

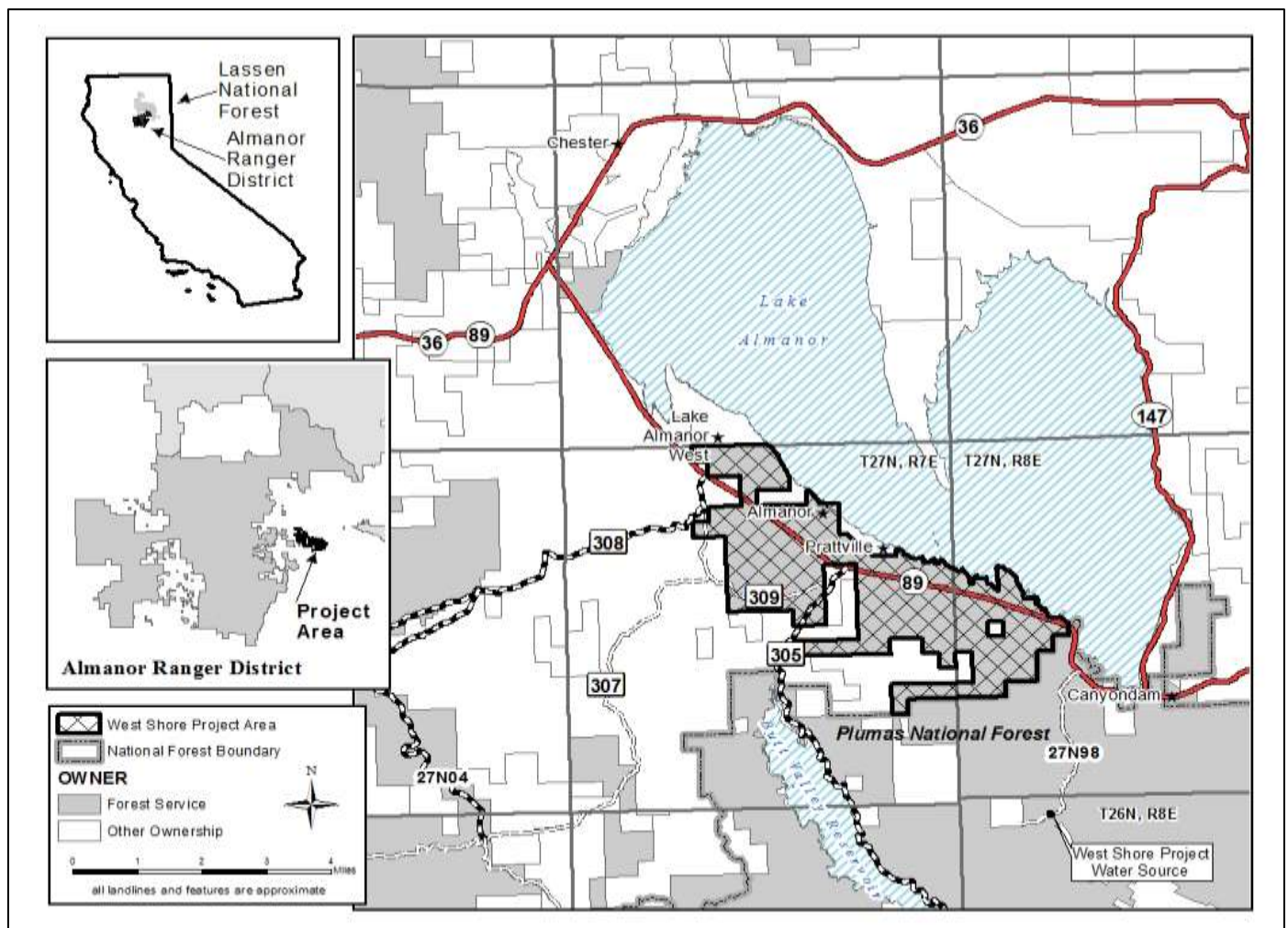
# West Shore Community Wildfire Protection Project

## Almanor Ranger District, Lassen National Forest

### Plumas County, California

#### August 2019

The Almanor Ranger District of the Lassen National Forest is proposing the West Shore Community Wildfire Protection Project (hereafter called the West Shore Project). The project boundary lies adjacent to Lake Almanor's western shore, beginning just south of the Lake Almanor West community and ending north of the PG&E Rocky Point Campground. From the Rocky Point Campground, the project area expands southwest from the shore crossing California State Highway 89, through the community of Big Meadows, and back to the Lake Almanor West community (Figure 1). The proposed project area is located in Management Area 38: T. 27N, R. 8E, Sec. 18, 19, 20, and 30; T27N, R7E, Sec. 3, 4, 9, 10, 11, 13, 14, 15, 16, 23, and 24; Mount Diablo Meridian. The West Shore Project area encompasses approximately 6,110 acres with approximately 5,019 acres proposed for various thinning and post-thinning treatments.



The West Shore Project area ranges in elevation from approximately 4,500 feet at lake level to ~5,800 feet. Conifer trees are the dominant vegetation type and the forested areas are generally composed of high-density mixed conifer forest stands (sugar pine, ponderosa pine, Douglas-fir, incense-cedar, and white fir) and natural and planted pine stands. There are also small inclusions of aspen stands and meadow complexes. The combined communities of Lake Almanor West and Prattville have approximately 340 residents but fluctuate seasonally with a high number of second homeowners or vacationers not counted in the census. Big Meadows is a smaller community, with approximately 12 homes. The project area is used heavily for recreation purposes, primarily in the summertime, and brings a significant economic pulse to the area during the spring and summer seasons. Four campgrounds, a marina, two public beaches, a public boat ramp, and a paved bike trail are within the project area, as well as multiple restaurants and other service-based businesses.

A combination of natural disturbance events and past land use and management have shaped the present conditions of the project area, including:

- Natural and human-caused fire history
- Lake Almanor dam/reservoir development, including PG&E infrastructure, recreational facilities, and cloud seeding operations
- Development of the Prattville, Lake Almanor West, and Big Meadows communities
- High tree-mortality rates from recent prolonged drought, insect infestations and tree disease throughout the conifer stands
- High-impact area for aquatic and terrestrial outdoor recreation
- Timber sale history, including all post timber-sale activities (i.e. fuels and watershed treatments)
- Pine plantation developments: wind row establishment (site preparation), row planting of pine, commercial thinning and prescribed fire implementation

The West Shore Project incorporates information from the 2019 Conservation Strategy for the California Spotted Owl in the Sierra Nevada (version 1.0) and will update the project appropriately under Regional Forester direction based on future revisions and the Frequently Asked Questions (FAQs) document.

The proposed action is designed to be consistent with the 1992 *Lassen National Forest Land and Resource Management Plan* (LNF LRMP) and 1993 *Record of Decision* (ROD) as amended by the *Sierra Nevada Forest Plan Amendment* (SNFPA) Final Environmental Impact Statement and ROD (2004), and the *Management Indicator Species Amendment* (2007).

## Purpose and Need

The primary purpose of the proposed West Shore Project is to reduce the risk of wildfire damages to human life and property in the Prattville, Lake Almanor West, and Big Meadows communities by thinning overstocked conifer stands and reducing hazardous fuel loads. The entire project area is within the wildland urban interface (WUI). The second priority purpose is to restore National Forest System (NFS) lands including conifer forest, aspen, and meadow areas within the project area to make them more resilient to drought, disease, and insect infestation, which would also reduce future risk of catastrophic wildfire. The third priority purpose is to improve recreation experience through facilities improvements and access management.

Vegetation management treatments would be designed to reduce hazardous fuels and the risk of high-intensity fire in the WUI, increase forest health and vegetative diversity, reduce the number of hazardous trees near facilities and infrastructure, and provide an economic benefit to the local community. Objectives developed for the project are in line with Region 5 Ecological Restoration Leadership Intent (USDA FS 2011a) and are consistent with goals and strategies for fuels and vegetation management in the Lassen National Forest LRMP as amended by the SNFPA Record of Decision. The West Shore Project area is within the Tier 2 High Hazard Zone identified by the California Department of Forestry and Fire Protection as areas that have significant tree mortality as well as significant community and natural resource assets. This project is also in accordance with the Healthy Forests Restoration Act of 2003 (HFRA) under Title I Section 101 (1a,b,c)(2)(3a,b,c); and Title IV Section 602 (c)(1)(2)(3).

## **Purpose 1: Reduce Hazardous Fuels and the Risk of High-Intensity Fire in the Wildland Urban Interface**

***Objective: To reduce wildfire threat to human communities, ecosystems, and wildlife habitat.***

The 2004 Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision (ROD) emphasizes reducing threats to communities and wildlife habitat from large, severe wildfires, and making demonstrated progress in moving acres out of unnaturally dense conditions. Goals for managing fuels described within the 2004 SNFPA ROD (pp. 34 and 35) include: 1) strategically placing fuel treatments across landscapes to interrupt potential fire spread; 2) modifying canopy fuels to reduce the potential for spread of crown fire; and 3) removing sufficient material in treatment areas to reduce wildland fire intensity, thereby contributing to more effective fire suppression and fire-fighter safety.

The SNFPA identifies WUI as an area where human habitation is mixed with areas of flammable wildland vegetation. It extends out 1 ½ miles from the edge of developed private land into Federal, State, and private jurisdictions. The SNFPA divides WUI into two distinct areas with different desired conditions. The *defense zone* is the area within ¼ mile of communities, areas with higher densities of residences, commercial buildings and/or administrative sites with facilities. The *threat zone* buffers the defense zone and generally extends 1 ¼ miles from the outer edge of the defense zone. Nearly all proposed treatment stands are within 1 ½ miles of Lake Almanor West, Prattville and Big Meadows communities.

For this project, the defense zone includes the area between Lake Almanor and California Highway 89, and an area around the Big Meadows Community, totaling 2,000 acres. The remainder of the project (4,110 acres) area falls within the threat zone.

The SNFPA describes desired conditions within the WUI (2004 SNFPA ROD pp. 40 and 41) as follows:

### *Defense Zones*

- Stands in defense zones are fairly open and dominated primarily by larger, fire tolerant trees.
- Surface and ladder fuel conditions are such that crown fire ignition is highly unlikely.
- The openness and discontinuity of crown fuels, both horizontally and vertically, result in very low probability of sustained crown fire.

*Threat Zones* – Under high fire weather conditions (97<sup>th</sup> percentile fire weather for this project) fire behavior in treated areas should exhibit:

- Flames lengths at the head of the fire are less than 4 feet;
- Rates of spread reduced to at least 50 percent of pre-treatment levels;
- Hazards to firefighters are reduced by managing snag levels in locations likely to be used for control of prescribed fire and fire suppression consistent with safe practices guidelines;
- Production rates for fire line construction are doubled from pre-treatment levels; and
- Tree density has been reduced to a level consistent with the site's ability to sustain forest health during drought conditions.

Currently, overstocked stands of mixed conifer occupy much of the project area. They are characterized by a largely closed canopy with low canopy base heights and abundant surface and ladder fuels. Dead and dying trees are present throughout the project area because of prolonged drought, an increase in tree-disease/insect infestation, and are contributing to surface and aerial fuel loads. Each of these elements contributes to the hazardous fuels condition within the West Shore Project area (USDA, 2018).

Although the project area terrain has primarily gentle slopes, it is situated 15 miles northeast of the Feather River drainage. This drainage is a steep and deep river canyon that is aligned with the prevailing southwesterly winds. When winds align with drainages, fires burn with greater intensity. Similarly rugged drainages feed into the Feather River Canyon, making it a difficult place to access. Coupled with hazardous levels of ladder and surface fuels throughout this connected area, it presents a considerable challenge for fire managers when wildfires occur on high fire weather days. California Highway 70 and a railroad parallel the river contributes to a high frequency of human-caused fire occurrences.

History has shown that the terrain and weather patterns of this area leave the project area vulnerable to wildfire coming from the Feather River drainage. Multiple notable fires have occurred in the Feather River drainage, with two in recent years that made significant north and northeastern runs toward the West Shore Project area. The Storrie Fire (2000) started along the Feather River and burned 52,000 acres of brush and timber. 12 years later, the Chips Fire burned in the same footprint and extended northeast beyond the Storrie Fire. Fire spread was promoted by a dry winter season that resulted in low live fuel moisture in brushy fuels. The dry, live brush was coupled with unseasonably dry standing snags created by the Storrie Fire. The Chips Fire spread readily in the brush while the dry snags served as ember sources and receptors, creating a significant spotting problem. The fire became established in multiple rugged drainages, eventually growing to 75,431 acres. The northeasterly spread of the Chips Fire was stopped as a result of a defensive firing operation, coupled with an improvement in fire weather. The final fire perimeter came within one mile of Prattville and less than a quarter mile of Big Meadows.

Management intent in WUI defense zones, as established by the SNFPA, is to protect communities from wildfire and prevent the loss of life and property. Within WUI threat zones, the SNFPA states that fuels treatments shall provide a buffer between developed areas and wildlands and protect human communities from wildland fires while minimizing the spread of fires that originate from within urban areas. Management objectives for WUI are to create defensible space near communities, provide a safe and effective area for fire suppression in the defense zone and establish and maintain a pattern of area treatments that is effective in modifying wildfire behavior in the threat zone.

The fire environment is based on topography, weather, and fuels. Fuels are the only element that may be manipulated and reduced across strategic landscape areas to safely manage and lessen impacts from wildfires. Wildland fuels can be divided into three categories: surface, ladder and canopy. Surface fuels are comprised of needle litter, dead branches, logs, and cones lying on or near the forest floor. Surface fuel loading contributes to the rate of spread of surface fires and can generate long flame lengths when loading is heavy. Long flame lengths can transition fire into ladder fuels, which are smaller trees and brush that create a pathway for fire to move into the canopies of overstory trees. The amount of space between canopies is referred to as canopy closure. When the crowns of trees are touching each other, it is considered a closed canopy. Closed canopies allow for fire to move readily from tree to tree in critical fire weather conditions, otherwise known as crown fire. Canopy closure is a critical component to fire spread when a large high intensity fire is already established and moving towards a stand.

The proximity of the West Shore Project to the Feather River drainage presents the most significant threat to the communities and natural resources within it. Crown fire coming out of the Feather River and its tributaries would be fueled by timber and regeneration of brush and young trees in these difficult to manage locales. Fire spread in these areas is also exacerbated by steep topography that funnels prevailing winds. The only defense firefighters have against the spread of a crown is to utilize large defensive firing operations that must be carefully timed and coordinated as well as have favorable weather conditions. The chaotic nature of wildfire does not guarantee the successful implementation of such an operation. Opening up the canopy closure in the project area would reduce the canopy bulk density that is necessary to perpetuate crown fire spread. This would encourage crown fire approaching the project area to transition to surface fire. Firefighters have more options to fight surface fires with a greater chance for success, compared to crown fires.

High-impact residential and recreational use inside and around the West Shore Project area throughout the fire season puts it at an increased likelihood of human-started fire originating from within the project area. While it is less likely that an independent crown fire would be generated from within the project area, the fuel conditions would support

single and group tree torching under severe fire weather conditions. Torching trees present a challenge for firefighting crews because they generate firebrands that can start spot fires outside of the main fire body. Factors that must be present to initiate torching and crown fire in a stand include surface fire that is intense enough to ignite the canopy fuels, canopy base heights that are low enough to be ignited by surface fire, and canopy bulk density great enough to support fire moving through the stand. Decreasing canopy bulk density, increasing canopy base height and reducing surface fuel would limit this kind of fire behavior.

Canopy characteristics are critical to the development and movement of crown fires, from torching to active crown. Canopy bulk density and canopy base height are two of the key components in determining initiation and propagation of crowning. As a stand becomes denser, the stand is more vulnerable to active crown fires because crown fires can occur at lower wind speeds. Gaps in canopy continuity are effective in reducing propagation of torching into active crowning. The higher the canopy base height, the less susceptible a stand is to initiation of torching and crowning from surface fire. This can also be seen as a separation of the surface fuels from the canopy fuels. Ladder fuels are those fuels (i.e., small trees, shrubs, etc.) that connect the surface fuels to the canopy fuels layer. A decrease in abundance of ladder fuels would also decrease the frequency and severity of torching and crowning in wildfires. The reduction in both canopy and ladder fuels is important in restoring and retaining fire resilient stands for the present and possible future conditions with climate change.

Surface down woody material also contributes to fire behavior and intensity. The desired amount of surface fuels within treated areas would result in fires that burn at lower intensities and at slower rates. For the West Shore Project, the desired amount of surface fuels would produce flame lengths less than 4 feet under 97<sup>th</sup> percentile fire weather conditions. Existing surface fuel accumulation varies throughout the West Shore Project area. Most proposed treatment units have moderate to high amounts of down woody material. There is a need to decrease high concentrations of surface fuel loading to meet desired conditions.

In addition to the fuel hazard presented by heightened levels of surface, ladder and canopy fuels in the West Shore Project area, pockets of overstory trees have experienced high levels of tree mortality. In firefighting operations, dead and dying trees not only present considerable hazards to firefighters but can also exacerbate fire spread by acting as spotting sources and receptors.

The current stand structure and historical and predicted fire behavior support a need to:

- Decrease canopy bulk density to reduce the likelihood of crown fire moving into the area or originating within it;
- Decrease surface fuels to reduce the intensity of surface fires and bring modeled surface fire to flame lengths less than 4 feet;
- Raise canopy base heights by reducing ladder fuels to decrease the probability of surface fire moving into canopy fuels;
- Reduce snag levels to contribute to improved safety conditions under which firefighters can implement fire suppression actions; and
- Reduce snag levels to contribute to improved safety conditions under which firefighters can implement fire suppression actions; and improve fire resilience of existing stands to reduce the potential for detrimental effects of large-scale, high-severity wildfire.

## Fuels Reduction in CA Spotted Owl & Northern Goshawk Habitats

Large-scale, high-severity wildfire is one of the biggest threats to CA spotted owl (CSO) occupancy and habitat use (USDA 2019). The Chips Fire burned at moderate and high severities adjacent to the Rocky Point owl territory and Prattville goshawk territory, threatening a long-term loss of habitat for both territories. In addition, trends in high-severity fire are likely to continue to increase in the absence of active forest restoration (Stephens et al. 2016a in USDA 2019). Also, CSOs select for tall tree cover (more than 160 feet tall) and against short tree cover (less than 53

feet) (North 2017). There is a need to improve CSO habitat and increase the resilience of CSO and goshawk habitat by reducing surface fuels, ladder fuels, and the risk of high severity fire within and surrounding the Rocky Point CSO and Prattville goshawk territories and protect one of the most important habitat elements for owls (tall trees). Also, reducing fuels will strengthen the effectiveness of the landscape fire and fuels strategy.

In addition, historical management that has contributed to homogeneity (i.e. fire suppression, even-aged harvest, and pine plantations) may likely be contributing to declines in CSO populations and their prey on FS lands (Hobart et al. in review in USDA 2019). Small openings, areas with less than 40 percent canopy cover, and edges located outside of owl core areas benefit foraging owls (USDA 2019). The mapped Home Range Core Area (HRCA) and many of the stands surrounding it are fairly homogeneous. There is a need to increase resilience to disturbance and increase foraging opportunities in and around the Rocky Point CSO territory.

## **Purpose 2: Forest Health and Socioeconomic Development**

***Objective: To improve forest health, increase vegetative diversity, improve meadow and riparian area condition, protect and improve existing California Spotted Owl and Northern Goshawk habitat, and provide an economic benefit to the local communities.***

### **Forest Health and Vegetative Diversity**

Vegetation communities within the West Shore Project area have changed over time as a result of past management actions, including fire exclusion, logging, reforestation (pine plantations), human-caused wildfires, prescribed fire, and the development of the Prattville, Lake Almanor West, and Big Meadows communities. Current conditions within the proposed West Shore treatment area include overly dense natural forested stands and over-stocked pine plantations planted in the 1960s and 1970s. These dense conditions reduce tree vigor and increase stress on forest stands making them more susceptible to insects, disease, drought-related mortality, and high-severity wildfire. Trees intolerant of shade, such as ponderosa pine, sugar pine, and aspen are at the most risk of mortality.

Within the proposed treatment units, densities average over 735 trees per acre and the total basal area averages 195 square feet per acre. The density of a stand is ultimately limited by resources such as soil moisture and growing space. When a stand approaches 60 percent of the stand's maximum stand density index (SDI)<sup>1</sup>, the inter-tree competition for resources and the risk of mortality from insect, disease, and drought begin to increase (Oliver 1995, Simonson 1998, Cochran et al. 1994). The stands proposed for treatment currently average 70 percent of maximum stand density index<sup>2</sup>. Existing stand density measures are outlined in Table 1.

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<sup>1</sup> Stand Density Index-Measurement of stand density index is a very useful tool to predict present or future susceptibility of a stand to drought-related or insect-caused mortality. The stand density index (SDI) is a quantitative measurement that expresses tree frequency and tree size into a standardized numeric value, or SDI. This numeric value can be used to compare different stands and different treatments.

<sup>2</sup> The maximum stand density index was calculated by the Forest Vegetation Simulator software, Inland California and southern Cascades Variant, and is an average of the maximum stand density index for the individual species within the stand. The maximum stand density for ponderosa pine was adjusted from 430 to 365 based on Oliver 1995 and Oliver and Uzoh 1997.

**Table 1. Current conditions of proposed treatment areas.**

Treatment	Percent max SDI average	Percent max SDI range	Basal area (sq.ft./acre) average	Basal area (sq.ft./acre)range	Trees per acreAverage(trees > 1 inch dbh)	Trees per acreRange(trees > 1 inch dbh)
Area Thin	71	42-118	200	120-328	750	120-2,100
Area Thin - plantations	83	66-103	150	114-180	700	545-900

Source: GIS and stand exam data processed with the Forest Vegetation Simulator forest growth simulation model

Desired conditions for the West Shore Project area are lower stand densities that would support shade-intolerant pine and aspen tree species, improve tree health and vigor, and reduce threats from insects, disease, drought and high severity wildfire (Cluck, 2018, PSW Forest Health Evaluation for the West Shore Project Area; LRMP p. 4-2 and 4-3; 2004 SNFPA ROD p. 31, 41, 48 and 49, USDA FS 2011a).

The difference between the desired condition and current condition within the proposed West Shore Project area shows a need to reduce conifer densities and improve resilience to disturbance, such as epidemic levels of insects and disease and high severity wildfire. The reduced density of forested stands would also accelerate the development of large trees and contribute to better growing conditions for shade-intolerant pine and aspen thus increasing vegetative diversity.

## Hazardous Trees and Facilities and Infrastructure

Numerous facilities and infrastructure are within the West Shore Project area including California State Highway 89, Forest Service campgrounds and day use areas, and electrical distribution lines. Adjacent to or within these public features are forested stands exhibiting the same overstocked conditions, insect and disease infections, and drought related mortality as described in the section above.

There is a need to increase safety for the public by minimizing the potential hazards from trees. Hazard trees at risk of breaking or falling are within recreation facilities and along powerlines and other infrastructure. Dense stand conditions contribute to poor tree health and increased number of hazard trees. Trees close to California State Highway 89 block a recovery zone for vehicles. These risks would be addressed under the West Shore Project.

## Riparian Conservation Areas and Meadow Ecosystems

Stream and riparian area surveys and field observations within the West Shore Project area document conifer encroachment on riparian vegetation, overstocked upland forested stands within the riparian conservation areas (RCA), and increased fuel loading. Riparian conservation areas proposed for treatment outside of meadows exhibit similar tree species and high stand density conditions to the upland forested stands within proposed treatment units.

The West Shore Project area contains numerous meadow complexes. The footprint of a meadow is determined by a combination of vegetation, soils, topography, and hydrology. Meadow communities provide natural openings and ecosystem services and groundwater recharge. Meadows are found in areas with a high water table which supports a variety of plant species, enriching biodiversity and providing habitat for non-forest bird and insect species. Historically, fire played a role in maintaining the spatial extent of these meadow communities by killing tree seedlings that established along the forest/meadow edges.

Desired conditions for meadows in the 2004 SNFPA ROD describe meadows that reduce peak flow velocities, decrease sediment loads, and promote surface water infiltration. Vegetation roots occur throughout the soil profile in meadows systems, stabilizing stream banks against cutting which can affect water quality and quantity (SNFPA ROD p. 43). The hydrologic functionality of meadow systems may be threatened by the encroachment of conifer species,

therefore, the removal of encroaching trees meets the riparian conservation objective direction from the ROD which aims to preserve, restore, or enhance meadow features.

The number and density of trees encroaching into the meadow communities in the West Shore Project area have increased since fire has been excluded from these ecosystems. There is an average of 800 conifer trees per acre in the encroached meadows within the West Shore Project Area. The establishment of conifers within the meadows demonstrates trending changes in meadow function, compromising the long-term (50 years or more) sustainability of these meadows.

There is a need to reduce the number of conifers that have established within the meadows to support the natural openings and vegetation diversity that meadows provide within a conifer-dominated forest. There is a need, as well, to improve forest health and reduce fuel loading in riparian conservation areas to contribute to the integrity of aquatic features in the project area. Enhancing these areas would increase vegetation diversity and improve the ecological integrity of RCA.

### Windrow Spreading

Plantation units 5, 10, 35, 42, 44, 45, 46, 300, 301, 302, 303, 304 and 305 were brush field conversion plantations planted between 1952 and 1962. Site preparation prior to planting consisted of machine piling debris and shrubs into linear rows (windrows) to expose bare mineral soil. Trees were planted between the windrows. These windrows still exist and contain a large amount of topsoil. Spreading windrowed material would redistribute nutrients and topsoil across the forest floor and improve growing conditions for trees and vegetation. Spreading of windrow material has shown to result in higher soil nitrogen and mineralizable nitrogen contents in topsoil, which can increase productivity (Zhang et al. 2015).

### Economics

There is a need to support local rural communities by providing a wood supply for local industry and sustaining a portion of the employment base (LRMP p. 4-2, 2004 SNFPA ROD p. 9, USDA FS 2011a). There is also a need to retain industry infrastructure and support the ability of public managers to manage overstocked stands and accomplish ecological objectives within the Lassen National Forest (2004 SNFPA ROD p. 9). Measurement indicators to analyze contributions to economics and community stability would include the total number of acres treated, total cost, volume of sawlog and biomass products, and number of jobs created or sustained.

## Purpose 3: Improve Recreation Experience

***Objective: Improve recreation experience through facilities improvements and access management.***

The LRMP (p. 4-4) emphasizes providing a wide range of outdoor recreation opportunities to meet public demand by furnishing different levels of access, service, facilities, and information. The SNFPA ROD (p. 11) reaffirms that providing recreation opportunities is one of the Forest Service's major missions in California, along with providing sustainable and healthy ecosystems.

The project area has two developed campgrounds (Almanor North and South) that are aged and do not meet the need of the current user base. Most campsites are now smaller than most recreational vehicles. The parking spurs and barrier devices need updating. The restroom facilities are outdated and do not meet current user needs or accessibility standards. Adjacent to Almanor North Campground and Lake Almanor is a location suitable to develop a day use area in a location that previously held recreation residences.

The Lake Almanor North trailhead of the Lake Almanor Recreational Trail (LART) near State Highway 89 and FS 27N52 is undersized for current use. There is a need to increase the size of the parking area and improve the road leading to the trailhead.



In 2009, the Lassen National Forest Motorized Travel Management (MTM) FEIS identified the need to provide motor vehicle access to dispersed recreation opportunities (MTM). Some dispersed recreation activities depend on motor vehicle access. Those activities accessed by motor vehicles are typically accessed by short spurs that have been created primarily by the passage of motor vehicles. Many such unauthorized “user-created” routes are not currently part of the National Forest Transportation System (NFTS). Without adding them to the NFTS and designating them on a Motor Vehicle Use Map (MVUM), the continued use of such routes would be illegal and would preclude access by the public to many dispersed recreation activities, including lake play.

There is a need for user created routes and parking areas to be added to the system where sustainable public access would become sanctioned.

## **Transportation**

A connected action to the West Shore Project is the need for an efficient transportation system to implement the proposed treatments and improvements. A managed road system provides for safe public access and travel, and contributes to economical and efficient management of National Forest System lands. The LNF LRMP (p. 4-3) gives direction to provide a stable and cost-efficient road system through appropriate construction, re-construction, and/or maintenance. Additionally, water sources are used for project implementation and in support of transportation system use and fire suppression operations. The transportation system and water sources used would be brought up to best management practice standards and comply with the Lassen National Forest Motorized Travel Management Record of Decision (2010).

The current transportation system within the West Shore Project area consists of National Forest System roads and county and state roads. Numerous non-system and unauthorized routes are also within the project area. There is a need for changes to the transportation system to provide access for project implementation, future management needs and managed recreational use. There is a need to maintain and repair existing system roads, create temporary roads for project implementation, add non-system roads to the transportation system, and decommission system, non-system and unauthorized routes to address adverse effects to the watershed and unmanaged recreational use.

## **Proposed Action**

The objectives outlined in the purpose and need for hazardous fuel reduction and vegetation improvements would be addressed through thinning conifer trees, piling and burning surface fuels, underburning, and biomass removal of ladder fuels throughout the project area. Treatments would be implemented utilizing commercial timber sales, stewardship contracts, service contracts, and/or the work of Forest Service personnel. Proposed actions for the various components of the West Shore Project are described in the following sections. Table 2 displays acres of each type of action proposed. Table 7 lists the proposed units, treatment, acres, and post-thinning fuels treatment.

**Table 1. Acres by proposed treatment**

Treatment	Acres*
Area thin– mechanical	2,941
Area thin – hand thin	275
Area thin – mechanical plantation	1,289
Meadow – mechanical thin	81
Meadow – hand thin	16
Owl PAC – hand thin	315
<b>Total thinning treatment acres</b>	<b>4,917</b>
Post-thin mechanical pile/burn piles	4,153
Post-thin hand pile/burn piles	606
Post-thin mastication	4,230
Post-thin spread windrows	1,238
Underburn	4,917
Underburn only	102
Total post-thin treatment acres	*15,106

All acres approximate and affected by rounding. Total post-thin acres (15,106) includes multiple treatment types on the same piece of ground.

## Vegetation Treatments

### Area Thin (3,216 acres)

Concepts from the Pacific Southwest Region General Technical Reports, An Ecosystem Management Strategy for Sierran Mixed-Conifer Forests (GTR 220) and Managing Sierra Nevada Forests (GTR 237) would be applied to meet the desired conditions for the project area. Trees would be thinned using a modified thin from below prescription to vary density throughout a treatment unit. Trees would be retained in groups of trees separated by moderately treed or open gap conditions to create a mosaic stand structure. Variable density thinning would encourage horizontal and vertical structural diversity.

Area thin and area thin in plantation prescriptions would enhance the health and vigor of stands by reducing density-related stress and insect and disease mortality, particularly in the large tree component, and reduce the risk of high-severity wildfire. Target stand densities following thinning would range from 35 to 50 percent of maximum stand density index (SDI) so that stand density would remain at or below 60 percent of the maximum SDI for 20 years after thinning to minimize the need for re-entry. Thinning treatments would meet the management standards and guidelines set forth in the 2004 SNFPA ROD p. 50-51.

In areas proposed for mechanical treatment, ground-based equipment would be utilized on slopes up to 35 percent to harvest trees greater than or equal to 3.0 inches in diameter at breast height (dbh) to less than 30 inches dbh. Unit 12 would be an exception and mechanical harvesting would be allowed on slopes up to 45 percent (see integrated design feature #61). Whole-tree yarding would be used when possible. Hand treatments would occur in areas such as rocky or steep slopes and streamside areas where equipment cannot be used. Follow up hand treatment would also occur post-mechanical treatment to cut non-merchantable trees. Hand treatments include felling trees less than 30 inches dbh, and lopping and scattering or piling and later burning. Activity generated landing slash would be machine piled and burned.

Units proposed for hand thin treatment are found in areas which have slopes greater than 35 percent or are within sensitive riparian areas. Hand treatment would focus on removing trees that are ladder fuels to larger trees. Trees generally up to 12 inches dbh would be thinned, piled and piles burned.

Within treatment areas, trees 30 inches dbh and larger and conifer snags 15 inches dbh and larger would be retained within the limits of safety and operability. Any of these larger trees or snags that are felled for safety and operability would be left on site for wildlife and other resource considerations. Trees 30 inches dbh and larger that are cut for establishment of new parking areas or other recreational improvements would be removed and not left on site.

Trees that are suppressed, of considerably poor health, or appreciably diseased would be removed in favor of retaining healthy trees. A component of healthy understory trees would be retained to promote structural diversity. Healthy, shade-intolerant pine (ponderosa, sugar, and Jeffrey) and Douglas-fir would be favorably retained over shade-tolerant white fir trees.

Mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M and 5D) located in the wildland urban interface threat zone would retain at least 40 percent of the existing basal area, an average of 40 percent canopy cover, and meet the management standards and guidelines set forth in the 2004 SNFPA ROD. Average residual basal area by treatment unit would be determined based on forest cover, site quality, and existing stand attributes. Current SDI and basal area and post-treatment basal area by forest cover are displayed in Table 3. Basal area is the cross-sectional area of a tree bole measured at dbh and is used as a measure of density on a per-acre basis (square feet per acres). Basal area can be used to display the changes in a forest stand.

**Table 2. Pre- and post-treatment basal area in the area thin treatment units.**

Forest Cover	Pre-treatment Average Percent Maximum Stand Density Index	Pre-treatment basal area range	Post-treatment basal area range (sq.ft./acre)
Ponderosa pine	93	122 - 224	60 - 100
Mixed conifer	67	140 – 316	80 – 140
White fir	54	140 – 328	120 - 160

## Plantations (1,289 acres)

There are approximately 42 plantations proposed for mechanical treatment in the West Shore Project. Some plantations are contiguous and form one larger treatment area such as unit 300. Other plantations are small inclusions within a natural conifer stand such as unit 39 or form their own stand such as unit 57.

The plantations would be thinned as described above. Additionally, small openings, approximately one acre in size, would be created by thinning to create structurally diversity within the unit. These openings would regenerate with

conifer trees naturally and provide a new age class of trees in the forested stand. **Table 4** shows the pre- and post-treatment basal area for the plantation treatment units.

**Table 3. Pre- and post-treatment basal area in the area thin plantation treatment units.**

Forest Cover	Pre-treatment Average Percent Maximum Stand Density Index	Pre-treatment basal area average (sq.ft./acre)	Post-treatment basal area range (sq.ft./acre)
Ponderosa pine	81	114 – 180	60 - 100

## Facilities and Infrastructure

Treatments within campgrounds and recreation facilities and along the electrical distribution lines throughout the West Shore Project area would include actions to cut and remove hazard trees as well as thinning to reduce stand densities and improve forest health (see map 4 of 4). Hazard trees would be evaluated and identified using the *Hazard Tree Guidelines for Forest Service Facilities and Roads in Pacific Southwest Region* (Angwin et al. 2012) to identify live damaged and defective trees for removal. Trees 30 inches dbh and larger and hardwood trees would not be cut unless identified as a hazard tree. Conifer trees 30 inches dbh and larger that are cut would be removed.

Actions specific for the powerlines include:

- Within 40 feet of the center line of the powerline line, all vegetation would be removed that may pose a hazard to the lines within the next five years from grow-in or fall-in whether identified as a hazard or not.
- Woody shrubs and small trees would be cleared adjacent to power poles and towers.
- Slash and older debris from previous trimming and removal work would be chipped, piled and burned or removed.
- Within the area 40 to 100 feet from the center line of the powerline, trees would be thinned to a target basal area of 60 to 100 square feet per acre. The lower basal area would be implemented in the pine dominated stands and the higher basal area in the mixed conifer stands. Trees would be thinned from below, leaving the healthiest, largest trees available.

Along California Highway 89, trees would be cleared to provide a recover zone for vehicles (see map 4 of 4). Within 50 feet of the pavement, all trees would be cut and removed. Conifer trees 30 inches dbh and larger would not be cut unless identified as a hazard tree using the Angwin et al. 2012 publication. Conifer trees 30 inches dbh and larger that are cut would be removed.

## Riparian Conservation Areas and Meadow Ecosystems

Except as specified below, treatments in riparian conservation areas (RCA) would be the same as treatments in the surrounding upland vegetation types, within the parameters of integrated design features (IDF) designed to protect riparian features (IDF- Aquatics and Watershed). The IDF modify treatments to address soil and watershed concerns, such as limiting streamside mechanical treatment, retaining trees for bank stability, etc.

Two adjacent aspen stands are located within a vernal pool and associated RCA. Vernal pools are seasonal pools of water that provide habitat for distinctive plants and animals. Hand thin treatment around the aspen would improve aspen stand condition.

## Meadow Treatments

Treatments are proposed in 11 meadows for a total of 81 acres of mechanical thinning and 16 acres of hand thinning. Meadow treatments would include removing encroaching conifer trees from within the meadow footprint as determined by a combination of vegetation, soils, topography, and hydrology.

In mechanical treatment units, low ground pressure or low disturbance machines would be used to remove conifer trees 3 inches diameter at breast height (dbh) to less than 30 inches dbh within the limits of safety and operability. Trees 30 inches dbh and larger that are felled for safety and operability would be left on site for wildlife and other resource considerations. Where trees that are 30 inches or larger occur in a clump or group the entire clump would be retained. A clump would consist of trees 10 inches dbh and larger that are within 10 feet of the retained tree. Post treatment, remaining conifer trees less than 12 inches dbh that were unable to be mechanically removed would be hand thinned and piled.

Fuels 10 inches in diameter and less generated from hand treatment would be hand piled and burned outside the meadow footprint. Piles would not be placed within 25 feet of the meadow edge. Hand-cut tree boles larger than 10 inches in diameter may be left on site but would not exceed 10 boles per acre. In situations where tree boles exceed 10 per acre, boles will be hand piled and burned outside of the meadow footprint.

## Windrow Spreading

Windrows created as site preparation before tree planting in units 5, 10, 35, 42, 44, 45, 46, 300, 301, 302, 303, 304, and 305 would be spread to redistribute the piled top soil after tree thinning. Shrubs would be masticated before windrow spreading to make it easier to spread the windrows effectively. Approximately 10 percent of the shrub cover would not be masticated to retain a component of older shrub species. Windrows containing top soil and root wads would be pushed out amid the plantation trees to a nearly level condition using a wheeled or tracked machine. Bare soil resulting from windrow spreading would be seeded with native grass species.

## CA Spotted Owl and Northern Goshawk Treatments

*For the Rocky Point CA spotted owl and Prattville Northern goshawk PAC:*

- Specific treatment areas would be laid out by the Wildlife Biologist and Fuels Specialist based on fuel loading and the risk of losing historical nest trees and key ecosystem characteristics (e.g., > 24 in. dbh trees, and snags and logs > 15 in. dbh).
- Re-entry of prescribed fire underburning would be needed to reestablish natural fire cycles and maintain desired habitat characteristics every five to ten years as weather conditions and resource availability permit. The Wildlife Biologist and Fuels Specialist would use adaptive management to minimize disturbance to nesting birds and risk to habitat while moving the territory to a more resilient state and closer to the natural range of variation for the Sierra Nevada (i.e., historic ecological conditions in which the CA spotted owl evolved and persisted).
- Ignition methods would encourage low intensity fire to minimize risks to nest trees. Examples may include: dot firing techniques, allowing fire to back into areas or allowing fire to back away from nest trees.
- Key ecosystem components would not be actively lit during prescribed burn operations. Raking may be used to retain these key ecosystem characteristics.

*Nest core areas (500 ft. buffer around most recently used nest; ~18 acres):*

- Hand thin and pile ladder fuels up to 6 inches maximum dbh, pile existing surface fuels, and burn piles such that crown fire ignition is unlikely and the nest core area has fuel loads that would allow it to burn at low severity.
- Activities could include raking around key habitat structures, piling existing surface and ladder fuels, burning piles, pruning, and underburning.

#### *Inside PAC and outside nest core areas:*

- Hand thin ladder fuels to up to 10 inches maximum dbh, pile existing surface and ladder fuels, burn piles, and underburn. The amount of ladder fuels thinned and piled will depend on what is needed to achieve a low severity underburn.

#### *Owl HRCA:*

- The California spotted owl home range core area (HRCA) would be mechanically treated to increase heterogeneity by using the variable density thin from below prescription described for the area thin vegetation treatments. The largest trees available would be kept in the mid- and upper-canopy to retain at least 40 percent canopy cover averaged over the treatment units. More large trees, clumps of small trees, coarse woody debris, and shrub cover would be retained in the HRCA treatment compared to the surrounding area and arranged so as to not compromise the overall effectiveness of the landscape fire and fuels strategy.
- Small openings consistent with the natural range of variation (0.1-0.74 acres; from Safford and Stevens 2017) to increase heterogeneity for foraging owls and other wildlife would be created. These openings would get larger as one moves towards the outer area of the HRCA.

## **Fuels Treatments**

Area thin mechanical treatments would be utilized to decrease canopy closure and increase canopy base height. These treatments would reduce ladder fuels and thin overstory vegetation within the project using a modified thin from below prescription to reduce canopy bulk density. Following mechanical vegetation treatments, the following fuels treatments are proposed:

### **Hand Thin or Mastication (4,311 acres)**

After mechanical treatment, non-merchantable trees that are ladder fuels to larger trees would be hand felled and either lopped and scattered or hand piled for burning or would be masticated. Approximately 10 percent of the shrub cover would not be masticated to retain a component of older shrub species. In units where mechanized timber activities are precluded, hand thinning and piling of activity-generated and existing fuels may be used to achieve desired conditions.

### **Machine Pile (4,153 acres)**

Piling operations would occur where predicted surface fire behavior exceeds desired conditions. Generally, down woody surface fuels 3 inches in diameter or less would be less than 5 tons per acre. Surface fuels 3 inches in diameter and larger would be reduced to 10 tons per acre. Surface fuel 12 inches in diameter and larger would be favorably retained over smaller material. Activity-generated and existing surface fuels would be piled using a machine with a grapple style attachment or a dozer fitted with a brush rake.

### **Prescribed Fire (5,019 acres)**

Throughout the project area, prescribed underburning would be used to reduce surface and ladder fuels. It would also be used to maintain desired conditions after treatments are complete.

## **Recreation Improvements**

The following improvements are proposed to improve recreation experiences through facilities improvement and access management.

Upgrade and add hardened crossings of the Lake Almanor Recreation Trail (LART) where motorized and non-motorized routes and trails cross the pavement. Install interpretive and wayfinding signage. Install permanent and semi-permanent protection barriers along the LART to focus users to the designated areas and discourage motorized traffic from using the non-motorized trail.

Improve the Lake Almanor North trailhead of the LART near State Highway 89 and FS 27N52. Improvements would include widening the parking area, installing additional gravel as needed, removing trees and vegetation, updating signage, and improving the deteriorating pavement access from State Route 89.

Install permanent and semi-permanent barriers along system trails and recreation areas to focus users to the designated areas.

Reconstruct Almanor North and South campgrounds to include utilities (water, electrical), host sites, shower facilities, additional parking, improved, paved camping spurs, upgraded restrooms, and remove existing, outdated vault toilet facilities. Construct a day use area with parking at the northeast end of the Almanor North campground with vault toilet facilities, west of Plumas County Road 310 (PL 310). Entry and exit would be from PL 310.

Construct two day use parking areas (Parking Area 1 and 2) adjacent to Lake Almanor between Prattville and 5 Mile Trail Crossing (See Map 3 of 4) utilizing non-system motorized routes. Construct two day use parking areas (Parking Area 3 and 4) adjacent to Lake Almanor between 5 Mile Trail Crossing and Dyer View Day Use (see Map 3 of 4) utilizing non-system motorized routes. Construct a day use parking area (Parking Area 5) adjacent to Lake Almanor between Dyer View Day Use and Rocky Point, with access from PL 310 (See Map 3 of 4) utilizing non-system motorized routes.

Improve a non-system route in the Rocky Point area (See Map 3 of 4) and bring it onto the National Forest System (NFS). Construct a day use parking area (Parking Area 6) adjacent to Lake Almanor at the newly incorporated route in the Rocky Point area (See Map 3 of 4).

All day use parking areas would have wayfinding signage and supporting infrastructure for parking areas. They would be constructed using BMP's and routes would be brought up to Forest Service standards.

Less than  $\frac{3}{4}$  miles total pedestrian trails would be added to the system to provide beach access from proposed parking areas.

## Transportation

To ensure the project could be implemented as proposed, changes would need to be made to the existing road system. Maps 2 and 3 outline the proposed changes to the transportation system. These would include:

1. Approximately 1.58 miles of existing non-system routes would be added to the NFS and would be left open after the project completion at maintenance level 2 (ML2).
2. Approximately 0.43 miles of existing non-system routes would be added to the NFS as ML1 roads to facilitate future management activities and would be closed to the public.
3. Approximately 30.26 miles of non-system routes would be decommissioned. Unauthorized routes would be used as temporary roads as needed for thinning operations before being decommissioned.
4. Approximately 0.50 miles of NFS ML2 roads would be decommissioned permanently.
5. Approximately 1.42 miles of NFS ML1 roads would be decommissioned permanently.
6. Approximately 2.00 miles of temporary roads would be constructed for the project and then decommissioned.

**Table 4. Proposed actions by transportation system category and total length.**

Action	Miles
Non-system route change to ML2 (high clearance vehicle)	1.61
Non-system route change to ML1(administratively use)	0.43
Decommission of non-system routes	30.23
Decommission NFS routes ML2	0.50
Decommission NFS routes ML1	1.42
Temporary road construction (new)	2.00

Map 3 of 4 shows the 32.27 miles of non-system routes that are currently mapped. This project proposes to decommission both the mapped non-system routes as well as any existing un-mapped non-system routes within the project area. Approximately 2 miles of non-system routes, within the project area, would be added to the NFS. These segments would be brought up to Forest Service standards and rerouted as necessary. Six designated parking areas between State Route 89 and the Lake Almanor shoreline would be added to the transportation system for public access to Lake Almanor.

A segment of road 27N85 is currently not accessible due to two stream crossings that have failed. This portion of the road would be decommissioned and removed from the system. Work would include decommissioning the road and the two crossings that are currently not passable and a portion of the road adjacent to the crossings. Additionally the stream crossing on the 27N03 near the 27N03B intersection would be brought up to Forest Service standards.

Decommission system routes that are no longer viable (See Map 2 of 4). Decommission FS 27N52B and FS 27N52B1 near the LART and Lake Almanor West Community. The roads are not used by FS personnel and cause user issues with the non-motorized LART. Add motorized route to Almanor Recreation Leach Field to the NFS from State Highway 89 as an ML 1 road (See Map 2 of 4). All added routes would be brought up to Forest Service standards.

## Integrated Design Features

The following integrated design features are resource protection measures that are developed by specialists and incorporated as part of the action alternative for the project. They are project-specific and in addition to Best Management Practices (BMP) and standards and guidelines from the Lassen LRMP, as amended. These design features are also included to provide implementation parameters that would be incorporated into treatments, contracts, or used to guide forest service personnel in conducting implementation activities.

### Aquatics and Watershed:

#### *Riparian Conservation Areas*

Equipment exclusion zones would be established within Riparian Conservation Areas (RCAs) measured from the edge of the stream channel or aquatic feature (table 6). Equipment would be permitted to reach beyond mechanical restriction zone boundaries into the RCA, but not allowed to enter. RCA widths and mechanical restriction zones would be as follows:

**Table 5. Riparian conservation area widths and mechanical restriction zones (measured from the edge of the aquatic feature).**

Aquatic Feature	RCA width	Ground-based mechanical equipment restriction zone	
		Slope 20% or less	Slope greater than 20%
Perennial stream	300 feet	50 feet	150 feet
Seasonal stream	150 feet	25 feet	50 feet
Lake, wetland, wet meadow	300 feet	No restriction zone; may work to the edge of the feature	
Springs	300 feet	10 feet	50 feet
Vernal Pools	300 feet	Variable	300 Feet

1. Hand felling within the RCA, including within the mechanical restriction zone, would be permitted.
2. Riparian species (aspen, cottonwood, alder, willow, dogwood, etc.) would not be cut or removed.



3. Stream bank stability trees would be identified by a qualified specialist prior to RCA treatments. Stream bank stability trees would not be felled unless they pose a safety risk, in which case they would be felled and left in place.
4. Turning of mechanical equipment within RCA would be kept to a minimum.
5. All firing operations entering RCAs shall be backing fires.
6. There would be no crossing of perennial streams by mechanical equipment. Crossings of seasonal stream channels would be designated by a qualified specialist prior to implementation. Following use of these specified crossings, a qualified specialist would assess the site for potential repair and/or restoration needed.
7. Skid trails within RCAs would be kept to a minimum. No waterbars would be installed on skid trails within RCAs following treatment.
8. Skid trails within RCAs would require 90 percent ground cover following project implementation.
9. No cut and fill would be allowed for new skid trails within RCAs.
10. Where mechanical equipment is used to fell timber within RCAs, one-end suspension would be used to remove felled timber where feasible. If one-end suspension is not feasible, endlining would be permitted as long as objectives for 90 percent groundcover on non-rocky riparian soils are met.
11. Endlining of material would be permitted within RCAs with slopes greater than 20 percent, but would not be permitted within 25 feet of any continuous scour channels.
12. No piling of material for burning would occur within 25 feet of an aquatic feature. If piles for burning cover more than 10 percent of the RCA in a unit, only one-third of the piles would be burned in any given year to avoid impacting the nearby riparian environment.
13. There would be no construction of new landings or use of old or existing landings within an RCA without concurrence by a qualified specialist. Landings would not be within 25 feet of the existing riparian or meadow vegetation. Landings within RCAs would be decommissioned following project implementation and a qualified specialist would evaluate them for compaction or erosion potential. Mitigations may include obliteration of the landing, spreading of native seed, mulch, woody debris, or certified weed-free straw.
14. If streamflow is greater than or equal to 4.0 cubic feet per second, the water drafting rate should not exceed 350 gallons per minute.
15. If streamflow is less than 4.0 cubic feet per second, the water drafting rate should not exceed 20 percent of the streamflow.
16. Water drafting sites would be brought up to Best Management Practices (BMP) standards. Water drafting would cease when bypass surface flows drop below 2.0 cubic feet per second.

## Botany

### *Threatened, Endangered and Sensitive Plant Species*

17. All vernal pools and their associated critical habitat would be flagged and avoided by all ground disturbing activities and displayed as control areas on contract maps.
18. Prescribed fire operations adjacent to vernal pools when pools are dry will only occur if firelines are located at or beyond the mechanical exclusion zone widths for each pool (Table 7). Firelines are not required in the spring when pools are wet.

19. Only hand treatment methods would be allowed in the vernal pool mechanical exclusion zones described in Table 7. Trees would be lopped and scattered or removed and piled outside of these areas.
20. Unauthorized routes ULA132, UZ16, UZ18, UZ19, UZ20 and UMN894 will not be used during implementation activities within the mechanical exclusion zones for vernal pools (Table 7). Ground disturbing decommissioning activities will also not occur within this area.
21. All known occurrences of *Lupinus dalesiae* (Quincy lupine) and *Lewisia kelloggii* ssp. *hutchisonii* (Hutchison's lewesia) would be protected from project activities through flag and avoid methods and displayed as control areas on contract maps.
22. Unauthorized routes UMN914, ULA026, UMN952 and UZ32 would not be used as temp roads during implementation. Decommissioning activities will avoid known locations of *Lupinus dalesiae* and *Lewisia kelloggii* ssp. *hutchisonii* within and adjacent to these routes.
23. All ground-disturbing activities would be excluded from within 50 feet of occurrences of *Botrychium* species and all incense cedar would be retained within 150 feet. Locations would be displayed as control areas on all contract maps. No ignitions would occur within occurrences of *Botrychium* species; however, prescribed fire would be permitted to back in to the site.
24. Where *Mimulus pygmaeus* (pygmy monkeyflower) occurs in mechanical treatment units, ground-disturbing activities would occur after June 30, or when soil is visibly dry at the surface. All piles would be placed outside of these areas.
25. Only hand thinning would be allowed within mechanical equipment exclusion zones around known occurrences of *Cypripedium fasciculatum* (clustered lady's slipper) and its associated dogwood patches (Table 7). No piles would be placed within 25 feet of these areas and all occurrences would be avoided by prescribe fire activities. These sites would be protected by flag and avoid methods and displayed as control areas on contract maps.
26. New occurrences of TES plant species discovered before or during ground-disturbing activities would be protected through flag and avoid methods or measures similar to those described above.

**Table 6. Mechanical entry exclusion zone widths for TES plant species within the West Shore Project.**

LNF occurrence number	Exclusion Zone Width	Location within West Shore Project Area
Orcuttia tenuis #5 A-C	Variable based on mapped topographic break	Almanor Group Campground vernal pool complex.
Orcuttia tenuis #22	100-300 feet	SW of Prattville.
Cypripedium fasciculatum #2	50 feet	SW of Rocky Point along 27N97

#### *Invasive Plant Species*

27. All off-road equipment would be weed-free prior to entering the Forest. Staging of equipment would be done in weed free areas.

28. Known noxious weed infestations would be identified, flagged where possible, and mapped for this project. Locations would be displayed on contract maps. Identified invasive plant species' sites within or adjacent to the project area containing isolated patches with small plant numbers would be treated (hand pulled or dug) by forest botany staff prior to project implementation and avoided. Any larger or unpullable infestations would be avoided by harvesting equipment or equipment used would be washed on site before leaving the infested area and entering un-infested areas to prevent spreading invasive plants across the project area.
29. New small infestations identified during project implementation would be evaluated and treated according to the species present and project constraints and avoided by project activities. If larger infestations are identified after implementation, they would be isolated and avoided by equipment, or equipment used would be washed after leaving the infested area and before entering an uninfested area.
30. Post project monitoring for implementation and effectiveness of treatments and control of new infestations would be conducted as soon as possible and for a period of multiple years after completion of the project.
31. If project implementation calls for mulches or fill, they would be certified weed-free. Seed mixes used for re-vegetation of disturbed sites would consist of locally-adapted native plant materials to the extent practicable.

## Cultural Resources

Cultural Resource protection is managed through the Programmatic Agreement (PA) among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region (2013).

Cultural Resources within the West Shore Project area of potential effect (APE) would be protected during project implementation utilizing the following Approved Standard Protection Measures:

32. Proposed undertakings shall avoid historic properties. Avoidance means that no activities associated with undertakings that may affect historic properties, unless specifically identified in this PA, shall occur within historic property boundaries, including any defined buffer zones.
33. Activities within historic property boundaries will be prohibited with the exception of using developed Forest transportation systems when the Heritage Program Manager (HPM) or qualified heritage professional recommends that such use is consistent with the terms and purposes of this agreement, where limited activities approved by the HPM will not have an adverse effect on historic properties or as accepted otherwise.
34. All historic properties within APEs shall be clearly delineated prior to implementing any associated activities that have the potential to affect historic properties.
  - a. Historic property boundaries shall be delineated with coded flagging and/or other effective marking.
  - b. Historic property location and boundary marking information shall be conveyed to appropriate Forest Service administrators of employees responsible for project implementation so that pertinent information can be incorporated into planning and implementation documents, contracts and permits.
35. Linear sites (e.g., historic trails, roads, railroad grades, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack historic integrity.
  - a. Crossings are not to be made at points of origin, intersection, or terminus of linear site features.
  - b. Crossings are to be made perpendicular to linear site features.
  - c. The remainder of the linear site is to be avoided, and traffic is to be clearly routed through designated crossings.

36. Placement of foreign, non-archaeological material (e.g., padding or filter cloth) with transportation corridors over archaeological deposits or historic features to prevent surface and subsurface impacts caused by vehicles of equipment.
  - a. Engineering will design the foreign material depth to acceptable professional standards.
  - b. Engineering will design foreign material use to assure that there will be no surface or subsurface impacts to archaeological deposits or historic features.
  - c. The foreign material must be easily distinguished from underlying archaeological deposits.
  - d. The remainder of the archaeological site is to be avoided, and traffic is to be clearly routed across the foreign fill material.
  - e. The foreign material must be removable.
  - f. Indian tribe or other public concerns about the use of the foreign material will be addressed prior to use.

In addition to the programmatic agreement approved standard protection measures, the following measures would be utilized:

37. The project manager or sale administrator would walk historic property boundaries located within or near activity areas with operators before project implementation to insure protection.
38. Historic properties within or adjacent to planned treatment areas, activity areas, or roads would be monitored during and after project completion.
39. If heritage resources are identified during project implementation (unanticipated discovery) all work would cease immediately in that area until the situation is reviewed and an assessment and mitigation plan instituted to insure protection of the site.

## Fuels

40. Hand and machine piles would not be placed in locations that would result in the mortality of surrounding trees when piles are ignited.
41. All prescribed fire, including pile burning and underburning would be completed under an approved prescribed burn plan.
42. Any constructed control lines would be rehabilitated after burns have been completed and declared out by the appropriate fire and fuels personnel, unless the control line is to be used in a subsequent prescribed burn.
43. All burning would be in compliance with California Ambient Air Quality Standards (CAAQS).

## Recreation/Special Uses

44. Designated trails would be protected during project activities and impacts to the trail system would be minimized where possible. Where damaged by operations trails would be restored to a standard condition for the designated use as described by the trail management objective for those trails.
45. Trails and roads accessing trailheads and day use areas would be kept open and free of debris.
46. Seasonal restrictions are in place for winter recreation (cross-country ski, snowmobile) from December 26 through March 31 annually for Plumas County roads 305, 307, and 309, and NFS road segment 27N03 near Almanor Picnic Area.
47. In addition to seasonal closures identified by the Travel Management, roads identified as open for public use may be temporarily closed via Forest Order during inclement weather to protect reconstruction investments until those roads have stabilized.

48. Forest roads and trails would be signed as needed for safety during project implementation.
49. All interpretive and wayfinding signage meets Forest Service universal accessibility guidelines.
50. Almanor North Campground, Almanor South Campground, Legacy Campground, Almanor RV Dump Station, Almanor Group Camp, Almanor Picnic Area, Almanor Tract Recreation Residences, Lake Almanor Recreation Trailhead at 27N52, 5 Mile Trailhead, and Dyer View Day Use Area would be treated prior to the Thursday before Memorial Day or after Labor Day.
51. Recreation related infrastructure and improvements would be protected during activities.
52. Where they intersect roads or trails, fire control lines would be camouflaged after completion of the project to deter future use as trails.

## Silviculture

53. Cut stumps of live conifers with a 14-inch and greater stump diameter would be treated with an Environmental Protection Agency (EPA)-approved borate compound which is registered in California for the prevention of annosus root disease. No EPA-approved borate would be applied within 25 feet of known Sensitive and Special Interest Plants or within 25 feet of live streams and meadow/wetlands.
54. All sugar pine identified as rust resistant or as a candidate for rust resistance would be protected. A \$20,000 fine would be imposed for each rust-resistant or candidate tree damaged during operations. Healthy sugar pine showing no observable signs of blister rust would be favorably retained.

## Soils

55. Soil quality standards and appropriate best management practices (BMP) that protect forest soils would be implemented for the entire project. BMPs and soil standards are described in Water Quality Management for Forest System Lands in California, Best Management Practices (USDA FS 2011b), LNF LRMP (1993), and the 2004 SNFPA ROD.
56. In treatment units outside of RCAs, soil moisture conditions would be evaluated using Forest-established visual indicators before equipment operation proceeds. Lassen National Forest (LNF) Wet Weather Operations and Wet Weather Haul Agreements would be followed to protect the soil and transportation resources.
57. Areal extent of detrimental soil disturbance would not exceed 15 percent of the area dedicated to growing vegetation. Following implementation, the mechanical treatment units would be evaluated by a qualified specialist to determine if detrimentally compacted ground exceeds the LNF Land and Resource Management Plan standard of 15 percent areal extent. If restoration is needed to achieve compliance, an appropriate subsoiler, ripper or other implement would be used to fracture the soil in place leaving it loose and friable.
58. In mechanical treatment units, landings within treated areas no longer needed for long-term management would be evaluated by a qualified specialist to determine whether remediation is needed to restore productivity and hydrologic function. If so, appropriate remediation would be implemented. Where landing construction involved cut and fill, the landing would be re-contoured to match the existing topography.
59. Machine piling operations would remove only enough material to accomplish project objectives and would minimize the amount of soil being pushed into burn piles. Duff and litter layers would remain as intact as possible, and the turning of equipment would be minimized. Piles would be constructed as tall as possible, within limits of safety and feasibility. A mixture of fuel sizes in each pile is preferred, avoiding piles of predominately large wood when practicable.
60. To the extent possible, existing landings and skid trails would be used.

61. Mechanical equipment would not operate on slopes greater than 35 percent. Mechanical harvesting would be allowed in Unit 12 up to 45% slope. A qualified watershed specialist would be present to monitor initial implementation on slopes over 35%.
62. Where it exists, large woody material greater than 20 inches in diameter would be retained at a rate of at least five logs per acre.

## Wildlife

### *Northern Goshawk*

63. A northern goshawk limited operating period (LOP) from February 15 to September 15 would be applied within ¼ mile of all goshawk PACs or within ¼ mile of a nest if a nest is confirmed. The LOP may be lifted if it is determined that the PAC is not occupied.
64. If a northern goshawk nest is found within any of the proposed treatment units, the nest tree would be protected.

### *California Spotted Owls*

65. A California spotted owl LOP from March 1st to August 15th would apply to stands within ¼ mile of all spotted owl PACs unless surveys confirm that spotted owls are not nesting. The LOP would be lifted after surveys if no nesting spotted owls are confirmed.
66. If a California spotted owl nest is found within any of the proposed treatment units, the nest would be protected.

### *Marten*

67. If a marten den site is identified, a 100-acre area consisting of the highest quality habitat in a compact arrangement would be placed around the den site. The den site area would be protected from vegetation treatments with a limited operating period (LOP) from February 15 through July 31st as long as habitat remains suitable or until another Regionally-approved management strategy is implemented.
68. If a marten rest site (female or male) is found within a treatment unit, the rest site structure, (e.g., log, snag, tree) would be protected from being damaged during project implementation.

### *Fisher*

69. If a fisher den site is identified, a 700-acre area consisting of the highest quality habitat in a compact arrangement would be placed around the den site. The den site area would be protected from vegetation treatments with a limited operating period (LOP) from March 1st through June 30th as long as habitat remains suitable or until another Regionally-approved management strategy is implemented.
70. Avoid fuel treatments in fisher den site buffers to the extent possible. If areas within den site buffers must be treated to achieve fuels objectives for the urban wildland intermix zone, limit treatments to mechanical clearing of fuels. Treat ladder and surface fuels to achieve fuels objectives. Use piling or mastication to treat surface fuels during initial treatment. Burning of piled debris is allowed. Prescribed fire may be used to treat fuels if no other reasonable alternative exists.
71. If a fisher rest site (female or male) is found within a treatment unit, the rest site structure, (e.g., log, snag, tree) would be protected from being damaged during project implementation.
72. For the 3 fisher detections in the project area: retain forested linkages with canopy cover greater than 40 percent (units 84, 102, & 305).

### *Wolves*

73. A limited operating period (LOP) from March 1 through August 15 would be observed within 1 mile of areas of wolf activity IF indicative of a potential den location, known den sites, or pup rendezvous sites.

### *Bald Eagles*

74. For bald eagle nest territories: maintain a LOP prohibiting actions within approximately 0.4 miles of any active nest tree during the breeding season (January 31 through August 31).

### *Osprey*

75. For osprey nest territories: maintain a LOP prohibiting actions within approximately 0.3 miles of any active nest tree during the breeding season (March 1 through August 31).

### *Snags and Down Logs*

76. In area thin and plantation treatment units, retain all snags larger than 15 inches dbh within the limits of safety and operability. To encourage snag recruitment, retain an average of two mid- and large diameter live trees per acre that are in decline, have defects, or desirable wildlife characteristics (e.g., teakettle branches, stick nests, large diameter broken top, cavities, and woodpecker excavations) where they exist.
77. 5 tons per acre of surface fuels greater than 3" diameter would be retained in the defense zone. In the threat zone, 10 tons per acre of surface fuel greater than 3" diameter would be retained. Material 12" diameter and greater would be prioritized for retention in both zones. A log approximately 20 feet in length and 26 inches diameter is approximately 1 ton.

### *Aspen and Oak*

78. All aspen greater than 8 inches dbh would be protected during operations within the limits of safety and operability.
79. Landings would be placed outside of aspen stands if possible.

## **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 CFR 218. Under this collaborative process, public concerns can be addressed before a decision is made, increasing the likelihood of resolving any concerns and making more informed decisions.

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