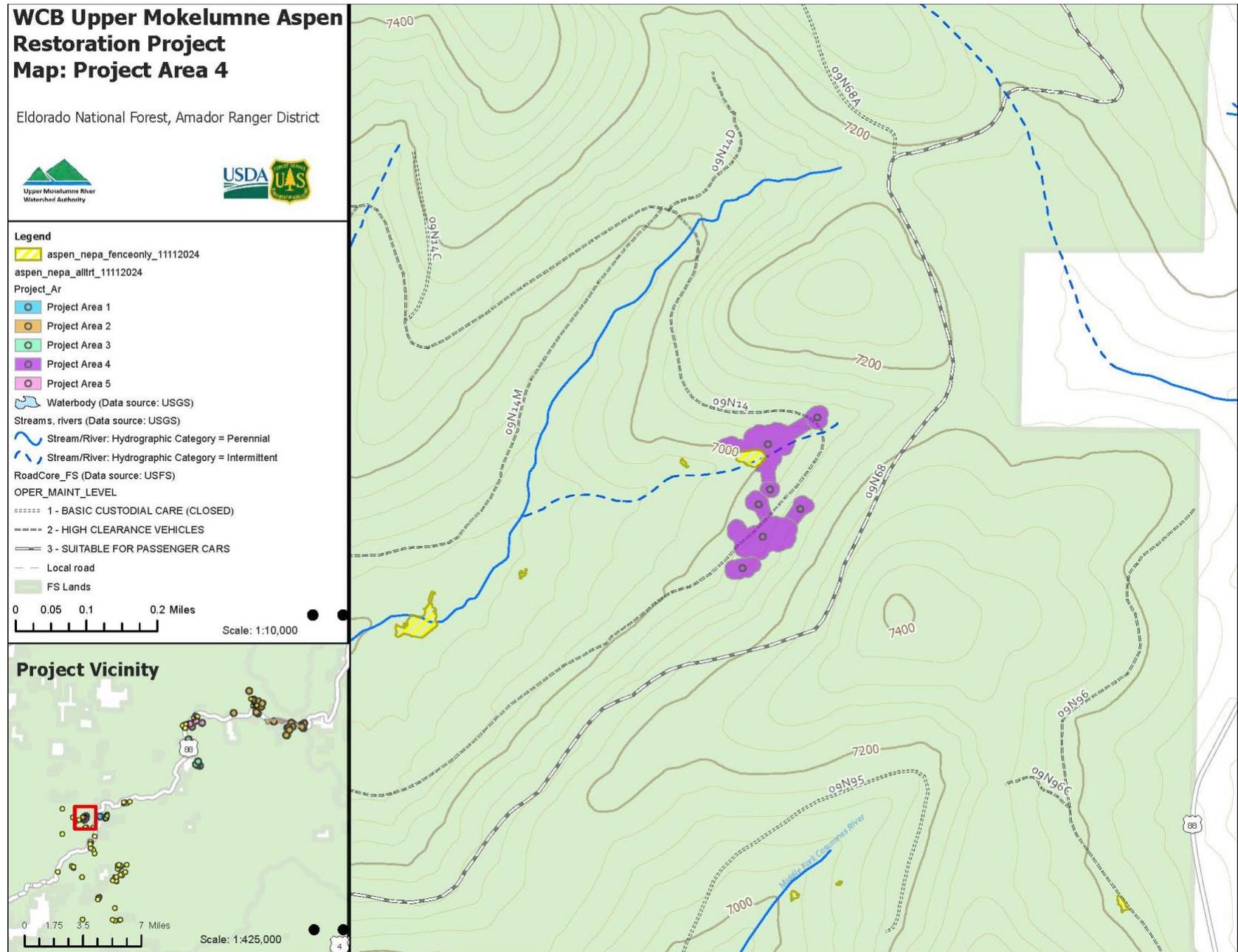


Figure A6. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Project Area 5.

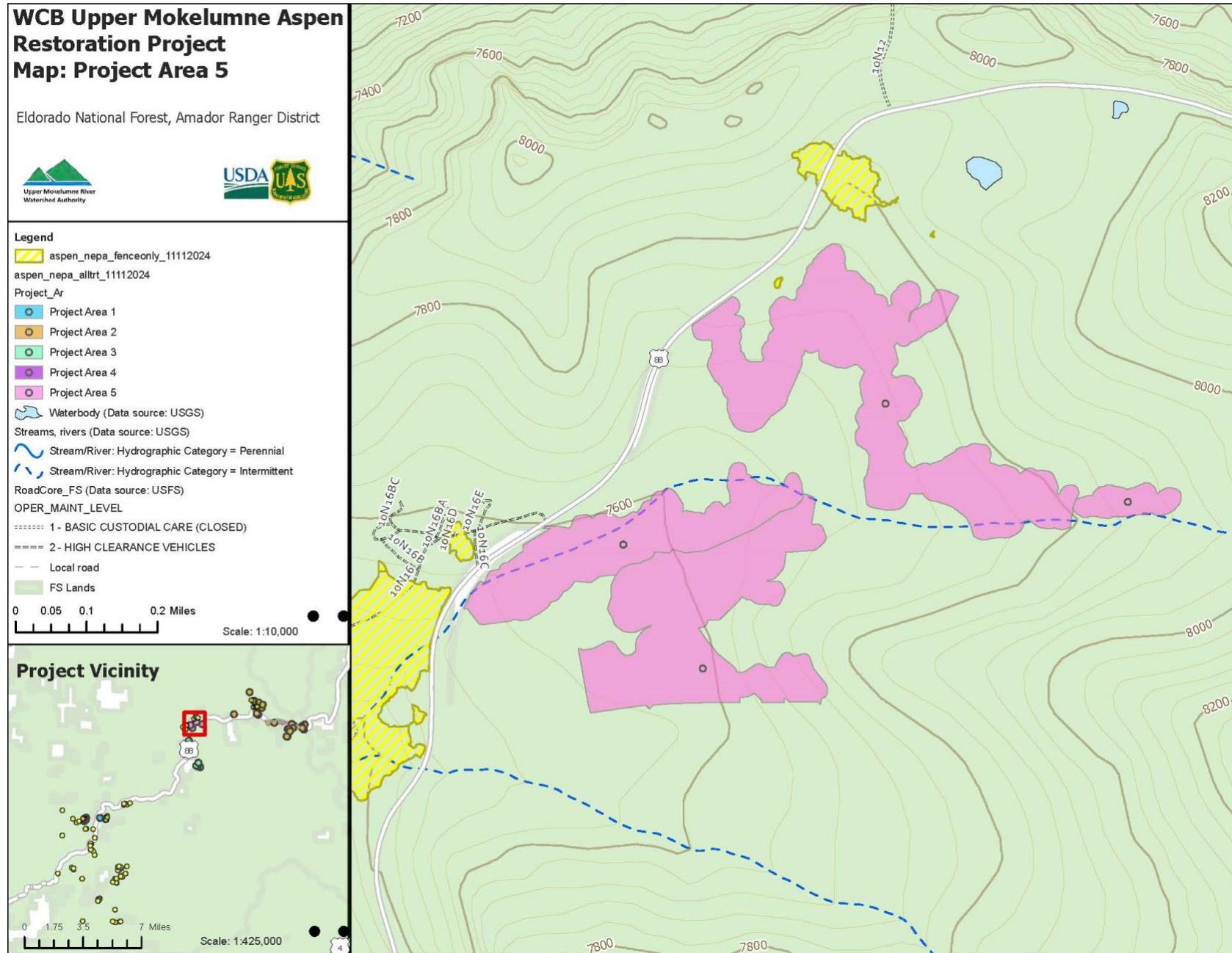
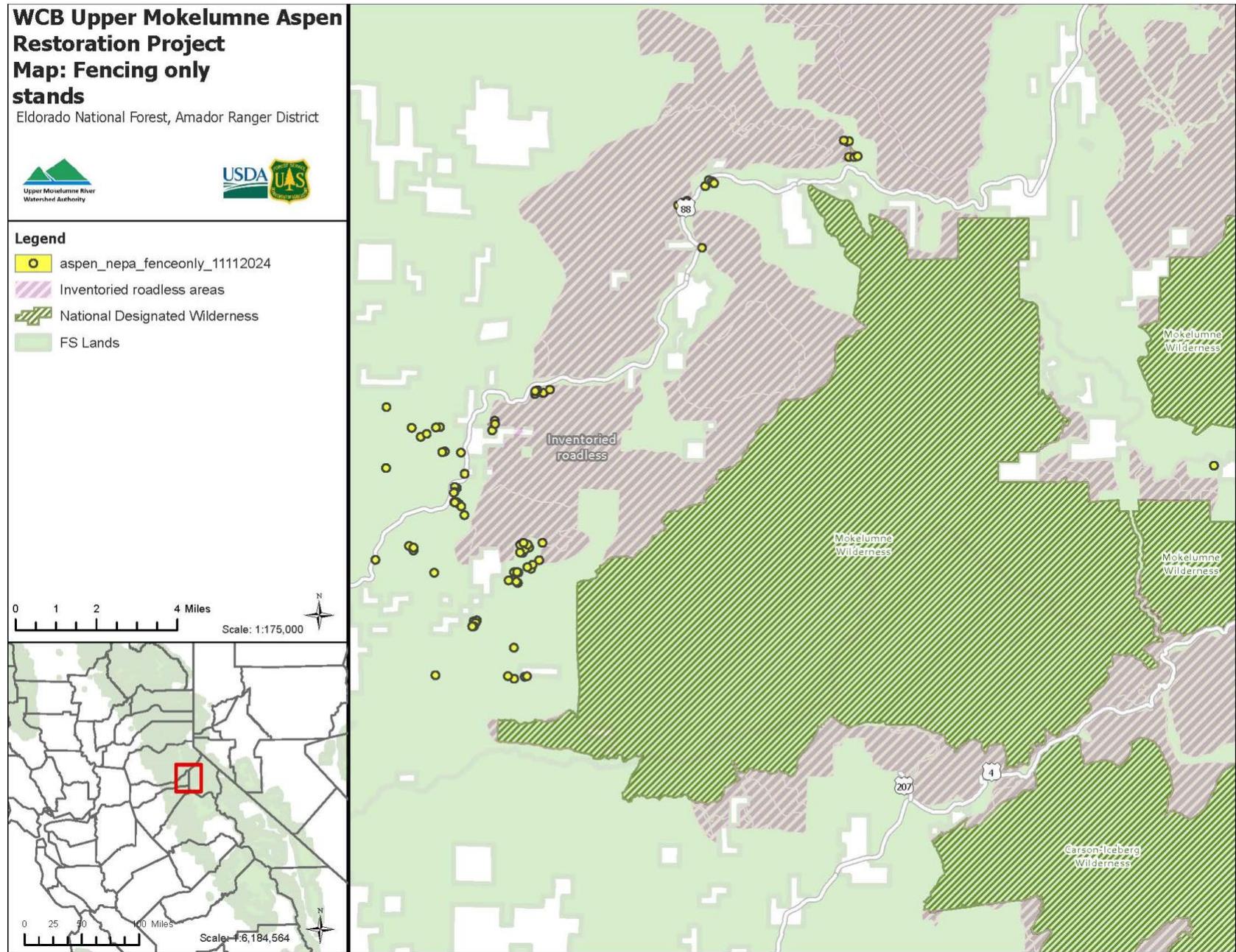


Figure A7. Upper Mokelumne and South Fork American River Watersheds Aspen Restoration Project: Fence Only Areas.



## Appendix B. Design Criteria

Design criteria have been incorporated into the treatment prescriptions described above under Decision. Additional design criteria are listed here.

1. Stream and Wetland Protection	
<p>General widths of the Riparian Conservation Area (RCA) for each type of aquatic feature:</p> <ol style="list-style-type: none"> <li>1. Perennial streams - 300 feet on each side of the stream (measured from bank full edge)</li> <li>2. Intermittent and Ephemeral streams (seasonal) - 150 feet on each side of the stream (measured from bank full edge)</li> <li>3. Special aquatic features, perennial streams with riparian conditions extending more than 150 feet, or seasonally flowing streams with riparian conditions extending more than 50 feet - 300 feet from edge of riparian vegetation.</li> </ol>	
1.1	Prescriptions described above under Decision – Treatments include design criteria for meadows and riparian areas, such as use of low impact machinery, extraction methods, use of slash mats, over snow operations, etc.
1.2	A Forest Service watershed specialist or their designee must approve any temporary stream crossings for perennial or intermittent streams with wet soils. Fully repair (recontour, decompact, and cover with effective ground cover or erosion control) all stream crossings in the RCA.
1.3	Use screening devices for water drafting pumps (fire suppression activities are exempt during initial attack). Size pump intake screens according to the pump intake capacity and with openings not exceeding 3/32-inch (0.09375 inch). Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. Place the intake hose end in a submerged bucket or other similar protective unit to further reduce the potential for entrainment. See Aquatics DFs for flow restrictions.
1.4	Mechanical equipment use and project design will follow Regional Soil Quality Standards as outlined in the R5 FSH 2509.22 Soil and Water Conservation Handbook for soil cover and quality and ENF LRMP (USDA Forest Service 2011b). Do not exceed 15% detrimental soil disturbance. Disturbance includes deficient soil cover, displacement of the surface mineral soil, and excessive compaction.
1.5	Do not direct chips at road ditches, stream channels, wet areas, or waterbodies. Avoid chip concentrations anywhere that could interfere with proper road drainage. As described under Decision – Treatments above, do not disperse or spread chips in meadows. Maximum chip depth is 4" in all other treated areas.
1.6	Prohibit storage of fuels and other toxic materials within RCAs. Prohibit refueling within RCAs unless there are no other alternatives <b>and</b> the location is authorized by a Forest Service watershed specialist. Review spill plans and ensure they are up to date. Have a spill containment kit in place during refueling and servicing. Immediately clean up spills within RCAs and report to the local Forest Service watershed specialist.
2. Erosion Control	
2.1	<p>When practical, base site-specific desired soil cover % on the Erosion Hazard Rating as outlined in the R5 FSH 2509.22 Soil and Water Conservation Handbook, Chapter 50 Soil Erosion Hazard Rating (EHR). Maintain minimum of 70% soil cover with material less than 3 inches in diameter when practical. That soil cover should maintain a Moderate or less Erosion Hazard Rating, provide thermal cover, and minimize erosion and sediment delivery.</p> <p>For prescribed fire maintain the following soil cover percentages:            At least 50% ground cover in units with slope &lt; 15%;            At least 60% ground cover on units with slopes of 15% to 30% slope; and At least 70% ground cover on slopes &gt;30%.</p>
2.2	Do not use tightly woven fiber or monofilament netting (or similar materials) for erosion control or other purposes when netting is left exposed. Netting used will be suitable per Metz (2016): Wildlife-Friendly Plastic-Free Netting in Erosion and Sediment Control Products.
3. Terrestrial Wildlife	
3.1	Should any Threatened, Endangered or Forest Service Sensitive (TES) species be detected in the project area during any phase of the project, cease operations in that area and inform the appropriate biologist immediately to determine appropriate actions to take to minimize the effects of project activities on that TES species.

3.2	<p>Sierra Nevada red fox have been detected in the project area but are not known to occupy or reproduce in the project area. Should a verified detection occur, place a LOP to protect potential Sierra Nevada red fox from disturbance to reproduction Jan. 1<sup>st</sup> through July 31<sup>st</sup>, within ¼ mile of any known den locations and/or identified high quality habitat.</p> <p><b>High quality habitat:</b>  <b>9,000'</b> and above, occupied/denning habitat, all habitat types above 9,000'.  <b>8,000'- 9,000'</b> and above suitable habitat, CWHR types: BAR (barren), WTM (wet meadow), MCP (montane chaparral), ADS (alpine dwarf shrub), MRI (montane riparian), ASP (aspen), SCN (subalpine conifer), LPN (lodgepole). (<b>exclude</b> red fir).</p>
3.3	<p>Marten: No marten den sites are known to occur in the project area or have been identified on the forest. Should a den be located, protect marten den site buffers (100 acres suitable habitat around den location) from disturbance from vegetation treatments with a LOP from May 1 through July 31 as long as habitat remains suitable or until another Regionally approved management strategy is implemented. The LOP may be waived where the activities are of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.</p>
3.4	<p>Place piles at least twice the pile's height away from: other piles, snags, nest trees, trees ≥ 30" dbh, downed logs ≥ 20" diameter mid-log, or identified trees with unique characteristics (hand piles will generally be 6' or less in height).</p>
3.5	<p>Slash and brush piles shall be ignited using a pattern that allows for animals to escape the fire. For example, piles will be lit at one end, or an area will be left un-ignited to serve as an escape route.</p>
3.6	<p>Prior to implementation and before any habitat modification from thinning treatments in suitable habitat, route a site-specific Project Input Notification (PIN) and conduct surveys to establish status or confirm current locations of goshawk, such as nest activity centers and roost sites. Establish PACs and LOPs for any goshawks in conformance to ENF LRMP.</p>
3.7	<p>Apply a limited operating period (LOP) for California spotted owls (March 1 through August 31) and for American goshawks (February 15 through September 15) to restrict activities for units, or portions of units, that are located within ¼ mile of spotted owl or goshawk nests, unless surveys confirm that owls or goshawks are not nesting. In the absence of recent nest location data, these LOPs will apply to units, or portions of units, within ¼ mile from PAC boundaries. Implement LOPs to remove or reduce the potential for nesting disturbance to owl and goshawk PACs by activities in units adjacent to the PACs. The LOP may be waived where the activities are of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location</p>
3.8	<p>Given the current ambiguous nature of the listing process for California spotted owls, prior to implementation there should be reevaluation of design criteria and project activities to align the project with a no affect determination for the species, or consultation should be initiated with USFWS in areas that may affect the species or individuals.</p>
<p><b>4. Aquatics</b></p>	
4.1	<p>Do not apply chemicals for dust abatement (such as magnesium chloride) within 100 feet of perennial or intermittent streams, waterbodies, or special aquatic features, or within 25 feet of ephemeral drainages.</p>
4.2	<p>Conduct pre-implementation clearance surveys for any ground disturbing activities within a kilometer of <b>occupied</b> Yosemite toad breeding habitat.</p>
4.3	<p>For new water drafting sites, locate sites to avoid adverse effects to instream flows and depletion of pool habitats. All drafting sites shall be visually surveyed by the forest or district aquatic biologist or trained personnel before drafting begins. If any life stages of TES aquatic species are observed, notify the forest or district aquatic biologist immediately to identify a different location. Pre-drafting surveys may be waived at sites that have protocol level surveys indicating they are not occupied by any TES aquatic species.</p>
4.4	<p>For fish-bearing streams, the water drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs) in accordance with Chapter 10 in the FSH 2509.22, The Soil and Water Conservation Handbook. Below 4.0 cfs, drafting rates should not exceed 20% of surface flows. Cease water drafting when bypass surface flows drop below 1.5 cfs.</p>
4.5	<p>For non-fish-bearing streams, the water drafting rate should not exceed 350 gallons per minute for stream flow greater than or equal to 2.0 cfs in accordance with Chapter 10 in FSH 2509.22, The Soil and Water Conservation Handbook. Drafting rate should not exceed 50% of surface flow for non-fish-bearing streams. Cease water drafting from non-fish-bearing streams when bypass surface flow drops below 10 gallons per minute.</p>

4.6	Survey occupied habitat in (1) the unnamed intermittent tributary to Silver Lake in Project Area 3 (PTS Dogz and PTS Granite 2) and (2) the fence-only area within the Little Bear River (PT Little Bear 2) for SNYLF by a Forest Service Biologist just prior to work beginning in these locations. If frogs are found, the Forest Service Biologist will determine appropriate actions necessary to avoid adverse effects. Provide a minimum 3-week notice to the Biologist prior to beginning operations in this area.
4.7	Identify locations for small stream restoration sites where slash generated during aspen restoration work could be utilized for stream restoration when possible. Provide a 2-week notice to the Forest Service Biologist before beginning work near the restoration areas.
<b>5. Botany</b>	
5.1	Conduct botanical surveys for Forest Service Sensitive and for Federally listed or proposed plant species prior to project implementation unless recent surveys (within 5 years) have been conducted. Qualified individuals will conduct surveys and adhere to Forest Service standards for botanical surveys as defined by FSH 2609.26. Flag sensitive plant occurrences for avoidance. Forest Service botanist must approve site-specific mitigations to avoid impacts to un-surveyed sensitive plant habitat prior to implementation of project activities. Measures may include flag and avoid, LOPs, hand fell and leave, or remove by reach-in only. Hand thinning and prescribed fire within plant protection areas may occur at the recommendation of the Forest Service botanist.
5.2	Avoid whitebark pine ( <i>Pinus albicaulis</i> ) during project activities. Avoid ground disturbance (heavy equipment operation and staging, line construction, skid trails and landings) within 100 feet of living whitebark pine. If identification of a five-needle pine seedling or sapling is unclear, assume it is whitebark pine.
5.3	Note watch list species encountered during surveys for TEPS plant species. Project botanist develops protection measures for approval by the District Ranger.
5.4	Use certified weed-free materials (including but not limited to rock, aggregate base, straw, native seed, etc.). Use local weed-free erosion control materials such as woodchips when feasible.
5.5	Use locally collected source for any seed used for erosion control or restoration (ENF Seed, Mulch and Fertilizer Prescription, March 21, 2000). Project botanist approves plant taxa proposed for re-vegetation.
5.6	If project activities result in increased resource accessibility, block or disguise access to botanical resource sites where feasible.
5.7	Avoid ground disturbance activities within pristine lava caps and alpine pin-cushion plant community where feasible.
5.8	Do not apply magnesium chloride for dust abatement within 100 feet of sensitive plant populations.
5.9	Conduct invasive plant surveys prior to project implementation unless recent surveys (within 5 years) have been conducted. Flag and identify on project maps known invasive plant sites prior to implementation and avoid as much as possible by conducting all project work outside of flagged exclusion areas. If project activities cannot be completely avoided within flagged infestations, employ risk minimization strategies, such as working in the infested area last, working in infested areas when propagules are not viable, limiting the number of people or equipment within the infestation, and cleaning mechanical and hand equipment, clothing, boots, etc., before moving to un-infested National Forest System lands.
5.10	Clean all off-road equipment to ensure it is free of soil, seeds, vegetative matter or other debris before entering National Forest System lands to prevent the introduction or spread of invasive plants. Inspect equipment before initial entry and any subsequent re-entries onto the project area. If determined necessary during the inspection, cleaning shall occur at a vehicle washing station or agreed upon cleaning location before the equipment enters or re-enters the project area.
<b>6. Road Operations and Maintenance</b>	
6.1	Prior to contract development, the hydrology specialist will conduct a SEPES analysis on existing level 1 through level 5 roads used to support project activities. For roads included in the NOI for enrollment under WDR (Order No. R5-2017-0061) with the CVRWQCB identify: (1) if mitigations are needed, and (2) what site-specific BMPs or road improvements are appropriate.
<b>7. All Cultural Resource Sites</b>	
7.1	Flag cultural resource sites within the area of potential effects (APE) prior to implementation of project activities to ensure their protection through avoidance and/or prescribed protection measures as documented in the Cultural Resource Management Report.
7.2	Should the Project boundaries or activities be expanded beyond the current APE, conduct an additional cultural resource review. Otherwise, Section 106 compliance for this project will be incomplete.

7.3	Exclude mechanized equipment from cultural resource site boundaries, except areas where removal of woody material is specifically approved by the District Archaeologist. With the clearance of the District Archaeologist, thinning within sites may be conducted by hand with vegetation piled outside of the flagged boundaries or away from sensitive features.
7.4	Conduct tree felling operations within and adjacent to cultural resource site to directionally fell trees away from flagged sites and sensitive features. Coordinate these operations on or in the vicinity of cultural resource sites with the District Archaeologist.
7.5	Protect archaeological deposits or historic features at risk of surface and subsurface impacts caused by vehicles or equipment within transportation corridors by the placement of foreign, non-archaeological material.
7.6	Allow low intensity prescribed burning on select cultural resource sites in consultation with the District Archaeologist and/or Native American tribes.
7.7	Coordinate placement of any control lines for prescribed burning with the District Archaeologist.
7.8	Should any cultural resources become damaged in unanticipated ways by project activities, follow the steps described in the Region 5 PA (2018) for inadvertent effects.
7.9	Should any previously unrecorded cultural resources be encountered during implementation of this project, cease all work immediately in that area and notify the District. Work may resume after approval by the District Archaeologist provided any recommended Standard Protection Measures are implemented.
7.10	Inform the District Archaeologist of the status of each stage of the project so that subsequent fieldwork can proceed in a timely fashion. Monitoring of the area may occur during implementation and after the project has been completed. Document this work in amendments to this report and site monitoring forms, as appropriate.
7.11	Block or disguise access to archaeological sites with the potential to result in additional resource risk where feasible following project activities.
7.12	Per wildlife snag retention S&G in SNFPA (USDA Forest Service 2004) do not locate snag retention within or immediately adjacent to cultural resource sites, whenever possible.
<b>8. Silviculture</b>	
8.1	During mechanical vegetation treatments and prescribed fire, retain all large hardwoods on the westside except where: (1) large trees pose an immediate threat to human life or property or (2) losses of large trees are incurred due to prescribed or wildland fire. Large montane hardwoods are trees with a dbh of 12 inches or greater.
8.2	Protect rust resistant sugar pines. Identify and monument as necessary known rust resistant sugar pines and use avoidance measures to ensure these trees are not cut, burned, or damaged.
8.3	Where whole tree yarding is utilized, carefully consider methods to protect residual green trees from damage. Retain rub trees (previously designated for removal) or rub logs where needed to minimize damage to other trees. Remove rub trees and rub logs upon completion of yarding unless needed for wildlife habitat structures.
<b>9. Recreation</b>	
9.1	Maintain continued public and permittee access during project implementation as feasible. Coordinate with Forest recreation staff and Forest public information officers who will disseminate information regarding potential changed access.
9.2	Avoid closures of trail segments on weekends and holidays to the extent possible; limit duration.
9.3	Do not locate landings in areas that will block public and permittee access to recreation features or near private property boundaries.
9.4	Minimize overlaying skid trails and haul roads on non-motorized system trails. If trails are used as skid trails or haul roads, include trail cleanup and rehabilitation in the contract. Minimize skid trail crossings across designated forest trails and roads; keep crossings perpendicular to the trails and roads. Complete rehabilitation in a timely manner to ensure the public does not begin using skid trails for motorized or non-motorized recreation. Include return to natural contour, scarification, seeding with native mix, and installation of natural barriers, as needed, within the rehabilitation plan. Do not increase trail width. Minimize changes to trail alignment and surfacing; do not straighten the trail nor change its surface with an alternate material unless such actions are needed to enhance the trail and protect resources.
9.5	Restore recreation features damaged during project operations to equal or better condition post-implementation.
9.6	Place natural barrier materials (rock, logs, slash, and other materials) in project created clearings where needed to discourage OHV use and the creation of additional user-created camping and parking sites.

9.7	Unless otherwise agreed to by the Forest Service Recreation staff officer, prohibit treatment work from Memorial Day through Labor Day, and weekends from Labor Day to Columbus Day, along roads 10N01, 10N01B and ALP-122 (Woods Lake Road) within Project Area 2, and along AMA-222 (Kit Carson Road) within Project Area 3.
<b>10. Rangeland Resources</b>	
10.1	Protect range improvements, including fences and corrals, during project activities. Locate debris and burn piles at least 20 feet from fences to allow access for maintenance and to protect from heat damage. Restore range improvements damaged during project operations to equal or better condition.
10.2	Notify the rangeland specialist annually of planned project activities. The rangeland specialist will include any needed special instructions regarding livestock operations such as timing of range improvements reconstruction or maintenance in the range permittee Annual Operating instructions.
<b>11. Prescribed Fire</b>	
11.1	Construct machine and hand piles utilizing topographic features (flats, benches, or areas of least slope), where available, to stabilize piles. Pile slash with stems oriented with the slopes to prevent rollout.
11.2	Do not construct machine and hand piles: <ol style="list-style-type: none"> <li>1. within 100' of perennial streams and special aquatic features, and within 50' of seasonal streams;</li> <li>2. near cultural sites;</li> <li>3. near flagged botanical resources;</li> <li>4. in gullies or dry channels that could deliver sediment directly to downslope aquatic resources during wet season precipitation; or</li> <li>5. in other sensitive features where there may be adverse impacts when lit.</li> </ol> <p>Construct piles in areas with adequate clearance 1) to avoid adverse impacts to adjacent surface and aerial vegetation and to overhead, surface or underground utilities and 2) to minimize the likelihood of fire escape. To meet desired conditions, limit pile size in RCAs to approximately 5 feet by 5 feet by 6 feet and limit footprint of piles to no more than 15% of the RCA.</p>
11.3	Conduct pile burning only on permissive burn days under the conditions of the Smoke Management Plan and as determined by California Air Resources Board (CARB) and the local APCD.
11.4	Do not construct dozer fire line within Riparian Zones – construct fire lines in Riparian Zones by hand.
1.5	Place firelines and burn piles outside flagged invasive plant infestations where feasible.
11.6	Prior to the onset of winter weather or large summer storm, rehabilitate fire containment lines to prevent transport of water and sediment to nearby aquatic systems.
11.7	Allow ignitions and low-to-moderate intensity fire in botanical resource areas only after coordination and approval from Forest Service botanist
11.8	Exclude ignition within 50 feet from high water edge or adjacent riparian vegetation (whichever is greater) from perennial, intermittent, and special aquatic features. Ignition may occur within this 50-foot buffer if it is deemed necessary to maintain control of a prescribed fire or to control burn severity.
11.9	Do not pile large and coarse wood interacting with the stream or active floodplain unless the fuels hazard is excessive (as determined by a Forest Service fuels specialist) and Forest Plan standards for wood are met for a given stream reach.
11.10	Maintain adequate fire suppression equipment as determined by the burn plan and ensure workers are trained in use.
11.11	Minimize use of spark- and/or heat-generating equipment during high fire danger days. Utilize spark arrestors on mechanized equipment including gasoline powered chainsaws and water pumps.
11.12	Outfit off-road diesel vehicles and equipment with spark arrestors.
11.13	To limit direct effects to shallow rooted aspen colonies, avoid placing piles and active ignition within aspen stands.
<b>12. Air Quality</b>	
12.1	On unpaved surfaces, reduce driving speeds to minimize fugitive dust (e.g., 15 miles per hour or less on windy and dry days).
12.2	When moisture content is low enough to create dust, water native surfaced roads or treat with non-synthetic dust palliative (e.g., organic nonpetroleum products) as often as needed to control dust emissions.
12.3	When conducting pile burning, adhere to federal, state, and county/local regulatory agencies requirements to protect regional and local air quality, and reduce health and escaped fire risks as required by the Clean Air Act, state, and local regulations. Only initiate pile burning when authorized by the relevant air district.

13. Visual Quality	
13.1	Maintain visual integrity (form, line, color, texture). Use organic shapes (meandering/curved edges). Avoid hard, straight lines. Create a feathered edge to soften the effects of vegetation removal.
13.2	Allow for filtered views of major landscape features.
13.3	Some snags and downed logs may be left in place to provide habitat and maintain landscape character. Save snags that have unique shapes or characteristics.
13.4	Paint marks (designating trees for removal or leaving) need to be visually subordinate as viewed from the highway or recreation facilities. Stump marks and bole marks on leave trees are to face away from the highway. Bole marks on trees designated for removal on the highway side should be small dots or spots instead of slashes or rings around the tree. Bole marks should also be such that they can be seen from all directions within the vicinity.
13.5	Stumps from harvested trees in visually sensitive areas should be 6" or less in height (8" max on downhill side). Some areas, such as near facilities and interpretive sites, may require flush cut (within 2" of finish grade) stumps. In immediate foreground areas, cut stumps to minimize visual impacts.
13.6	Cut immature trees and other woody vegetation within 3" of the ground or less, where possible, especially immediately adjacent to the highway.
13.7	Require the use of lining, falling jacks, and other aids to minimize impacts to residual trees and vegetation, facilities, or for safety.
13.8	Require directional felling and endlining of logs to the permanent skid system wherever possible.
13.9	Re-establish vegetation in disturbed areas (not just trees) within one season. Primary emphasis areas will be on landings, skid trails, and other areas within the immediate foreground zone of the highway or recreation facilities.
3.10	Remove most of the visible slash or relocate out of sight. Other unnatural disturbances from the work must not be visually evident, especially in immediate foreground views along highway or as viewed from facilities.