Blatchley Project

Purpose and Need and Proposed Action

Forest Service
U.S. Department of Agriculture

Tahoe National Forest | Sierraville Ranger District | Sierra County, CA | August 2021

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Project Location

The USDA Forest Service, Tahoe National Forest (TNF), proposes to conduct vegetation, fuels reduction, hydrologic, and roads treatments on approximately 5,151 acres of the Sierraville Ranger District. All work would occur on Forest Service land and is consistent with the management direction in the Tahoe National Forest Land and Resource Management Plan (USDA Forest Service, 1990) as amended by the Sierra Nevada Forest Plan Amendment Record of Decision (USDA Forest Service, 2004).

The Blatchley project area boarders the southern extent of the community of Sierraville and lies west of California State Highway 89 in Sierra County, California (Figure 1: Project Location and Vicinity). The legal description of the project area is Sections 25, 26, 35 and 36, T.19N, R.14E; Sections 4, 5, 8, 32 and 33, T.19N, R.15E; Sections 2, 3, 10, 11, 14 and 15, T.20N, R.14E; and Sections 29, 30 and 31, T.20N, R.15E. Mount Diablo Meridian. The project falls within Management Area 018 Henness as described on pages V-148 to V-151 of the of the Tahoe National Forest Land and Resource Management Plan (USDA Forest Service, 1990). The elevation of the project area ranges from approximately 5,200 to 7,300 feet above mean sea level.

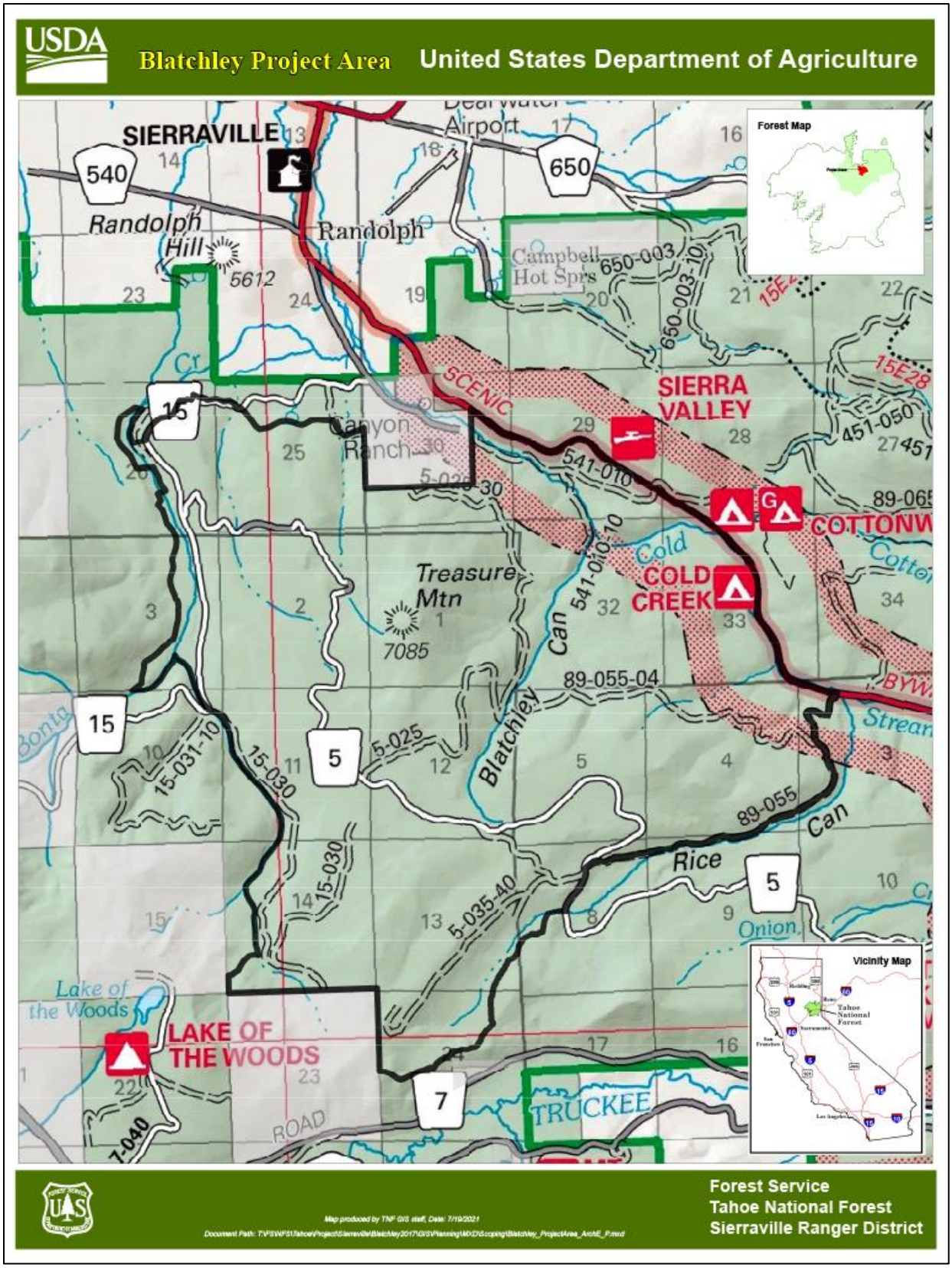

Figure 1: Blatchley project area and vicinity map

Existing Condition

The Blatchley Project area is predominantly forested with conifer stands that transition with increasing elevation from pine-dominant forests at the lower elevations to true fir-dominant forests at the upper elevations. Pine-dominated stands are typical of dry, mid-elevation sites on the east side of the Sierra Nevada Crest. Dominant species are the yellow pines, i.e., ponderosa pine (*Pinus ponderosae*) and Jeffrey pine (*Pinus jeffreyi*). White fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*), and sugar pine (*Pinus lambertiana*) are common stand components and increase in representation depending on site characteristics, e.g., elevation, aspect and site quality, along the elevation and moisture gradient. Red fir (*Abies magnifica*) is the dominant species in forest stands at the highest elevations in the project area. This species is not only adapted to, but also reliant on heavy, annual snowpack, and habitat suitability for this species correlates with conditions associated with the spring snowpack. White fir is a common associate, while Jeffrey pine, western white pine (*Pinus monticola*) and lodgepole pine (*Pinus contorta*) are minor stand components in red fir communities. Within the project area, ponderosa, Jeffrey, sugar and western white pines have the highest relative tolerance to drought and fire effects, but the lowest in shade-tolerance.

Several perennial stream courses are prominent features in the project area. This area is a major catchment for the Sierra Valley and is an important source of water during late summer and fall. Meadows, and shrub-dominated wetlands are present in the headwaters of Blatchley Canyon Creek, Bonta Creek, and other tributaries of Coldstream Creek. These headwater areas store water which is released during the dry time of the year, supporting aspen and other riparian communities along perennial streams.

Existing road systems have impacted the hydrologic function of headwater wetlands within the project area resulting in diminished water storage. In addition, the project area also has a history of intensive sheep grazing dating back to the late 1800’s, which has had lasting impacts on the function and vigor of meadows within the project area.

Past harvest practices and almost a century of fire suppression within the project area have resulted in unnaturally dense forest stand conditions that lack heterogeneity in age, size-class and species diversity and has favored shade-tolerant species. Forest ecosystems in the Blatchley Project area have evolved under a historic fire regime of frequent, low-intensity fire at the lower elevations and less frequent, mixed fire severities at the highest elevations. However, fire suppression policies have modified forest stand structure as well as the behavior and intensity of fire. Between the years of 1918 and 2020, there have been 49 fire occurrences within or adjacent (1-mile proximity) to the project area; 80% of those fires were less than 10 acres in size. Approximately 2,477 acres burned in the Blatchley project area in large fire events and resulted in mixed severity disturbance across the project landscape. Despite these fire occurrences, the majority of forest stands within the project area have not burned in over a century, and therefore are outside of the natural range of variation and at a high risk of stand-replacement in the event of a fire.

Purpose and Need

The project aims to enhance the resiliency of forest ecosystems to current environmental stressors, including drought, wildfire, insects and diseases, and to foster their capacity to adapt to future climate conditions. In addition, the Blatchley Project aims to protect the Sierraville community against stand replacing fire and provide a safe and effective network of roads.

Restoration objectives for the Blatchley Project area are consistent with the management direction in the Tahoe National Forest Land and Resource Management Plan USDA Forest Service (1990) as amended by the 2004 Sierra Nevada Forest Plan Amendment Record of Decision (2004 SNFPA ROD).

1. Improve and restore ecosystem function and increase resiliency to the effects of environmental stressors. This aligns with Forest Plan direction to respond to deteriorating forest health by reducing susceptibility of forest stands to insect- and drought-related tree mortality (SNFPA ROD, pp. 6, 32, and 44 - 48), promote shade-intolerant pines (SNFPA ROD, pp. 52), protect and secure water supplies through restoring watershed process and reduce the risk of large, severe wildfires; and maintaining, restoring, and enhancing aquatic, riparian, and meadow ecosystems (SNFPA ROD, pp. 32 - 34, 42 - 43, and 62 - 66).

2. Protect the community of Sierraville by managing hazardous fuels within and outside of the Wildland Urban Intermix (WUI) Zone. Aligns with Forest Plan direction to reduce the risk of wildfire to communities in the urban wildland interface while modifying fire behavior over the broader landscape aligns with Forest Plan direction to reduce threats to communities and wildlife habitat from large, severe wildfires (SNFPA ROD, pp. 8, 34, and 44 - 48).

3. Provide an effective and safe transportation system that meets resource management needs while increasing the resiliency of existing roads to high runoff events and reducing adverse ecological impacts aligns with the Subpart B of the 2005 Travel Management Rule (36 CFR §212.)

Research on climate and forest ecosystem response indicate changes that could have cascading effects on forest health and future stand structure in the drought-prone Sierra Nevada, leading to compromised forest ecosystem functions and ability to provide ecological and social benefits. In a general technical report for the U.S. Forest Service, Vose et al. (2012) assesses the current and likely future conditions of forest resources under a changing climate. They find that increases in temperature, atmospheric concentrations of carbon dioxide, nitrogen deposition, and changes in precipitation patterns will alter ecosystem structure and function. The most rapidly visible and most significant short-term effects on forest ecosystems will be caused by altered disturbance regimes (e.g., wildfires, insect infestations, pulses of erosion and flooding, and drought-induced tree mortality) which are expected to increase during the 21st century (ibid.). Vose et al. (2012) assert that “Although uncertainty exists about the magnitude and timing of climate-change effects on forest ecosystems, sufficient scientific information is available to begin taking action now.”

Integrating climate change adaptation strategies into project planning is consistent with directives at multiple levels, including a recent Executive Order, issued on January 27, 2021, which states that "the USDA shall initiate efforts to adopt climate-smart forestry practices that decrease wildlife risk" (Biden, 2021). The Blatchley project aligns with the departmental goal to ensure that National Forests (NFs) conserve, restore, and increase the resiliency of forests and grasslands to climate change, while enhancing our water resources and sequestering carbon.

At the local level, the Tahoe National Forest Supervisor has stated that managing for climate change is a top priority for the Forest. In meeting this need, the Tahoe NF has joined the Sierra Nevada Conservancy (SNC) and a variety of other partners to lead the restoration of Sierra Nevada forests to a healthy and more resilient condition, which necessitates a significant increase in the pace and scale of mechanical treatments, prescribed and managed fire and the restoration of meadow and stream ecosystems (Sierra Nevada Conservancy 2017). Together, the FS and its partners are taking the lead in the Sierra Nevada Watershed Improvement Program, whose success depends in large part on increasing investment in watershed restoration in the Sierra Nevada (ibid.).

The Blatchley Project is needed to address both short- and long-term risks to forest ecosystems given the current state of forest ecosystems and hydrologic resources and projected future environmental conditions. Actions that build short-term resiliency and long-term adaptability in conifer and riparian systems are necessary to increase the integrity, function, and long-term sustainability of the mid- to high-elevation forest ecosystems in the project area.

1) Improve and restore ecosystem function and increase resiliency to the effects of environmental stressors.

Actions are needed in forests, aspen, riparian and special aquatic features to restore ecosystem function and increase their resiliency to the effects of environmental stressors such as wildfire, insect and disease infestation, invasive species, drought, and anticipated future conditions resulting from climate change.

Forests

Current forest structure increases the vulnerability of conifers to an array of disturbances such as drought, insects, disease and wildfire, which are amplified by climate change. Overstocked conditions, recurrent drought, and rising temperatures have exacerbated ongoing moisture deficits in eastside pine communities and increased the vulnerability of the pines to bark beetle infestations. Bark beetles from the genus *Dendroctonus* are a persistent threat to pine stands and have killed a large proportion of mature ponderosa, Jeffrey and sugar pine in the project area, particularly along ridges, and south aspects.

Fire exclusion practices in these eastside pine communities have given white fir a competitive edge and increased white fir representation over historic levels. However, ongoing moisture stress has predisposed white fir to a host of contributing mortality factors, including dwarf mistletoe

(*Arceuthobium spp.), Heterobasidion* root disease caused by the fungus *Heterobasidion annosum*, and fir engraver beetle (*Scolytus ventralis*). Heavy concentrations of white fir mortality have created extremely hazardous fuel conditions across the project area, increasing the vulnerability of forests to a high-intensity stand replacing fire.

Sugar pine, a once stable component in the project area due to relatively high resistance to drought, wildfire, insects and disease, is now threatened by the devastating white pine blister rust (WPBR) disease, caused by the fungus *Cronartium ribicola*. Currently, two sugar pines within the project area have been tested and proven to have a form of genetic resistance to WPBR, known as major gene resistance (MGR). These and other known MGR sugar pines on the Tahoe National Forest are invaluable resources and need to be protected, as they provide a high proportion of genetically resistant seed for conservation efforts.

Although red fir communities with the project area remain largely within the natural range of variation (NRV) with respect to composition and function, Meyer and North (2019) project that most red fir forests in the Sierra Nevada would be outside the past and present climate envelope by the end of the century. Conditions that will contribute to a departure of red fir forests from NRV within the project area include: 1) Greater homogenization in structure with a notably higher representation of small diameter classes and lower densities of large tree size classes. 2) Higher tree mortality rates associated with primary and secondary pathogens, insects, and moisture stress. 3) Higher projected increases in future fire frequency, severity, and annual burned area, and 4) Reduced annual snowpack.

There is a need to improve the health and resiliency of eastside pine and red fir communities to environmental stressors by reducing conifer stand density and increasing heterogeneity in species composition and age-class structure.

Currently, the majority of 30-to 50-year old pine-dominated plantations within the project area are overstocked with trees that are competing with each other and/or with other vegetation for site resources. Shrubs within these plantations now average 4 feet in height and exceed 40 percent cover. The flammability of these woody shrubs poses the greatest threat to these plantations. There is a need to reduce conifer and shrub density to provide both vertical and horizontal separation between conifer crowns and shrubs to improve the resiliency of these plantations to stand-replacing fire, and to improve conifer stand vigor and growth.

Recognizing that fire was a key landscape process that shaped forest patterns at stand and landscape scales, fire plays a critical role in maintaining ecosystem function. There is a need to re-introduce fire as a process. Utilizing underburning on the landscape is an effective way to reduce surface fuels, and help restore and maintain ecosystem structure, composition, and function.

Aspen and Riparian Communities

The exclusion of natural fire has primarily in the decline of aspen and riparian communities. Specifically, fire exclusion has given white fir a competitive edge over shade intolerant species like

aspen and other riparian hardwoods and plants. Small dispersed aspen stands throughout the project area are in poor condition and data from aspen risk assessment surveys indicate that they are at a moderate to high risk of loss from conifer dominance (i.e., overstory aspen are in poor vigor, multiple age-classes are lacking, and the environment is unfavorable for aspen regeneration and development). In addition, other riparian hardwoods and vegetation occurring along perennial and intermittent streams are threatened by high conifer densities. There is a need to reduce conifer densities in both aspen and riparian communities to improve growing conditions and resilience against climate change, mitigate hazardous fuel accumulations, and recover soil moisture.

Special Aquatic features

Stressors such as water diversions, grazing, recreational activities, and fire suppression have increased the vulnerability of special aquatic features (e.g. both dry and wet meadows, fens and vernal pools) by degrading their current condition and/or altering hydrology. These stressors reduce the ability of these features to adapt or be resilient to climate and climate-driven changes, e.g., shifts from snow to rain, reduced snowpack, earlier snowmelt timing, and increased rates evapotranspiration (Kershner, 2014). There is a need to restore natural hydrology and reduce conifer density in and around these aquatic features to mitigate hazardous fuel accumulations and increase water availability to the riparian vegetation.

Invasive Species

Invasive plants pose a serious threat to ecosystem function in forest, aspen, riparian and aquatic communities. Invasive plants displace native species, reduce habitat suitability, alter nutrient and fire cycles, decrease the availability of forage for wildlife, degrade soil structure, and reduce overall biodiversity. Multiple infestations of the non-native invasive musk thistle (*Carduus nutans*) are present within and adjacent to the project area and infestations of the invasive broadleaved pepperweed (*Lepidium latifolium*) are present within the project vicinity. There is a need to control non-native invasive species infestations within the project area.

2) Protect the community of Sierraville by managing hazardous fuels within and outside of the Wildland Urban Intermix (WUI) Zone.

The Blatchley Project area includes approximately 2,116 acres currently identified as Wildland Urban Intermix (WUI) and is directly adjacent to the community of Sierraville. Within the last 10 years the Sierraville Ranger District has implemented silvicultural and fuels management treatments in forest stands adjacent to the Blatchley Project area. However, heavy conifer mortality triggered by prolonged drought conditions from 2013-2016 has created hazardous surface and standing fuel conditions outside treated areas within the project area. As density-related conifer mortality continues, the threat of a catastrophic, stand-replacing fire is of critical concern. The project area currently does not meet desired conditions with respect to fuels in WUI and Non-WUI lands due to existing fuel loading and continuity of fuels (horizontally and vertically) created by the existing surface and ladder fuels and canopy structure. Should a wildfire occur under the existing fuels conditions the

expected fire behavior would be characterized by flame lengths and fire line intensities exceeding the capabilities of initial attack suppression resources. Under these conditions, fire could potentially spread rapidly with torching and crown fire putting the adjacent community at risk. Treatments are needed to enhance protection of adjacent communities and private lands in the event of a wildfire ignition and provide a safe place for suppression activities to occur in the event of a wildfire.

California Spotted Owl and Northern Goshawk Habitat within WUI

The Blatchley Project area contains two northern goshawk protected activity centers (PACs), one California spotted owl PAC, and the associated California spotted owl Home Range Core Area (HRCA). The need to maintain current and potential habitat for goshawk and California spotted owl must be balanced with the need to improve habitat resiliency while protecting the Sierraville community. An ideal landscape is resilient to wildfire events and maintains and protects areas of high-quality habitat for wildlife. Important structural attributes include, dense, multi-storied stands of large conifers to provide reproductive, resting, foraging, and nesting habitats, combined with other habitat types, such as more open areas that may provide habitat for prey species. These habitat attributes are critical in maintaining and enhancing potential habitat conditions capable of supporting northern goshawk, California spotted owl, and other wildlife species that rely on late seral habitats.

3)Provide an effective and safe transportation system that meets resource management needs while increasing the resiliency of existing roads to high runoff events and reducing adverse ecological impacts.

There is a need to provide an effective transportation network for public use and land management activities that minimizes resource damage and protects against high runoff events. Constructing new or temporary roads is needed to facilitate short-term access to treatment areas and facilitate forest product removal. There is also a need to increase the resiliency of existing roads to high runoff events through maintenance or rehabilitation.

In addition, there is a need to rehabilitate or decommission unauthorized routes, landings and legacy skid trails. Active erosion and runoff in these areas is contributing to increased peak flows, downstream sedimentation, and impacts to water quality. Roads are intercepting shallow groundwater and routing it to stream channels, thereby increasing the rate at which the water leaves these headwaters. By diverting groundwater flow, these roads are draining wetlands and drying out the surrounding area. The Project needs to provide a transportation system with adequate drainage that can withstand large flow events and are hydrologically disconnected from streams and wetlands.

Proposed Action

The Forest Service proposes to conduct vegetation treatments, fuels reduction, invasive species management, hydrologic restoration, and road management treatments on approximately 5,151 acres of the Sierraville Ranger District, Tahoe National Forest. The proposed project includes the following activities summarized in Table 1.

Table 1: Blatchley summary of proposed actions and estimated acres and miles.

	Treatment prescription	Acres/Miles*	Acres in WUI
Vegetation and Fuels Treatments	Mechanical thinning	3451	612
	Mechanical thinning (greater than 30% slopes)	1594	677
	Hand thinning only	33	31
	Aspen and riparian hardwoods	**	
	Thinning along stream courses	**	
	Special Aquatic Features (W-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11)	73	Less than 1
	PAC thinning	72	72
	Calfornia spotted owl – HRCA	833	79
	Prescribed fire	3800 - 5100	1,394
	Total treatment acres	**5151**	**1,392**
Hydrologic Restoration	W-4, 6, 7, 8, 11	38	Less than 1
Invasive Species Management		5	
Roads Management	Road maintenance and reclassification	13 miles	
	Temporary road construction	9 miles	3
	Road reconstruction	1.3 miles	
	New road construction	Less than 1 mile	
	Legacy road rehabilitation	**	
	Hazard tree removal	**	

**Note: Acres/miles are approximate and may be overlapping in geographic extent.*
***Proposed actions would be delineated prior to implementation as they overlap other treatment areas.*

Vegetation Treatments

Vegetation treatments would rely on mechanized treatment methods in most areas, although hand thinning would be conducted in sensitive or difficult to access areas or as a follow-up treatment. Whole-tree yarding would be used when possible and conventional ground-based harvesting equipment would be used on sustained slopes less than 30 percent. Removal of harvested material on slopes greater than 30 percent would require special precautions to meet soil quality standards and control erosion. Such precautions include the use of tethered operations that use a synchronized cable winch system and special contract provisions that require excavator type equipment to

recontour and drain impacted areas. Follow up hand treatment, mastication, machine piling or prescribed fire would be used as a follow-up treatment to meet fuels objections and or to thin non-merchantable trees. Hand treatments include felling trees less than 12 inches diameter at breast height (dbh), lopping and scattering or piling and later burning. Activity generated landing slash would be machine piled and burned or chipped and hauled to a biomass facility. The vegetation would be removed as sawlogs and biomass, using a timber sale, service contract, force account (Forest Service Personnel), stewardship contract, or by public fuelwood opportunities.

General Forest

General forest vegetation treatments would consist of thinning in plantations and natural forest stands. Variable density thinning (VDT) concepts from the Pacific Southwest Region General Technical Reports (GTR), An Ecosystem Management Strategy for Sierran Mixed-Conifer Forests (North 2009, GTR 220) and Managing Sierra Nevada Forests (North 2012, GTR 237) would be applied to meet the desired conditions for the project area. VDT is a compilation of various thinning treatment components including (a) dense clumps of trees, (b) canopy gaps where few or no trees exist, (c) the matrix – areas between clumps and openings with varying tree densities to promote heterogeneity. Trees would be thinned to vary density throughout a treatment unit. Conifer densities would be retained at lower densities on droughty sites (e.g., south and southwest aspects, shallow soils, and ridgetops) and higher densities on more mesic sites (e.g., north aspects, lower slopes, drainages, swales). Thinning strategies in both eastside pine and red fir communities would increase the representation of the conifer species that are expected to be most resilient to a changing environment.

The healthiest trees (e.g., healthy crowns and foliage, free of insect, disease, parasites, and decay) would be retained and no tree greater the 30 inches dbh would be removed except to provide for worker safety or equipment operability. In eastside pine communities, sugar pine, ponderosa pine, Jeffrey pine, incense cedar, lodgepole pine and white fir would be retained in the above order of preference. In red fir communities, Jeffery pine, western white pine, lodgepole pine, white fir and red fir would be retained in order of preference. Individual white fir would be retained when healthier than red fir, while red fir would be favored on mesic sites e.g., north slopes and along drainages, which may provide refugia as annual snowpack accumulations decline.

Canopy Gaps and Openings

Canopy gaps and openings would be placed throughout treatment units to meet forest resiliency and heterogeneity desired conditions. The three types of canopy gaps or openings are variable density canopy gaps, pine radial release gaps, and regeneration openings. Trees greater than 30 inches dbh would not be removed in canopy gaps and the target basal area or canopy cover for the treatment area would be not fall below the prescribed average for the forest type. The following criteria describe where canopy gaps would be applied.

1) Variable density canopy gaps up to a quarter acre in size would be used to enhance or expand existing openings where desirable shrub or conifer regeneration is present. VDT openings would not be planted.
2) Pine radial release gaps would be placed around healthy pines and white pines up to half an acre in size and would not exceed ten percent of the treatment area. Pine radial release gaps would not be planted.
3) Regeneration openings would be up to an acre in size and would not exceed five percent of a treatment area. All conifers would be removed except for conifers ≥30 inches dbh, legacy trees, and all white pines. These openings would be placed as needed to restore areas of concentrated *Heterobasidion* Root Disease, dwarf mistletoe, or bark beetle infestations or where subsequent mortality has resulted in heavy concentrations of existing hazardous surface and standing fuels. Follow-up treatments, as needed to promote seedling establishment, growth and vigor, include preparation of the site for planting by mechanical reduction of shrubs, and existing and project-generated fuels, burning, and mechanical or hand release, as needed to control competing vegetation. Seed source selection would adhere to guidance provided by Region 5 Geneticist and Silviculture Staff to promote seedling stock that would be best suited for future site conditions. A key aspect of this adaptation strategy is to augment natural regeneration with artificial regeneration (planting) of Jeffrey, ponderosa, sugar, western white pine seedlings that would have high resilience to future climate conditions. Artificial regeneration of the white pines would use seedling that are genetically resistant to white pine blister rust. Regeneration openings would be placed outside of mature forest habitat types (CWHR 5M, 5D, and 6) and older forest linkages and adequate cover would be maintained. They would also be placed outside of RCAs.

Wildlife Habitat

Within treatment areas, some dense clumps of trees (3 to 10 trees) would be retained and areas 0.1 acres in size or greater at a frequency of approximately 1 per 4 acres would be designated as no treatment areas to provide important wildlife habitat features (e.g., large snags, down logs, cavities, cover, refugia). Habitat connectivity in mature forest habitat types (CWHR 5M, 5D, and 6) would be protected and greater than 40 percent canopy cover in other CWHR types that are interconnected by riparian areas and ridge top saddles would be maintained. In California spotted owl home range core areas (HRCAs) at least 50 percent canopy cover would be retained on average unless a lower canopy cover of 40 percent is needed to meet fuels management objectives. In addition, at least two canopy layers with trees at least 24 inches dbh in dominant and co-dominant positions and higher than average levels of snags and down woody material would be retained (except in WUI defense zone or along main roads).

Plantations

In conifer plantations, the density of young conifers and shrubs would be reduced under a VDT prescription to enhance conifer vigor, lower the potential for shrubs to act as ladder fuels, and

increase heterogeneity in species composition and stand structure. Where possible the root crowns of shrubs would be removed to reduce resprouting.

Rust Resistant Sugar Pine

Thinning treatments aim to enhance the ability of white pines to co-evolve with white pine blister rust (WPBR). Sugar pine or western white pine would not be removed regardless of WPBR infection for gene conservation purposes. An extended radius thinning would be applied approximately 20 feet beyond the dripline of MGR sugar pine to enhance vigor and protect them from potential fire and insect damage. Approximately 1 healthy sugar pine and western white pine with no signs of WPBR would receive an extended radius thinning of 15 feet beyond the dripline at an approximate frequency of 1 to 4 trees per acre, as needed to maintain desired canopy cover. Sugar pine and western white pine would be protected from damage during harvest and fuel treatment activities, particularly MGR sugar pine and numerous MGR candidates that have yet to be tested.

Riparian Conservation Areas

All actions planned within Riparian Conservation Areas (RCAS) are designed to meet the intent of the Riparian Conservation Objectives directed at the protection and enhancement of RCAs in the Forest Plan (SNFPA 2004, ROD, Appendix A pages 32-34). The project area includes approximately 9 miles of perennial streams, over 45 miles of seasonal streams, 50 meadows or wetlands (164 acres total), and 2 fens. Many of these aquatic features would be enhanced through a series of actions that include thinning conifers and actions designed to restore hydrologic function. Proposed actions aimed at mitigating effects from roads, crossings and culverts are described in the Roads Management section on page 19.

Proposed actions would minimize disturbance of riparian vegetation and soils by following site specific RCA resource protection measures that would include restrictions to ground disturbing activities within buffer zones e.g., end lining to minimize disturbance to soils, restrictions on turning equipment, skid trail placement, vegetation and soils protection measures, and low-intensity underburning. Site specific resource protection measures would be developed collaboratively between implementation staff and hydrologists or other aquatics specialists.

Aspen and Riparian Hardwoods

Conifers, encroaching into areas with aspen, cottonwood, willow or alder species would be reduced to increase sunlight and water availability. Conifer removal would be focused where they directly overtop the aspen or riparian hardwoods and within a distance between 50-75 feet of the most distal aspen or riparian hardwood stem. Conifers less than 30 inches dbh would be removed, preferentially removing white fir or other shade tolerant conifer species. Conifers would be thinned in a manner that creates a gradual transition between the aspen or riparian hardwood treatment areas and the surrounding upland conifer stands.

Some conifers would be retained in aspen and riparian hardwood areas at densities between 20-40 square feet of basal area to increase structural diversity. Conifers would be retained using the following indicators: conifers greater than or equal to 30 inch dbh, fire tolerant species, proximity to old stumps/snags/or logs, where they do not impede the growth of aspen or riparian hardwoods and would provide future coarse woody debris input to streams. Conifers would be preferentially selected for retention, where they are growing on the south and southwest side of large aspens to help reduce the potential for windthrow and sunscald. All snags would be retained within these areas, within the limits of safety and operability.

Dry season mechanical treatment and whole tree yarding would be used where damage to soils and effects to water quality is minimized. In areas without access for mechanical equipment conifers up to 12 inches dbh would be removed by hand. In sensitive, steep, or in areas without access for mechanical equipment, hand thinning and hand piling would be used. Following treatments, slash would be removed, piled, and burned outside of the aspen or riparian root zone. In units along perennial streams, an Aquatics Biologist would participate in the timber removal marking to identify conifer trees to remain on site.

Thinning along stream courses

Along stream courses that fall within treatment areas conifer density would be reduced to mitigate hazardous fuel accumulations and improve growing conditions for riparian vegetation. Conifers would be thinned to a density equivalent to the surrounding forest and conifer retention would focus on the largest conifers and snags to promote large wood recruitment. Ground based mechanical treatment would be permitted within stream riparian buffers but not within 25 feet of the edge of the channel or aquatic feature. Burn piles may be located within riparian buffers, but not within 10 feet of the channel or aquatic feature and cannot exceed 20 percent of the riparian buffer area.

Special Aquatic Features

Meadows (W-2, W-7, W3, W10, W-9, W4, W5) would be delineated prior to implementation based on riparian vegetation, topography, and soils. Conifers smaller than 30 inches dbh would be removed within the delineated meadow footprint. To prevent disturbance to streambanks (SNFPA 2004, pg 63 RCO #2, 104). Whole tree yarding may be used where ground based mechanical equipment is permitted to enter the RCA buffer based on site specific characteristics including depth of soil dryness, topography, and soil rock content. Where ground-based equipment is prohibited, conifer removal would be limited to techniques that use specialized low ground pressure equipment, hand thinning and piling, lop and scatter, drop and leave on site as down wood, girdling or left standing.

Within fens (W-8 and W-11) conifers smaller than 30-inch dbh would be treated using non-mechanized techniques. Conifers would be either hand thinned and piled outside of the fen, lopped, and scattered, dropped and left as down logs, girdled or left standing. Some conifers may be directionally dropped perpendicular to channels to slow erosive forces leading to down cutting or further channelization.

Conifers growing in and around dry meadows, wetlands and vernal depressions (W-1 and W-6) would be thinned to the specifications of the surrounding forest. Whole tree yarding or non-conventional mechanical equipment may be used where mechanical equipment is permitted to enter the RCA buffer based on site specific characteristics including depth of soil dryness, topography, and soil rock content.

Fuels Reduction

Of the approximately 2116 acres of WUI, 58 acres are lands designated as WUI Defense, and 2058 acres as WUI Threat. Within the WUI defense and threat zones, fire and fuels management activities would focus on protecting life and property with site-specific treatments designed to modify fire intensity and spread. Outside of lands designated as WUI, fuels management activities would be strategically placed to modify fire behavior while balancing the need to maintain suitable habitats and resource features (PACs, HRCAs, etc.) and maintain the effectiveness of the overall fire and fuels strategy within the project landscape. All fuels treatments will target small diameter trees generally up to 12-inches dbh (also referred to as biomass material), live and dead surface fuels, and include implementation of prescribed fire treatments.

Biomass treatment and removal

Biomass treatments will include thinning and removal of treated material from the project landscape when possible and completed during concurrent silvicultural treatments described above using a timber sale, stewardship, or service contract. Conifers would be cut and removed using a combination of mechanical harvesting systems equipment (including feller-buncher), end-lining, tractor skidding, and/or hand felling in equipment exclusion areas. The lower diameter limits for the vegetation to be cut and removed would generally range from four to six inches but may include all vegetation down to three inches dbh. Some of the small diameter tree material could be mechanically masticated or grapple piled, rather than cut and removed.

If biomass fuels treatment does not occur with concurrent silvicultural treatments, fuel objectives will be met through mechanical and /or manual implementation that will also target pre-existing surface fuels, activity-generated and/or non-merchantable vegetation.

Masticate, or pile and burn, or remove

Pre-existing surface fuels, activity-generated and/or non-merchantable vegetation (less than 10 to 12 inches dbh) on approximately 75% of silviculturally-treated areas may receive a secondary phase of treatment to achieve fuel treatment objectives. Treatments will be completed mechanically (grapple piled or masticated or removal of material), manually, or with a combination of methods to achieve desired fuels objectives. When possible, material would be removed for utilization at biomass facilities. Piles created would be burned.

Prescribed Fire Treatments

Prescribed fire treatments would be utilized to reduce and remove fuel loads, to alter the vertical fuel profile throughout the project area, and to reintroduce fire to the project landscape. Different types of prescribed fire may be used as stand-alone treatments or in phases, working toward the desired fuels conditions. Implementation of prescribed fire would include pile burning, jackpot/spot burning and understory burning (underburning).

Pile burning would remove fuels created from prior treatments that target thinned vegetation (inclusive of generated activity fuels) as well as existing surface fuels; piles are made mechanically or manually by hand. Pile location and size would be based on existing conditions; however, piles would be preferentially placed outside sensitive areas, such as riparian areas and cultural resource sites. Piles are typically burned under fall-like conditions, in winter months, or during periods of low fire danger.

Jackpot or spot burning would reduce surface and ladder fuels by igniting concentrations of fuels or to break up fuel continuity throughout a treatment area, thereby creating a mosaic burn pattern. Jackpot/spot burning may be used as an initial treatment or as follow up treatment, and functions toward re-introducing fire to the landscape.

Understory burning, or underburning, applies a surface fire that burns live and dead fuels at or near the surface of the ground, mostly by flaming combustion. Underburning is typically the last phase of treatments that allows for the broader re-introduction of fire across the project landscape.

Prescribed fire would be applied on up to approximately 75 to 100% of the project area. Prescribed fire implementation will be focused on silviculture and fuels treatment units and may include areas not receiving silvicultural treatments (such as riparian areas and natural openings) that may function as natural fire breaks or may benefit from having fire re-introduced to them. Coordination will occur with resource specialists ahead of implementing prescribed fire treatments throughout the project area to ensure resource protection measures are met.

PAC specific fuels treatments

To effectively implement the fire and fuels strategy within the WUI and meet desired conditions, two California spotted owl PACs and one Northern Goshawk PAC are proposed for treatment. The three PACs are located partially within the wildland urban intermix (WUI) threat zone and will receive fuels reduction treatments of surface and ladder fuels up to 10 inches dbh consisting of a manual thinning treatment and follow up prescribed fire treatments. Treatments would be designed to maintain the following habitat features and the structure and function of PACs.

- retention of large trees greater than 30-inch dbh
- retention of areas that currently have dense, multi-layered tree and vegetation conditions, and areas that provide early seral conditions suitable for prey species

- retention of trees with decay and/or “defect” structures to support cavity development or platforms for nesting and roost sites
- retention of large and small dead wood features such as snags, and down logs in various configurations.

Within 500-foot buffer around California spotted owl and Northern goshawks nest locations, treatments would be limited to hand thinning of surface and ladder fuels up to six inches dbh as needed to protect important elements of owl habitat. Prescribed burning is allowed within the 500-foot radius buffer. Hand treatments, including handline construction, tree pruning, and cutting of small trees (less than six inches dbh), may be conducted prior to burning as needed to protect important elements of owl habitat. Treatments in the remainder of the PAC use the forest-wide standards and guidelines for mechanical thinning.

Hydrologic Restoration

A series of hydrologic restoration actions would take place in five meadows and fens within the project area. These actions would include both hand work and mechanical treatments designed to restore hydrologic processes. The following summarizes the proposed actions (refer to Maps in Appendix A).

- Rutting caused by unauthorized motor vehicle activity has captured water and formed channels in several fens and wetlands in the project area. Sedge plugs and fill would be used to plug these small channels and slow or stop flow and prevent dewatering. Sedge plugs and fill would be used in the following units: W-8, W-7 and W-11.
- The W-4 meadow includes a disturbed area that is now compacted and does not support meadow vegetation. To encourage meadow vegetation recovery the compacted soils would be scarified, seeded, mulched, and revegetated.
- The seasonally dry meadow, W-6, has a berm originally built to hold water for livestock. This berm would be removed to restore the natural flow path and re-distribute water to the meadow area. The berm material may be used to fill the dugout portions of the old stock pond.

Invasive Species Management

Approximately 5 acres of invasive plant infestations would be treated using a combination of mechanical (e.g., hand pulling, cutting, string trimmer, etc.) and chemical (e.g., aminopyralid, chlorsulfuron, glyphosate) methods. Aminopyralid and chlorsulfuron would also be used as a pre-emergent to treat infested landings and temporary roads to minimize risk of spread during project operations.

Road Management Treatments

Road Maintenance and Reclassifications

Approximately 13 miles of existing National Forest System (NFS) roads would be used to provide for public and contractor safety, road surface protection, and erosion control. Road maintenance includes, but is not limited to, ditch cleaning, surface repair, drainage structure maintenance, dust abatement, roadside brushing, minor curve widening for chip van access, maintenance of miscellaneous structures (e.g., cattle guards, gates, etc.), installation or removal of drivable waterbars, installation or removal of barriers, and slide and slump repair. This document reclassifies a segment of the ML2 Forest Service Road number 541-10-10 to decommissioned on the transportation network.

Temporary Road Construction

Approximately 9 miles of previously tilled temporary roads and existing unclassified non-system roads would be used to provide short-term access and facilitate the removal of forest products. After use in this project, these temporary roads would be decommissioned. Decommissioning would include actions to effectively close the road to motorized use, reduce compaction through subsoiling as needed, and pull berms, outslope, or recontour the road to disperse water flows. Any structures and/or fill in stream crossings would be removed, and the natural stream channel shape restored. Final configuration would provide ground cover with mulch, slash, pine needles, wood chips or weed-free straw (preferably with materials from the surrounding setting) in amounts adequate to control erosion.

Road Reconstruction

Approximately 1.3 miles of Forest Service Road, NFSR 89-55-04, requires reconstruction to restore the hydrologic connectivity to the Blatchley headwater wetland. Reconstruction would occur within the existing road prism and include redesign and installation of crossings.

New Road Construction

Less than 1 mile of new 14-foot-wide road would be constructed to provide short-term access to treatment areas and facilitate forest product removal. After use the road segment would be added to the National Forest Transportation System, designated as ML1 and gated or blocked from use.

Legacy Road Treatments

Numerous areas affected by past logging would be rehabilitated. This would include improving natural drainage that have been disrupted by past logging through installation of waterbars, recontouring, outsloping, fill removal, and placing slash and mulch. To effectively treat areas without

road access, some legacy roads may be utilized as temporary roads. After implementation these roads would be either decommissioned or brought onto the system to meet future resource management needs. These roads would be classified as ML1 roads and gated or blocked from use.

In addition to the areas described above, the following list summarizes specific areas with legacy road treatments.

- Less than one mile of an elevated legacy roadbed would be removed and decommissioned in the W-5 meadow.
- Stream flows have captured a portion of (less than 2 miles) of Forest Service Road 541-10-10. To mitigate further erosion and sedimentation the road fill would be removed from the wetland, stream channel and floodplain.
- Reshape the road prism on Forest Service Road 451-10-10 to mitigate hydrologic impacts to the W-11 fen (less than 1 mile).

Hazard Tree Removal

Hazard trees with a medium or high rating would be removed along maintenance level 2 and above NFS roads, administrative sites, and along critical infrastructure in the project area. They would be removed in accordance with Forest Health Protection (Report # RO-12-01): Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Angwin et al, 2012). A "hazard tree" is defined as a tree that has a structural defect that makes it likely to fail in whole or in part (ibid.). Hazard trees greater than 30 inches would be identified in advance and reviewed for consistency with hazard tree guidelines. The removal of dead and unstable live trees (i.e., hazard trees) of all sizes would occur along utility lines, timber haul roads, and landings as needed to provide for safety of workers and the public throughout project implementation.

Resource Protection Measures

An interdisciplinary team is developing resource protection measures that will be added to the proposed action and included in the decision document. Resource protection measures ensure that the proposed activities meet the requirements of the Tahoe National Forest Land and Resource Management Plan (1990) as amended by the Sierra Nevada Forest Plan Amendment (2004) as well as other relevant laws and regulations.

Decision to be made

The decision to be made is whether to implement this project as proposed, as modified to address any relevant issues raised during scoping, or not at all. This proposal will be subject to the pre-decisional objection process found at 36 Code of Federal Regulations 218.

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Appendix A – Maps

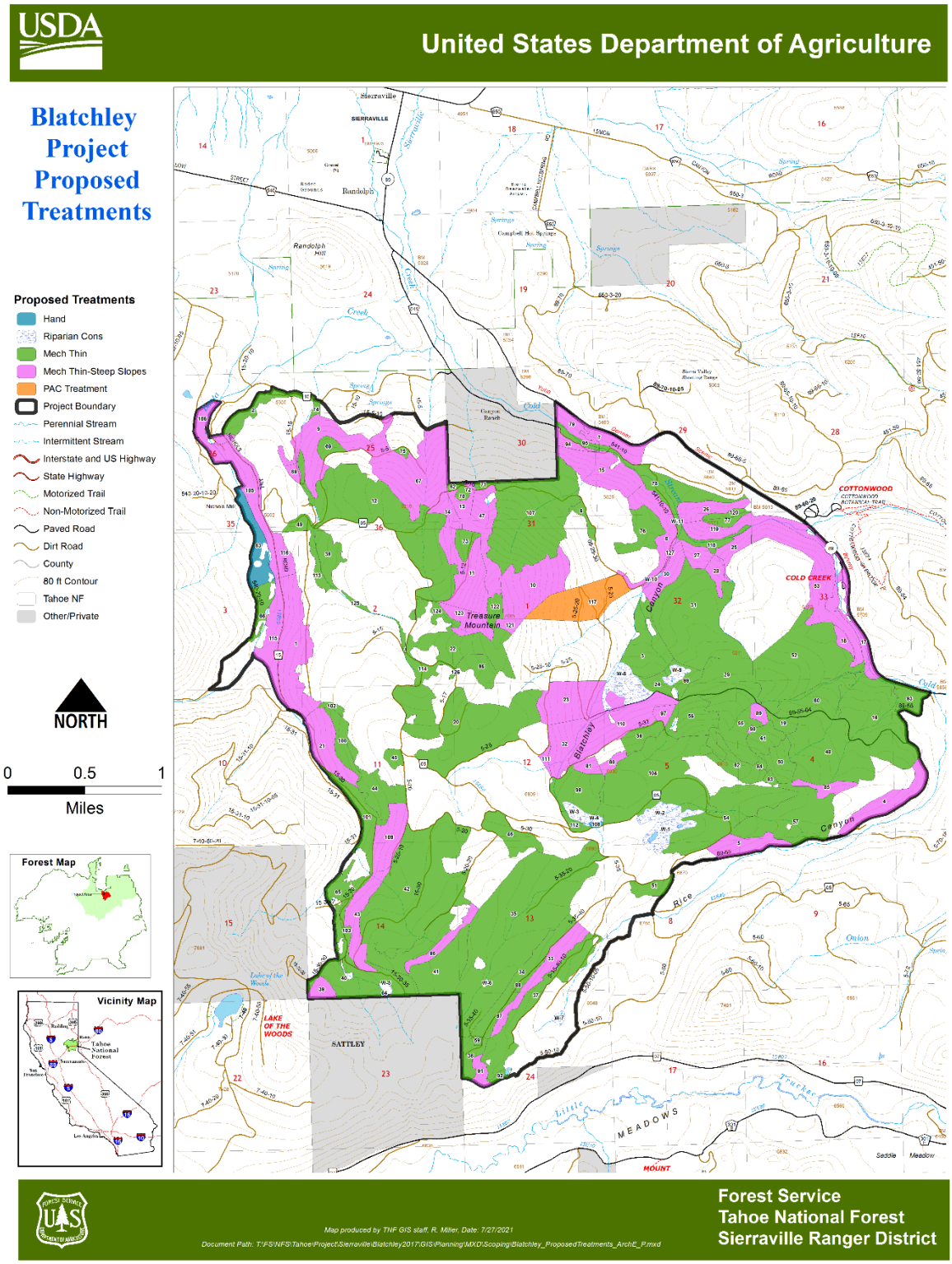

Figure 2: Map of Blatchley proposed treatment areas.

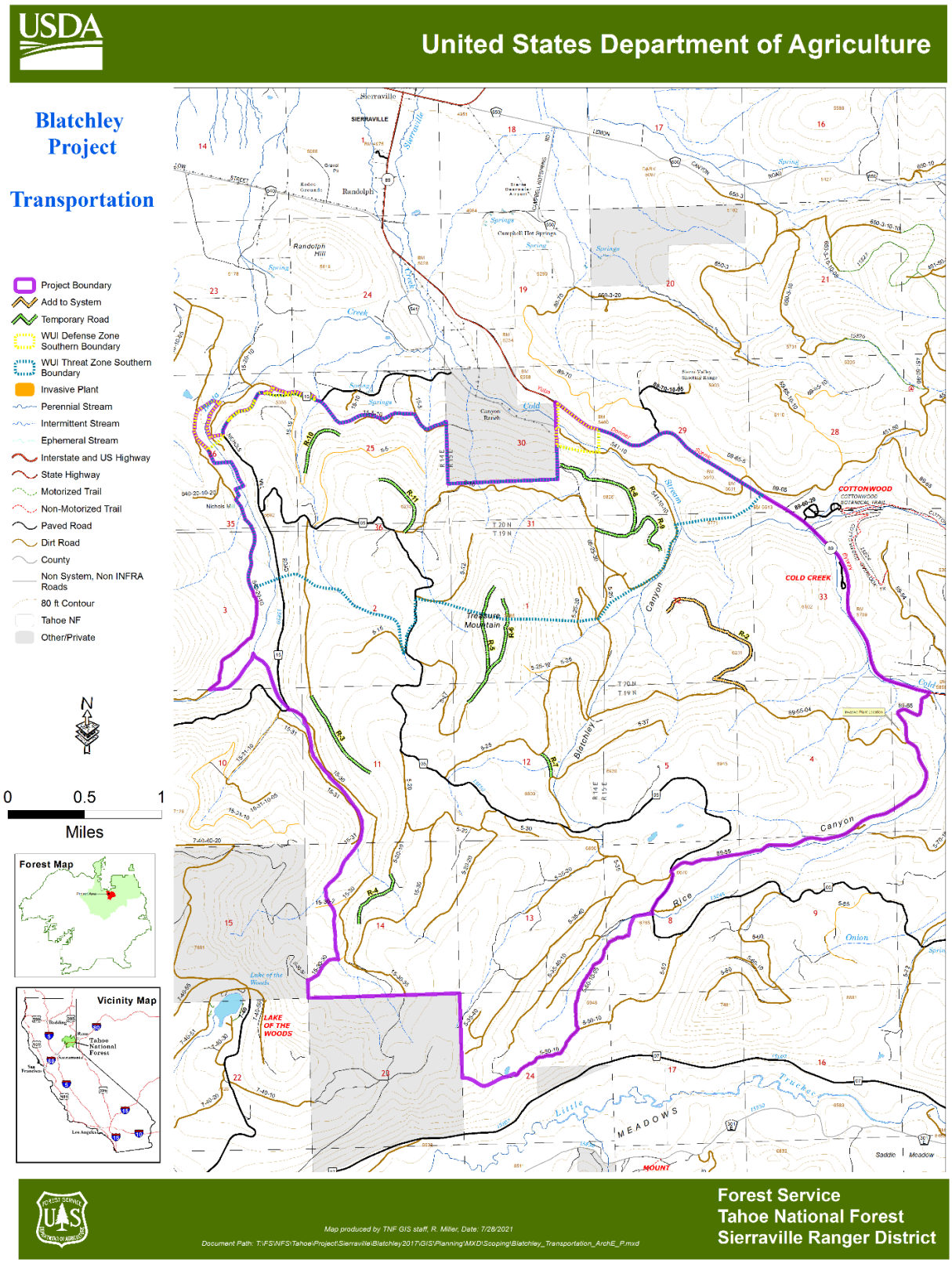

Figure 3: Map of Blatchley proposed transportation actions.

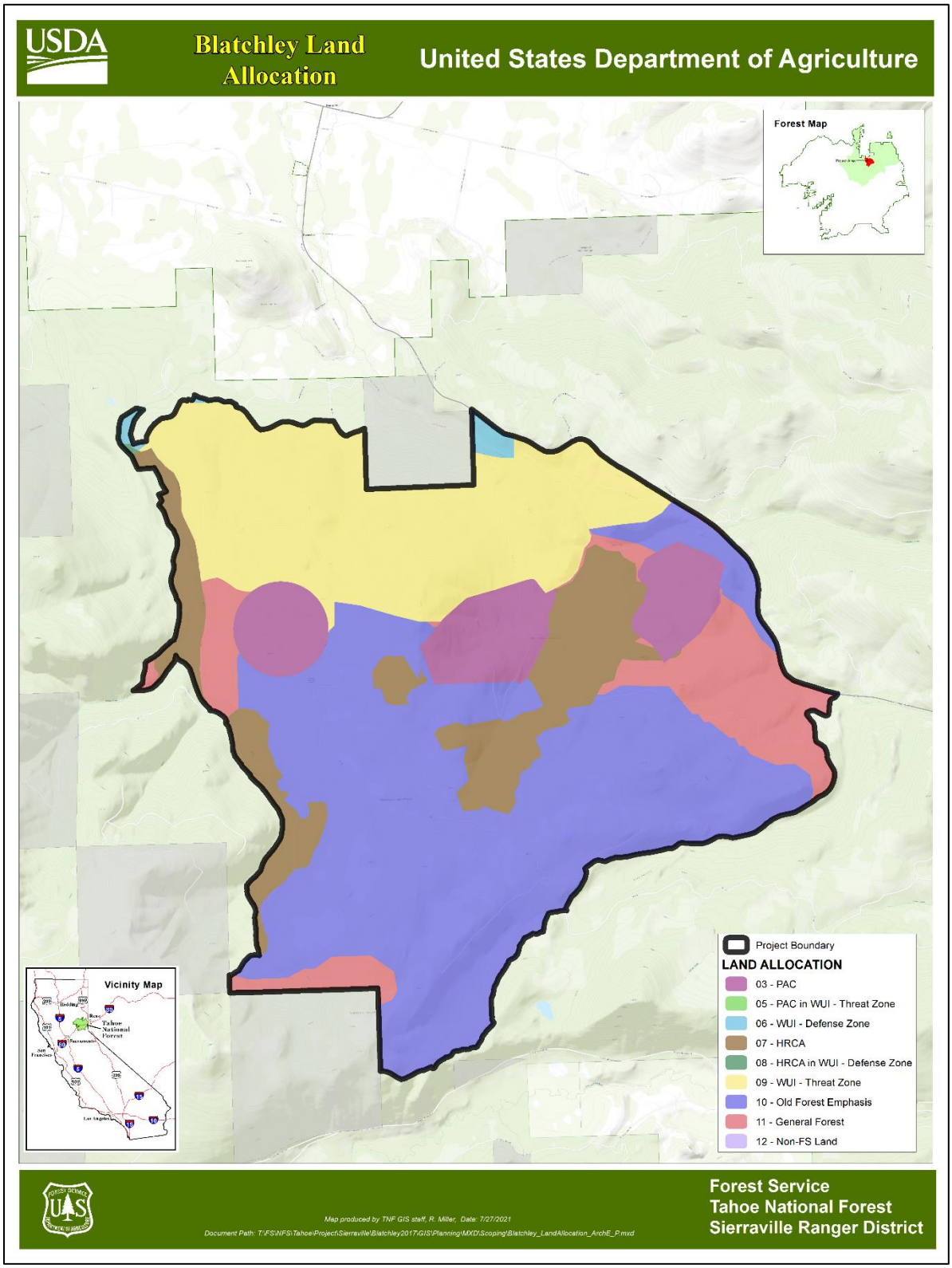

Figure 4: Map of Blatchley land allocations.