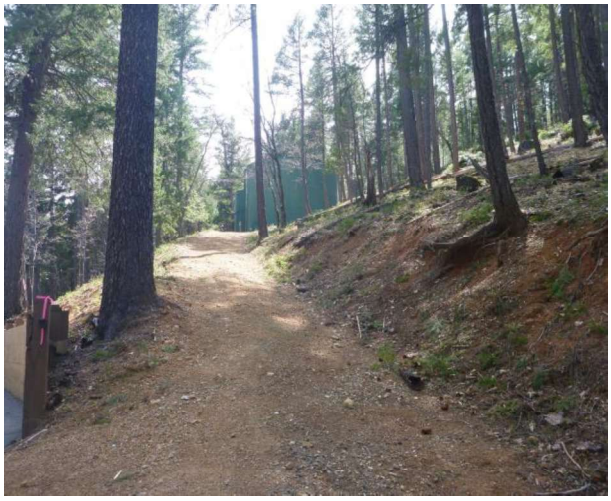
EXHIBIT 3

North Trinity Lake Fuel Management Plan

Access road to Trinity Knolls tanks before thinning



Access road to Trinity Knolls tanks after thinning

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Initial Approval Date: December 10, 2024

1st Revision Date: _____

2nd Revision Date: _____

3rd Revision Date: _____

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North Trinity Lake Fuel Management Plan

CHAPTER 1. INTRODUCTION

Purpose & Background

The North Trinity Lake Fuel Management Plan is a community-based planning effort, which includes the area within the Trinity Center Community Services District (CSD) boundary, the Trinity Center Volunteer Fire Department Service Area, and adjacent properties. Within these boundaries are the residential areas of Trinity Center, Trinity Lake Knolls, Long Canyon, Covington Mill, Lake Forest Estates, and Ridgeville.

This plan is intended to identify current fuel conditions in the area and past, current, and proposed treatments to reduce fuel loads to protect communities in the north Trinity Lake area. The plan identifies gaps, needs, and potential funding sources for modifying fuels to assist the Trinity Center Volunteer Fire Department in promoting coordination between the many projects which are being proposed by various entities.

This plan was funded by a grant (the North Trinity Lake Wildfire Response Plan Project) from the North Coast Resource Partnership. Baldwin, Blomstrom, Wilkinson and Associates, Inc., forestry consultants, is named in the work order to provide technical assistance to the Trinity Center Volunteer Fire Department.

The California Department of Forestry and Fire Protection (CALFIRE), U.S. Forest Service (USFS), and private foresters have come to recognize that the expansion of homes into the 'wildland-urban interface' has created a potential for devastating loss of lives, dwellings, and forest resources.

Foresters, ecologists, wildlife biologists and fire managers are developing new strategies to allow safer coexistence of people and wild lands. Prescriptions for maintaining healthy, fire-resistant forest conditions generally call for reduced tree densities and use of low intensity prescribed fire. The desired stands will appear more open and park-like, with increased forage production for deer and other wildlife. These practices also reduce the intensity of wildfire.

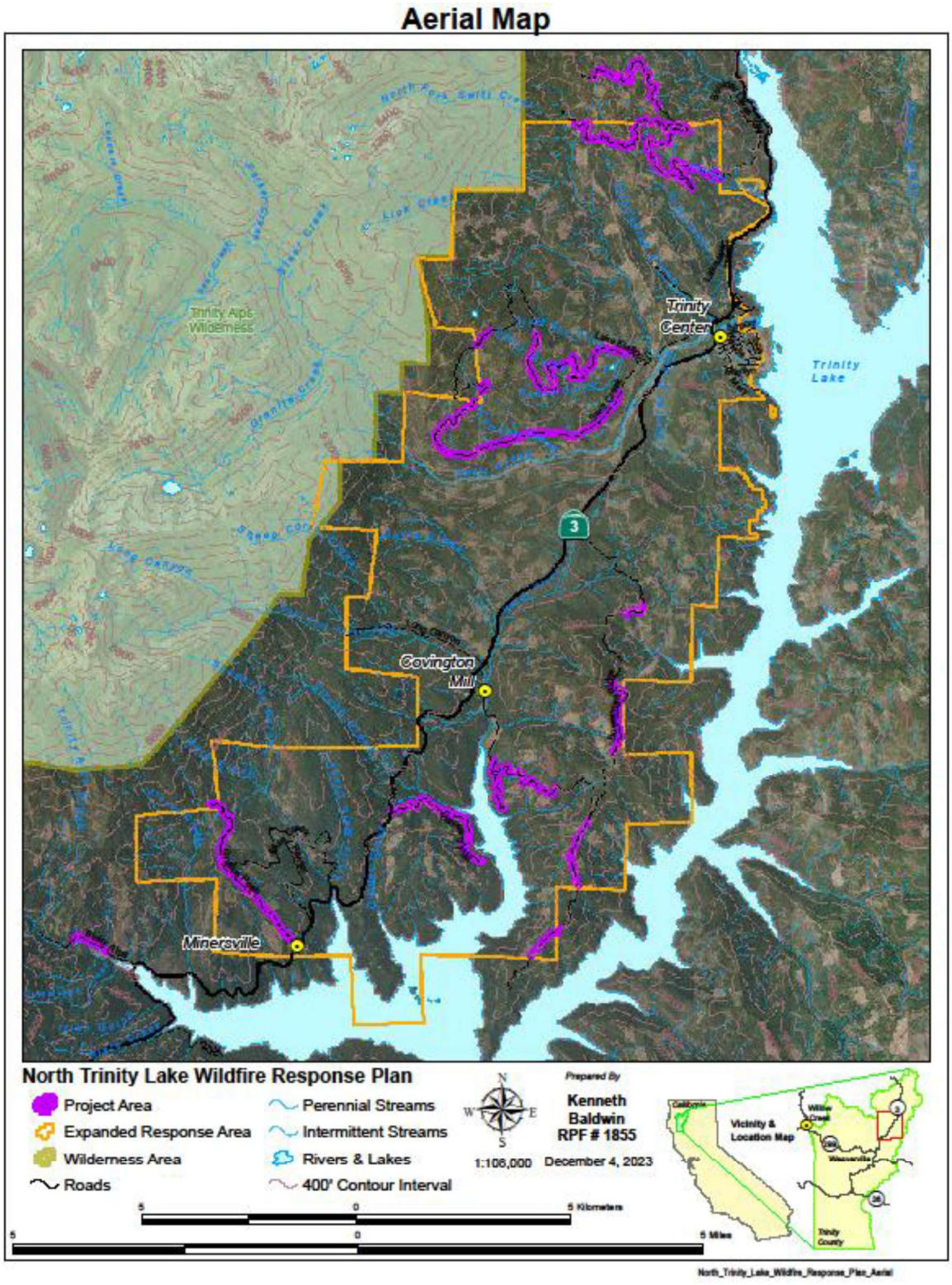
The North Trinity Lake Fuel Management Plan will become a part of the Trinity County Community Wildfire Protection Plan (CWPP). As stated in the CWPP 2020 Update Executive Summary, the CWPP "began with a countywide process that resulted in the *Recommendations on Trinity County Values at Risk from Fire and Pre-Fire Fuels Treatment Opportunities drawn from Community Meetings 1999/2000* (February 2001). These recommendations were used to develop the first complete Trinity County CWPP, which was accepted by the Trinity County Fire Chief's Association, Trinity County Board of Supervisors and the California Department of Forestry and Fire Protection (CAL FIRE) in September 2005. The CWPP was updated in 2010, 2015 and 2020 and became the

primary document to guide the Trinity County Fire Safe Council (FSC), its member organizations and partners, in the selection and implementation of strategic fuels reduction projects and public outreach as they have sought to improve cooperation and coordination in all aspects of wildfire management in Trinity County. FSC members include representatives from local, state and federal land management agencies, non-governmental organizations including the local Volunteer Fire Departments (VFDs) and citizens."

Trinity Center, as defined by the Community Services District boundary is also a FireWise USA Community. The Firewise USA program is administered by NFPA® and is co-sponsored by the USDA Forest Service and the National Association of State Foresters. The national Firewise USA recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.

The North Trinity Lake Fuel Management Plan contains recommendations that the community and individual landowners can follow to reduce the risk of losing their homes or the landscape they desire to live in should a wildfire occur. Recommendations to establish fuel breaks, reduce ladder fuels, and execute other management projects that reduce fire intensity also will help protect surrounding resource lands. It is anticipated that these projects will allow lower intensity fires to be contained more quickly and prevent them from moving into or out of the settlement areas. In support of these goals, the plan includes Shasta-Trinity National Forest and Sierra Pacific Industries (SPI) lands that are adjacent to the area within the Trinity Center Community Services District boundaries (see Aerial Map, Figure 1).

Figure 1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Prepared By
Kenneth Baldwin
RPF # 1855
December 4, 2023
Vicinity & Location Map
5 Kilometers
5 Miles
North_Trinity_Lake_Wildfire_Response_Plan_Aerial

Project Goals

***Fuel Management*:** Encourage management activities for forest stands and protective measures for homes and other structures to reduce the potential for intense, fast moving, and destructive wildfires and provide for the safe evacuation of residents. Elements of the plan should identify locations for shaded fuel breaks and other fuel treatments and prescribe actions to increase the fire safety of identified areas. The long-term result would be a forest that is less susceptible to catastrophic fire while providing wildlife habitat, scenic variety and protection of water quality.

***Fire Management*:** Fire management practices should minimize losses as well as keep the costs of fire prevention and suppression as low as possible. Prescribed fire should be used on the National Forest lands and in designated fuel breaks as a management tool to economically create and maintain desired forest conditions. Attainment of fire management goals requires the management of hazard and risk prior to a fire, as well as fire management, which would include suppression, once a fire has started.

Location

The plan area encompasses approximately 20,000 acres within the Trinity Center Community Services District boundaries (Section 31 and a portion of Section 32, T37N, R7W, MDB&M; Sections 6, 7, 18, 19, 30, 31 and portions of Sections 5, 8, 17, 20, and 29, T36N, R7W, MDB&M; Sections 14, 23, 25, 26, and 36, T36N, R8W, MDB&M; Sections 3, 4, 5, 6, 9, 10, 15, 16, 17, 18, 19, 20, 21, 29, and 30 and a portion of 32, T35N, R8W, MDB&M) as well as unspecified acres adjacent to these boundaries (see Area Map, Figure 1).

Ownership and Population

The Trinity Center Community Services District contains approximately 800 parcels, 18,517 acres, 29 square miles, and 600 unique owners. According to the 2020 census, there are 198 permanent residents in Trinity Center, 141 permanent residents in Covington Mill and an unknown number of permanent residents in Ridgeville. There are also many seasonal residents and recreation homes (absentee landowners).

Sierra Pacific Industries' lands are zoned Timber Production Zone, which means that they are designated for long-term forest management, including timber harvesting. The U.S. Forest Service, Shasta-Trinity National Forest, administers the public lands, portions of which are designated National Recreation Area and Late Successional Reserve in the Shasta-Trinity National Forest Land and Resource Management Plan.

Topography

The village of Trinity Center is located on relatively flat land where the Swift Creek watershed turns northwest and flows into Trinity Lake. Elevations in the planning area within this watershed range from 2,370 feet at Trinity Lake to 4,136 feet at the top of the ridge south of Norwegian Meadow.

The topography of the lower watershed is generally characterized by gentle to moderately steep southwest and northeast facing slopes. The village of Trinity Center is located on flat land adjacent to Trinity Lake. North of it is a band of flattish land adjacent to SR 3 that has a number

of homes, a KOA campground, and other improvements. This flattish area is bordered on the west and north by southeast trending, forested ridges that rise to about 3,800 feet.

The East Fork of Stuart Fork is in a relatively long, narrow watershed with a northwest-southeast orientation. The headwater of the East Fork is Lake Anna at 7,600 feet elevation in the Trinity Alps Wilderness. Within the planning area, elevations range from 2,370 feet at Trinity Lake to about 3,900 feet at the highest point to the southeast of the Long Canyon community.

The topography of the watershed is generally characterized by short, moderately steep southwest and northeast facing slopes, with ridges running northwest to southeast. The slopes near the lower third of the East Fork of Stuart Fork are generally gentle and moderately timbered. This gentle valley ranges from a few hundred feet wide at the west end of the plan area to over a quarter mile wide as it nears Trinity Lake. Most of the homes and other improvements are located in, or near, this flatter stream zone.

The Ridgeville area at the south end of the Trinity Center CSD is mainly in the Mule Creek and Strope Creek watersheds. These watersheds are oriented southeast, with elevations ranging from 2,370 feet at Trinity Lake to about 3,600 feet at the highest point. The topography of these watersheds is generally characterized by short, moderately steep southwest and northeast facing slopes, with ridges running northwest to southeast. Most of the homes and other improvements are located along a ridge (Ridgeville Road and Estrellita Heights) at the south end of the CSD.

Climate and Fire Weather

Northern California has a Mediterranean climate characterized by long, dry, hot summers and wet winters. The area averages 60 inches of rain per year. Most of the rain occurs between October and May, with occasional summer thunderstorms between June and September. In winter, snow falls over the entire planning area and can accumulate to a depth of two feet or more and last three months or more. Snowfall accumulations increase in depth and last longer as elevation increases.

During the summer, temperatures may peak in the upper 90's^{0}F for several days at a time, with very low relative humidity and fuel moisture. Extreme fire danger can occur as early as July and is common in August and September. Summer precipitation is negligible, except for occasional thunderstorms.

Light summer upslope winds are common in the plan area during mid-day to afternoon. Mild down canyon winds occur in the plan area in late evenings and at night as cooler, heavier air flows towards Trinity Lake from the Trinity Alps Wilderness. During thunderstorms, strong, erratic winds occur in conjunction with intense rain downpours.

Transportation System (from north to south)

State Route 3 (SR 3), the main travel route through the CSD, bisects the Trinity Center CSD in a northerly direction. It is a two-lane, paved road that runs through or adjacent to the communities within the Trinity Center CSD. It is maintained and snow-plowed by CALTRANS.

There is an unnamed 1-lane dirt road that is gated about 150 feet from SR 3 that runs up the

north side of Flume Creek north of Trinity Knolls. It is in poor condition.

There are four small communities north of Trinity Center, Trinity Knolls, Northwoods Estates, Trinity Meadows, and Gratten Flat, that are accessed as follows:

Eldorado Way (County Road 164) is a 2-lane paved road that accesses Trinity Knolls from SR 3. It is the only road into the subdivision.

Trinity Meadows is accessed from SR 3 at one point (Trinity Meadows, a 1½-lane paved road).

Northwoods Estates is accessed from SR 3 at one point (Northwoods Estates, 1½-lane paved road.)

Gratten Flat is accessed from Swift Creek Road which is accessed from SR 3. Swift Creek Road is a 2-lane, paved road in good condition for the first 0.3 mile but then becomes a 1-2-lane gravel/dirt/chip seal road in fair condition to the road to Gratten Flat. The Gratten Flat road is a 1-lane gravel road with turnouts in good condition.

The village of Trinity Center, including most public facilities in the area, such as the Trinity Center General Store, IOOF Community Center, Trinity Center Elementary School, library, museum, airport, and volunteer fire department, is accessed at a single intersection on SR 3 at Airport Road (County Road 6). There is only one road in and out of the community. The internal roads are mostly 2-lane, paved county roads in good condition.

Norwegian Ranch Road (County Road 161), which connects with SR 3 south of the Preacher Meadow Campground, accesses private property along Norwegian Meadow. It is a 2-lane paved road in good condition.

USFS Road 36N12Y connects with Norwegian Ranch Road north of Norwegian Meadow and runs in a southerly direction to connect with the Bowerman Ridge Road (USFS Road 36N25).

Hobel Dump Road is a 2-lane paved road in fair to poor condition due to holes in the pavement, that connects the dump with SR 3. The road is maintained by Trinity County, passing through SPI property to County property.

USFS Road 36N35, the Bowerman Ridge Road, is a 1½ to 2-lane gravel road for the first 2.6 miles from its junction with SR 3 and a dirt road for the next 3.8 miles to its junction with USFS Road 35N24. This road is in good to fair condition.

The Long Canyon community is accessed from SR 3 by Long Canyon Road (County Road 115), which is a paved, 1½ to 2-lane road with turnouts as far as 35N10, the spur road to the Long Canyon trailhead. This section of road is maintained by the County Road Department. Mountain Aire Lane, which accesses the upper subdivision, is a gated (at two places), chip sealed, 1-lane road with turnouts maintained by the residents. Other internal roads are mostly dirt, one lane roads with turnouts maintained by the landowners. Most of the internal roads are gated.

Mule Creek Road begins where County Road 115 ends at the western boundary of the Long Canyon residential area. It runs westerly and then southerly through USFS lands. This road is maintained by the USFS. For a mile, to the Taylor Gulch loop road (35N24Y), the road is gravel and chip sealed, 1½-lane with turnouts, in fair condition. For the next 4.7 miles, until it connects with Rainier Road it is a 1½-lane gravel road with turnouts, generally in good condition. There are sections in poor condition due to ruts caused by failed rolling dips or ditches.

Lower Covington Mill is accessed from SR 3 by Guy Covington Drive (County Road 160), which is a paved, 2-lane road as far as Alpine View campground. The first 1.4 miles are maintained by Trinity County. At the end of County maintenance, the road becomes 35N14Y which is maintained by the USFS for 0.9 miles to the campground. The only other route out from Lower Covington Mill is USFS Road 35N24 which connects with Bowerman Ridge Road (36N35) which eventually connects with SR 3.

USFS Road 35N24 is a gravel, 1½-lane road with turnouts, which connects Road 160 with the Bowerman Ridge Road (36N35) through Section 15 (SPI). This road is in fair condition. It is gated at the lower end from September 15 until May 15.

Lake Forest Estates is accessed from SR 3 by Lake Forest Drive (County Road 181), a paved, 2-lane road in good condition. This road becomes dirt surfaced and crosses 400 feet of SPI property to the west of the subdivision before entering USFS lands, where it is designated 35N24YB. From the private road on west, 35N24YB is a single-lane dirt road impassable to passenger cars due to rutting, rocks, and a berm ("tank trap") at the Taylor Gulch crossing. One-half mile past Taylor Gulch, 35N24YB connects with 35N24Y, the Taylor Gulch loop road, which eventually connects with Mule Creek Road (35N23Y), where it is gated from September 15 through May 15 (although the gate was open April 12, 2024). The only other way out of the subdivision is by a narrow, dirt-surfaced, gated road (both ends) that extends south from Sugar Pine Drive through Travis Maxon's property to SR 3.

There are three small neighborhoods south of Lake Forest Estates that are accessed by private roads, Grizzly Lane and an unnamed road to the east of SR 3 and Strope Creek Lane to the west. These roads have a single access point to SR 3. Grizzly Lane is a gated, private, 1-lane, gravel dead-end road in good shape. The unnamed road is a 1-1½-lane gravel road with turnouts in good shape. Strope Creek Lane is a gated, 1-lane dirt road.

The USFS Hayward Flat Campground is accessed by USFS Road 35N26Y. This is a dead end 2-lane paved road in good condition.

Estrellita Road is a gated, private, paved dead end road in good condition that accesses private property and a private boat ramp.

The subdivision on the ridge at Ridgeville is accessed from SR 3 to the south on Ridgeville Road, a private, 1½-lane paved road in good condition. The Estrellita Heights subdivision to the north is accessed from SR 3 on Estrellita Heights Road (35N87B), a gated, 1½-lane dirt/gravel road in fair condition due to shallow ruts.

Rainier Road (County Road 134) is a paved, 1½-2-lane road in good condition that accesses private property. The junction with Mule Creek Road is 1.8 miles from its junction with SR 3 at the Mule Creek Guard Station. These two roads provide an alternate escape route from the Long Canyon subdivision.

Granite Peak Road (USFS Road 35N28Y) is 1½-lane gravel road in fair condition that accesses the Granite Peak Trailhead.

USFS Road 35N80 is a 2-lane, paved road in good condition that accesses Clark Springs Picnic Area, Campground, and Boat Ramp.

Present Fire Threats

Large, fast-moving fires can, and do, occur in the general area of this plan. Two large lightning fires recently burned eastward from the Trinity Alps Wilderness, the River Complex Fire in 2021 (close to 200,000 acres) and the Deep Fire in 2023 (over 4,200 acres). Evacuation warnings were issued for large portions of the Trinity Center CSD during the River Complex. Two large human-caused fires were started in 1959, the Pole Gulch Fire north of Alpine View Campground (203 acres) and the Freethy Fire south of Trinity Center (2,850 acres).

Four immediate concerns face fire fighters if a rapidly moving fire started in, or around, the Trinity Center CSD. First, fire fighters would need to concentrate on accessing the fire scene while allowing residents to evacuate. Second, protection of homes and evacuation of residents would be a priority over containing a rapidly building fire. Third, the relatively dense home site development would limit the fire fighters' ability to burn out, or 'backfire', the area between the on-coming fire and natural fuel breaks without risking homes and other property. Fourth, the limited safety zones and escape routes could put residents and fire fighters at risk, if they are overrun by fire. In the worst-case scenario, fire fighters would concentrate on evacuation and not try to protect structures, and thus be unable to take effective action on the fire.

A fire that moves northwest (up canyon) out of the Covington Mill or Lake Forest Estates settlement area could carry into nearby SPI plantations and eventually into the residential area of Long Canyon. The Long Canyon residential area is a remote area with scattered houses and limited water and access routes. A fire burning west or south from the Covington Mill area could spread to Forest Service and private lands containing homes, resorts, and campgrounds. A fire burning to the north or east could carry into nearby SPI plantations and Forest Service timberlands. In addition, a rapidly moving upslope fire could burn through industrial and National Forest timberlands and enter the Trinity Alps Wilderness, where limitations on equipment could greatly slow fire-fighting efforts. The same is true for fires starting in any of these other areas and burning into the Covington Mill area.

Similar fire scenarios could affect communities in and around Trinity Center and the Ridgeville area.

Wildfire Hazard, Risk and Values at Risk

Wildfire threat is the combination of three inter-related factors: hazard, risk, and values.

Fire hazard is the interaction of fuels (vegetation, buildings, and other flammables), topography (fires burn more intensely on south and west slopes, up slopes, in narrow draws, and on upper slopes), and weather (temperature, wind speed and direction, and humidity). The interaction of these factors affects the rate of spread and intensity of a fire.

Fire risk is the chance that a fire will start in a particular area. Within the CSD boundaries from 1910 to 1990 human fire starts (14) occurred slightly more often than lightning (13), with the cause of 13 other fire starts unknown. In the undeveloped areas to the west, including the Trinity Alps Wilderness, and to the east, fire starts have been primarily by lightning.

The greatest number of human activities with fire starting potential is found close to home. Common causes of fire include children experimenting with fire, chain saws, grass mowers, yard debris burning, improperly disposed of barbecue coals and wood stove ashes, and smoking. House fires also sometimes spread to the forest. Power lines, roads, hiking trails, campgrounds and picnic areas are other areas of high fire risk. Campfires at both developed campgrounds (USFS and KOA) and undeveloped campsites (in the Trinity Alps Wilderness and along the shoreline of Trinity Lake) have caused numerous fires. Every year the Trinity Center Volunteer Fire Department responds to fires at the local KOA, mostly due to overenthusiastic campfires but also to KOA burn piles.

Value is the life, property and natural resources that either can't be replaced or require substantial costs to replace. The highest value threatened in the planning area is human life.

The combination of fire risk and hazard provide the fire planner with the ability to predict fire starts, rates of spread, intensity, and other fire behavior. However, it is values at risk that are of primary concern.

Management of Hazard and Risk

Hazard management involves changing the amount, kind, and arrangement of both natural vegetation and human constructed fuels, altering topography where possible, and influencing microclimates to affect fire behavior in desirable ways.

Human behavior, including behavior that creates a high fire risk, is the result of motivation, knowledge, situation, and opportunity. Managing behavior, which leads to a high fire risk, involves education, communication, and enforcement of regulations and laws. It also involves the identification and removal of barriers to appropriate action and provision of incentives. All of these are part of an effective wildfire risk management program.

Residents are aware of the potential for a large, high intensity fire and the impacts to the environment that would result. They also understand that fuel modification (thinning dense trees, pruning tree limbs, and cutting dense brush) can help to create fuel breaks, provide safer evacuation corridors, prevent rapid crown-to-crown fire spread, improve wildlife habitat for many species, and improve forest health.

CHAPTER 2. NORTH TRINITY LAKE NATURAL RESOURCES

Foresters have begun incorporating both ecological and economic principles when developing management practices for integrated fire protection strategies. Probably the greatest single advancement in ecosystem management is the recognition of the need to plan projects on a landscape, or ecosystem level. Managing forests over a landscape that includes residential areas, industrial timberlands, and National Forest can help maintain long-term soil productivity, provide for wildlife and plant diversity, maintain aesthetics, and reduce fire, disease and insect risks while providing greater fire safety.

Fire Ecology and History

Native Americans have probably been the most important influence on the timing and location of fires for the past several thousand years. Evidence suggests that the Wintu people used fire in the Trinity Lake area to maintain open, park-like forests, allowing easy and safe travel. In addition, regular burning provided browse for game, controlled oak acorn insect pests, and supplied materials for basket making, arrows, medicine, and food. The park-like forests encountered by the early explorers and miners are generally accepted as resulting from this human use of fire.

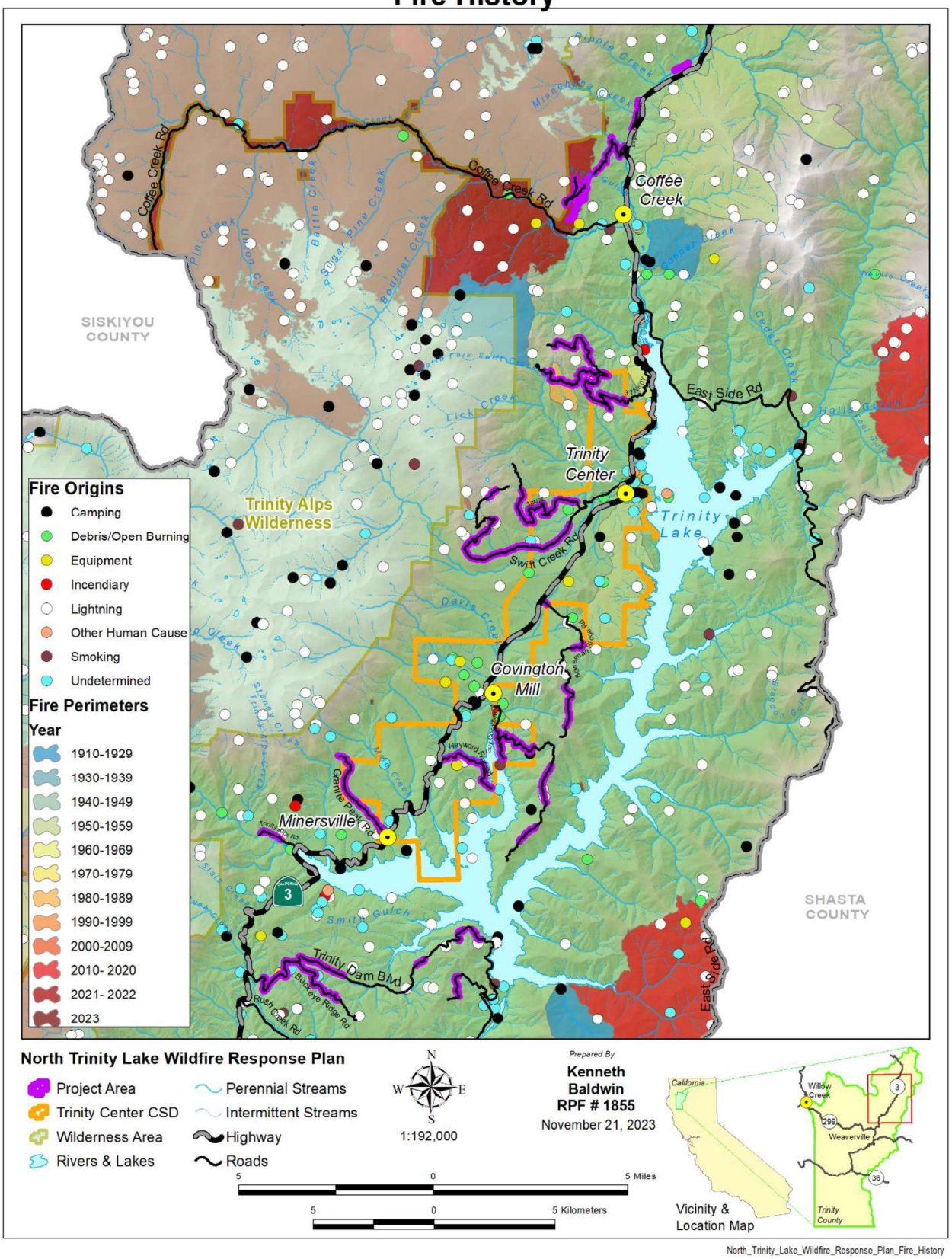
The forests began to change shortly after the arrival of the first Euro-American miners in Trinity County. Large Douglas-fir, sugar pine and ponderosa pine trees were felled by these early settlers to be used for firewood, lumber, shingles, ditch flumes, and mine support timbers. This timber harvesting, and the resulting slash fires, probably resulted in the establishment of some of the stands that occur in the area today. Fire scars on scattered old growth trees bear testament to fire in these early days.

Fire suppression was officially initiated in the area in the 1910's by the USFS. Fire origin records date back to this time and indicate a total of 40 fires within the CSD boundaries, fourteen human fire starts, thirteen lightning starts, and thirteen of undetermined origin. In the Trinity Alps Wilderness and east of Trinity Lake, fire starts have been primarily by lightning, although there were a significant number caused by smoking. In general, human caused fires were associated with roads and residential developments within the CSD area.

The suppression of all wildland fires and the elimination of regular low intensity fires over the past 80-100 years have generally resulted in denser forests, with greater amounts of dead and dry fuels then previously existed. These heavier fuel conditions have been reduced in some of the plan area through logging, slash disposal, and clearing around home sites.

Figure 2

Fire History



Vegetation/Habitat Types

Vegetation in the plan area is influenced by aspect, slope, soil type and depth, and harvesting and wildfire history. South and west facing slopes/soils tend to be hotter and drier than on north facing slopes. On these aspects, species that can tolerate less soil moisture and hotter summer temperatures, such as ponderosa and sugar pine and California black oak tend to form a larger component of the stands. In stream canyon bottoms and north and east facing slopes, soils are deeper and have greater soil moisture holding capacity, supporting dense Klamath mixed-conifer stands dominated by Douglas- fir, ponderosa pine, and sugar pine. Each habitat type in the planning area is briefly described below.

Douglas-fir (DFR) Forest — This forest type occupies most of the planning area, except for pockets of Klamath Mixed Conifer and SPI plantations, which are primarily ponderosa pine. Most of the homes, except for those in Lake Forest Estates and Grizzly Lane, are located in this vegetation type. Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) are the most abundant overstory species. Incidental overstory species include sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*) and white fir *(Abies concolor)*. California black oak (*Quercus kelloggii*) and Pacific madrone *(Arbutus menziesii)* are common hardwoods found in this forest, with a minor component of Oregon white oak (*Quercus garryana*), canyon live oak (*Quercus chrysolepsis*), and Pacific dogwood (*Cornus nuttallii*). The Douglas-fir type exhibits stability in spite of frequent natural fires and is a fire-adapted vegetation complex in a dry summer climate.

Historic logging practices and fire exclusion have resulted in a diversity of stands. The forests on the residential lands were logged in the 1950s by clearcutting or selective harvesting. This has left stands that vary from even aged to multi-aged. The stands in Covington Mill Estates and the Long Canyon community characteristically have a dense to moderately open overstory of pole to small sawtimber-size trees with a variable density understory of seedlings and saplings.

The forest type on SPI lands varies depending upon the type and year of harvest. Most of the stands within the plan area have been harvested at least once. There is a large clearcut just north of Lake Forest Estates that was logged sometime in the 1990s. It has a stand of primarily sapling-size ponderosa pine, with areas of a mix of ponderosa pine, Douglas-fir, sugar pine, and white fir. Between Long Canyon Road and the East Fork of Stuart Fork, and north of the road, the forest was selectively logged in the 1990s and has a scattered overstory of small to medium size sawtimber with scattered seedlings, saplings, and poles. Further to the north, between SR3 and the Trinity Alps Wilderness boundary SPI has created extensive clearcuts since it acquired these sections of land.

On National Forest lands, the forest tends to be moderately dense to dense, with large old-growth trees and smaller understory trees scattered throughout the forest. In the south of the planning area, in the Taylor Gulch, Strope Creek, and Little Mule Creek drainages, are a number of clearcuts that were made in the 1980's and planted with a mix of Douglas-fir and ponderosa pine.

The Douglas-fir type is generally classified as Dunning Site Class II-III (productive timberlands), moderately to well-stocked, with a 40-100 percent crown closure.

Klamath Mixed-Conifer (KMC) Forest — This forest type is found primarily in the Long Canyon, Lake Forest Estates, Grizzly Lane area, in patches east of SR3 between Covington Mill and Trinity Center, and in a band south of Swift Creek west of SR 3. Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) are the most abundant overstory species. Incidental overstory species include sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*) and white fir *(Abies concolor)*. California black oak (*Quercus kelloggii*) and Pacific madrone *(Arbutus menziesii)* are common hardwoods found in this forest, with a minor component of Oregon white oak (*Quercus garryana*), canyon live oak (*Quercus chrysolepsis*), Pacific dogwood (*Cornus nuttallii*) and Pacific Yew (*Taxis brevifolia*). The Klamath mixed-conifer type exhibits stability despite frequent natural fires and is a fire-adapted vegetation complex in a dry summer climate.

Historic logging practices and fire exclusion have resulted in a diversity of stands. The forests on the residential lands were logged in the 1950's by clearcutting or selective harvesting. This has left stands that vary from even aged to multi-aged. The stands in the Long Canyon community characteristically have a dense to moderately open overstory of pole to small sawtimber-size trees with a variable density understory of seedlings and saplings. Very little of this type exists on SPI lands.

On National Forest lands, the forest tends to be moderately dense to dense, with large old-growth trees and smaller understory trees scattered throughout the forest. In the south of the planning area, in the Taylor Gulch and Strope Creek drainages, are a number of clearcuts that were made in the 1980's and planted primarily to Douglas-fir and ponderosa pine.

The Klamath mixed-conifer type is generally classified as Dunning Site Class II-III (productive timberlands), moderately to well-stocked, with a 40-100 percent crown closure.

Ponderosa Pine (PP) Plantations — As noted above, there are extensive existing clearcuts on SPI lands between Covington Mill and northwest of Trinity Center, along Bowerman Ridge, and in SPI sections south of Covington Mill. These clearcuts have been planted primarily with ponderosa pine, with some planted with a mix of ponderosa pine and Douglas-fir. These plantations date from the late 1980s.

Forestry

In recent years, foresters and ecologists have recognized that forest conditions are the result of complex interactions between social, biotic, and abiotic factors. Altering these factors may directly affect forest health, vegetation diversity, and fire danger. The main task of foresters is to control the composition, stocking levels, and vigor of trees and other forest vegetation.

The Trinity Center CSD area can be divided into three forest management categories: rural residential forests, industrial forests, and National Forest.

Rural Residential Forests

Residential development outside of Trinity Center occurs mainly in the Douglas-fir and Klamath mixed-conifer vegetation types. Parcel sizes in this type range from about 0.25 to 213 acres. Residential timberlands have, for the most part, been managed for personal, aesthetic and wildlife values, which has generally resulted in forest stand conditions like those that were present at the time of development. Many landowners have done some fuel treatment projects. Thinning of stands for enhancement of health and growth has been done on some ownerships

Industrial Forest

The remaining private land is owned by Sierra Pacific Industries and Corral Creek Timber. The primary goals of SPI foresters and land managers is intensive timber management using primarily even-aged silviculture, with limited uneven-aged silviculture, while maintaining forest and watershed resources. An additional goal is to create a fire-safe forest. On-going timber management and harvesting, control of spacing and density of conifers, and planting under-stocked timberlands are meeting these goals.

National Forest

The National Forest lands in the planning area are in Management Units 7 and 8 (NRA) (S-T National Forest Land and Resource Management Plan). Most of the area is in the Clear Creek Late Successional Reserve (LSR), with areas near or adjacent to both perennial and ephemeral streams designated as Riparian Reserve. A portion of the area near Trinity Lake is within the Whiskeytown-Shasta-Trinity National Recreation Area (NRA).

The LSR is managed to enhance late successional forests for the benefit of old-growth dependent species. Management recommendations in the 1997 Management Assessment include thinning from below, plantation thinning, release from grass, forb, and shrub competition, fire suppression, and prescribed fire to maintain stand health and diversity. Fuel breaks were not recommended due to the long-term loss of vertical structure and closed canopy conditions and because there were doubts as to the long-term funding for fuel break maintenance. The visual quality objective (VQO) for the portion of the LSR in the lower Greenhorn Gulch area is retention, where the existing visual landscape will remain unchanged to the eye.

As the NRA is also in the LSR, timber harvesting must meet the requirements for harvesting in the LSR, as well as meet stricter visual quality standards. The VQO for the NRA is retention, where the existing visual landscape will remain unchanged to the eye, although minor salvage and sanitation cutting can occur.

The USFS has retained a scenic corridor with a VQO of retention along both sides of SR 3, within which harvesting is limited to sanitation and salvage of dead and hazardous trees. The VQO for most of the rest of the planning area is partial retention, where landscape modifications are visible, but are in harmony with the natural setting.

Fuel and Fire Hazard Severity

Fuel loading in the area ranges from low to high, with much of the residential areas having moderate (8-13 tons per acre) to high (20 tons per acre) fuel loads. A measure of fuel loading and vegetation type is indicated by the Flame Length maps (Figures 3 and 4). Higher flame lengths generally indicate denser, taller and/or more flammable fuels. As can be seen on the map, there is a band of probable high flame lengths (over 8 feet) along both flanks of Bowerman Ridge and running west through Covington Mill to the Wilderness boundary.

According to CalFire's Fire and Resource Assessment Program map, most of the area within the CSD as well as the surrounding area is zoned as 'Very High Fire Hazard Severity', based on fuels, terrain, weather, and other relevant factors. According to information on the map, it was created "using data and models describing development patterns, potential fuels over a 30 year growth horizon, slope, and burn probabilities to quantify the likelihood and nature of vegetation fire exposure to new structures that may be built. Details on the modeling methodology can be found at http://frap.cdf.ca.gov/projects/hazard/methods.htm."

The USFS map for fire risk potential in the Clear Creek LSR shows a moderate risk for most USFS lands in the planning area, except for areas of high risk along SR 3 and in selected areas near the lake, and high risk for all private lands.

Figure 3

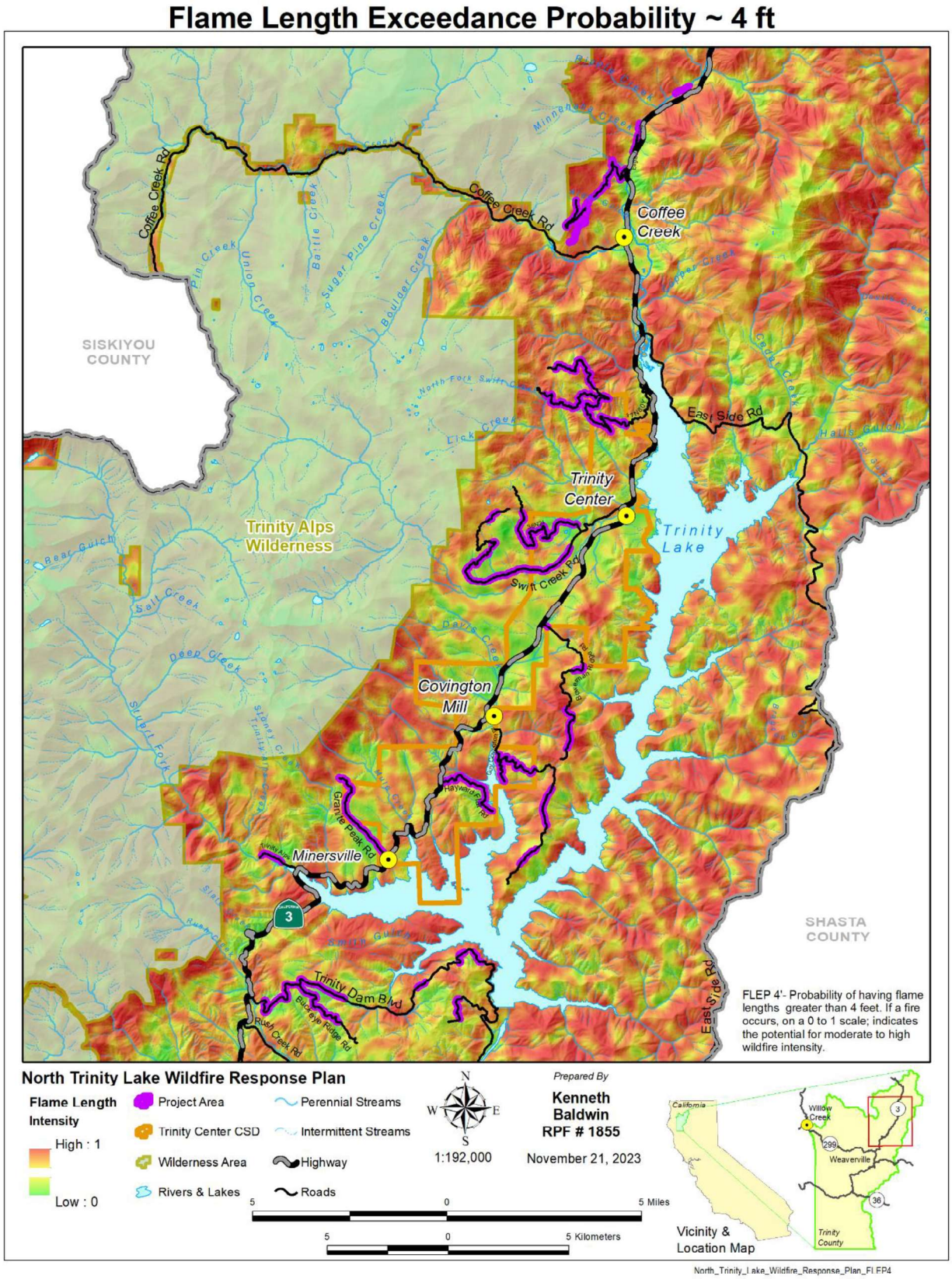
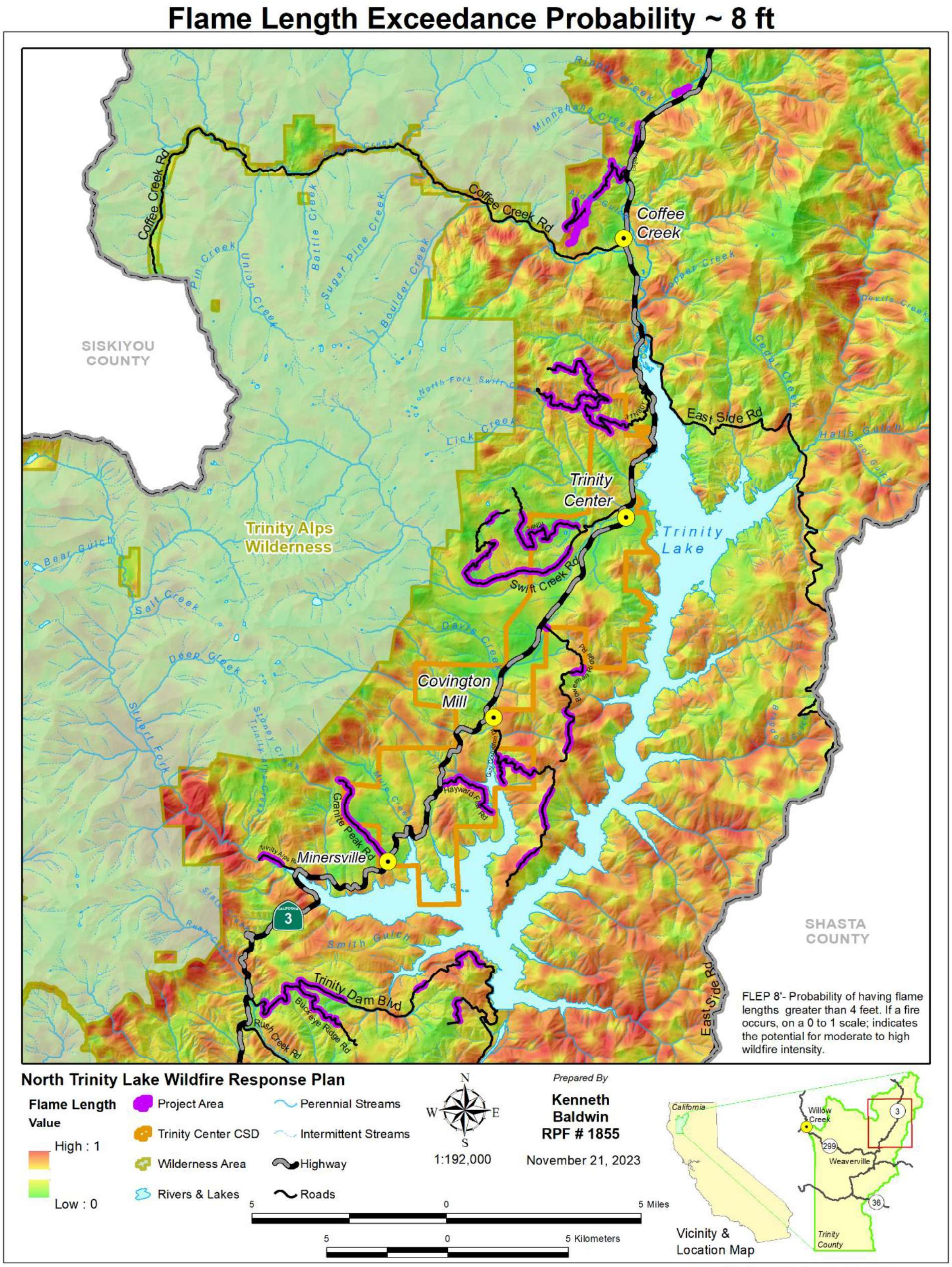

Flame Length Exceedance Probability ~ 4 ft
Coffee Creek Rd
Coffee Creek
SISKIYOU COUNTY
Trinity Alps Wilderness
East Side Rd
Trinity Center
Trinity Lake
Swift Creek Rd
Covington Mill
Granite Peak Rd
Minersville
Trinity Dam Blvd
Rush Creek Rd
Buckeye Ridge Rd
SHASTA COUNTY
FLEP 4'- Probability of having flame lengths greater than 4 feet. If a fire occurs, on a 0 to 1 scale; indicates the potential for moderate to high wildfire intensity.
North Trinity Lake Wildfire Response Plan
Flame Length Intensity
High : 1
Low : 0
Project Area
Trinity Center CSD
Wilderness Area
Rivers & Lakes
Perennial Streams
Intermittent Streams
Highway
Roads
1:192,000
Prepared By
Kenneth Baldwin
RPF # 1855
November 21, 2023
5 0 5 Miles
5 0 5 Kilometers
Vicinity & Location Map
California
Willow Creek
Weaverville
Trinity County
North_Trinity_Lake_Wildfire_Response_Plan_FLEP4

Figure 4


Flame Length Exceedance Probability ~ 8 ft
Coffee Creek
Trinity Center
Covington Mill
Minersville
Trinity Lake
Trinity Alps Wilderness
SISKIYOU COUNTY
SHASTA COUNTY
Coffee Creek Rd
East Side Rd
Swift Creek Rd
Granite Peak Rd
Trinity Dam Blvd
Rush Creek Rd
Buckeye Ridge Rd
FLEP 8'- Probability of having flame lengths greater than 4 feet. If a fire occurs, on a 0 to 1 scale; indicates the potential for moderate to high wildfire intensity.
North Trinity Lake Wildfire Response Plan
Flame Length Value
High : 1
Low : 0
Project Area
Trinity Center CSD
Wilderness Area
Rivers & Lakes
Perennial Streams
Intermittent Streams
Highway
Roads
1:192,000
5 0 5 Miles
5 0 5 Kilometers
Prepared By
Kenneth Baldwin
RPF # 1855
November 21, 2023
Vicinity & Location Map
North_Trinity_Lake_Wildfire_Response_Plan_FLEP8

CHAPTER 3. RECOMMENDED COMMUNITY DEFENSE PROJECTS

This chapter recommends specific treatments, some with project descriptions and maps, which are consistent with community goals.

Recommended Residential Forest Treatments

The potential for fuel/fire hazard reduction, sanitation-salvage harvesting, and/or commercial thinning treatments are high throughout residential areas outside of central Trinity Center. Some of these treatments may produce commercial quality logs, while others may produce no marketable products. Timber harvesting, even for safety reasons, will be constrained on some parcels because of visual, soil, wildlife, tree-felling hazard, and/or philosophical concerns of the owners. Objectives for, and definitions of, a healthy forest, value, and fire risk will invariably differ between owners.

In general, landowners wanting to modify their stands should consider thinning from below. Thinning from below is intended to remove suppressed and intermediate trees that are likely to die soon, thereby adding fuel to the forest floor and attracting insects. These are also the trees that act as fire ladders, carrying fire from the fuels on the ground to the crowns of the overstory trees. Suppressed trees are those that are growing under the overstory canopy, are receiving no direct light, generally have sparse crowns, and are growing quite slowly. Intermediate trees are those that are growing mid-level in the canopy, are receiving direct light only from above, have relatively poorly developed crowns, and are growing slowly. Patches of younger conifer trees exhibiting good growth characteristics (i.e. 6 inches or more of leader growth per year, full crowns on at least 40% of the trunks of the trees, and needles with vibrant green color) may be retained. Larger hardwood trees provide important wildlife habitat and are more fire resistant than conifers and should be evenly distributed in the stand. Co-dominant and dominant trees should be thinned where the crown canopy is dense and closing. Co-dominant trees are those that comprise the bulk of the upper canopy, generally have adequate crowns that receive light from above and from at least one side and are growing adequately. Dominant trees are those which stand above the general level of the upper canopy, generally have well-developed crowns that receive light from all sides and are growing well. Favor retaining larger conifer trees with 40% or more live crown, which lack defect or disease. Removing trees from around homes must be done carefully to avoid increasing the potential for wind throw or snow breakage of the residual trees, a common occurrence in heavily thinned stands.

Residential Projects

Project 1 - Establish Residential Fuel breaks - Within the residential areas moderate, and in some cases heavy, overstocking of small diameter hardwood and conifer trees occurs. Overstocked stands favor shade tolerant species and reduce tree growth, often resulting in trees taking 7-15 years to gain one inch in diameter. Stress in overstocked stands increases the likelihood of disease or tree mortality, which can lead to an increase in dead fuels. In addition, fuel ladders occur that can rapidly carry a fire into tree crowns, hampering control.

1.1 **Defensible Space -** Defensible landscape designs should be built into areas around homes. Clear flammable vegetation and dead fuels within 30 feet of homes and other buildings. Use irrigation, fire resistant plants and other techniques recommended by CalFire (https://www.fire.ca.gov/dspace)

1.2 **Fuel modification –** Implement defensible space as per CalFire recommendations, including a 5-foot noncombustible zone. Landowners should consider modifying fuels within 100-150 feet of homes. Treatments should be similar to those done in fuel break areas, except that irrigated areas and the use of fire-resistant landscaping allows greater vegetative cover. Slash created during treatments needs to be disposed of. Depending upon the size of the slash created, it could be sold as logs or fuelwood, cut for home use fuelwood, piled and burned during the winter, or chipped in place.

Reduce ladder fuels around homes, by breaking up the vertical and horizontal continuity of fuels, and improve forest health and safety. The residential area, in general, has one or more of the following general stand treatment needs:

a) **Understory thinning/fuel reduction -** Tree crowns in some yards are overlapping, and there are numerous small trees in the understory. This fuel condition presents a risk of rapid movement of fire into the crowns of overstory trees, as well as rapid horizontal fire spread through the crowns. These stands should be thinned to remove ladder fuels, favoring the larger trees with better crowns, and to create breaks between individual trees or clumps of trees, while protecting wildlife and other resource values.

b) **Overstory thinning -** In many areas, stand basal area is 200 ft^2 or more, and averages 178 ft^2 per acre, which indicates a dense to moderately dense stand. Thinning could be done in these stands to remove suppressed or intermediate trees, in order to favor the healthy dominant and co-dominant trees. This treatment would improve growth on the residual trees, and reduce fire danger by breaking up the continuity of crowns, while removing potential ladder fuels in the form of intermediate and suppressed trees. Commercial timber harvesting, however, would have to meet landowner objectives for visual quality, wildlife and other values. Clean up of logging slash would be necessary to achieve improved fire protection. Any sale of wood products from a timber harvest will require compliance with CALFIRE Forest Practice rules. Landowners should check with CalFire to determine which timber harvest plans or exemptions may apply.

Community-Wide Projects

Community wide projects are those that benefit not only individual landowners, but also area residents, and even people living well away from the project area. Community wide projects are an opportunity to bring together resource agencies, industrial land managers, and area residents for a common purpose. Benefits include reduced fire danger, leading to potentially lower suppression costs with less resource loss, improved wildlife habitat, improved community coordination, and public education on the benefits of fire planning. For example, construction of fuel breaks can result in substantial savings in the event of a fire. The homes that survived the Lowden Fire, which cost $3,500,000 to suppress, generally had some form of fuel break around them. Non-monetary losses in wildland fires include temporary and permanent changes in wildlife habitat, water quality, growing site productivity, view, and recreational opportunities.

Project 1 - Provide Emergency Access (Roads)

Safe access for emergency responders and egress for residents and forest visitors is a primary priority for the communities in and around Trinity Center, Covington Mill, and Ridgeville as well as for the U.S. Forest Service campgrounds and boat ramps within the Trinity Center CSD. Wherever possible at least two emergency access routes should be available. The following treatments are recommended to ensure safe travel routes:

A. General Road Treatment Specifications

For each road in a residential area:

A.1 Thin or remove trees and shrubs – Thin or remove trees and shrubs within 10-20 feet along both sides of the edges of roads that constrict views, prevent two vehicles from safely passing each other, or act as fire ladders. In addition to improving line of sight, fuel reduction along roads may improve the chances of evacuating the area if a fire is burning near or across roads and may provide a control line for backburning.

A.2 Prune trees - Dominant and co-dominant trees that are retained in shaded fuel breaks should be pruned up to 16 feet above the ground, but always leaving at least 40% of the bole in live crown. Provide at least 200 feet of sight distance along roads. In places with limited turnouts, longer sight distances are necessary to assure safety of fire vehicle traffic and to minimize delays.

A.3 Create shaded fuel breaks – Where feasible, considering land ownership, vegetation cover, and the likelihood of use for and value of emergency access, create shaded fuel breaks for 50 feet slope distance along both sides of travel routes using the NRCS shaded fuel break specifications in Appendix A.

A.4 Sign roads with 'Emergency Access' signs - Signs provide residents, the public, and emergency responders unfamiliar with the area with landmarks. T hey allow for improved response, not only for fire fighters, but for all emergency responders. Signs should clearly designate emergency access routes at all road junctions. They should be

of different types or colors for each route, should be metal, and should be painted with reflective paint to be visible at night and during smoky conditions.

B. Specific Road Treatments

B.1 State Route 3 – State Route 3 is the only paved highway accessing the entire Trinity Center CSD from south to north. It is critical for access by first responders, wildfire suppression personnel and equipment, and egress by community members. The safety of access/egress will be enhanced by creating a roadside shaded fuel break for a 100-foot width along both sides of the highway, particularly on National Forest lands. (See Maps A2, B2, C2, C3, D2, E2, F2 at https://drive.google.com/drive/folders/1KhvzEsybWC9JsNmbJM2betEWmXdpuQ-k Caltrans should actively implement their hazard tree removal program.

B.2 Trinity Center Area

- **Unnamed road up north side of Flume Creek** - Install 50-foot roadside fuel break where needed to thin vegetation. (Map A2)
- **Swift Creek Road** – Install 50-foot roadside fuel break where needed to thin dense saplings/poles. (Map B2)
- **Gratten Flat Road –** Install 50-foot roadside fuel break where needed to thin dense saplings/poles. (Map B2)
- **Two gated roads off Mary Avenue** – These private, gravel 1-lane roads off Mary Avenue in Trinity Center should have 50-foot roadside fuel breaks installed to aid in protection of Trinity Center. Extend the fuel break from the most easterly road to Mary Avenue, as far as the boat ramp. (Map B2)
- **Mary Avenue** – Install a 50-foot wide roadside fuel break on the east side of this road and a 100-foot wide roadside fuel break on the west side of the road and around the boat ramp parking area through National Forest Lands. This road accesses a safety zone and evacuation area. (Map B2)

B.3 Two SPI roads in Section 1, T36N, R8W, MDB&M – These two roads essentially connect the north ends of two proposed ridgetop shaded fuel breaks on SPI lands, one on Rancheria Ridge and one on the ridge to the east of Rancheria Creek. The southern road runs through a clearcut and the northern road borders two older clearcuts and an uncut forest. Install 50-foot wide roadside fuel breaks. (Map A2)

B.4 Norwegian Ranch Road – The forest along the portion of the road through National Forest is moderately dense and should be treated within 50 feet on either side of the road. On private land the property owners have done an adequate job of treating hazardous fuels on the west side of the road and Norwegian Meadow is on the east side and needs no treatment. (Map C3)

B.5 USFS Road 36N12Y - This road traverses clearcuts of varying ages on SPI lands and uncut forests and shrublands on USFS lands, so the vegetation bordering it is quite variable. Some portions of this road, on USFS lands, will be treated under the

Bowerman Cooperative Fuel Break Project. Other portions will be treated under the Trinity Wildfire Mitigation Project. It is recommended that portions outside of these two projects be treated by creating 50-foot fuel breaks on either side of the road. (Maps C3 and D3)

B.6 USFS Road 36N02Y – Most of this road will be treated under the Trinity Wildfire Mitigation Project or will be part of a proposed shaded fuel break running from the Norwegian Repeater to the end of the road south of the Trinity Center Boat Ramp. A short section running through uncut forest on USFS lands is proposed for a 50 foot-wide roadside shaded fuel break. (Map C3)

B.7 Hobel Dump Road – There is a dense pole-size forest adjacent to the entrance road to the Hobel Dump and surrounding the dump. The forest is composed primarily of ponderosa pine with some white fir with an understory of seedling and sapling incense cedar. Fuel reduction is proposed to be complete on the SPI portion of this road under the Trinity Wildfire Mitigation Project. (Map C2)

B.8 Bowerman Ridge Road (USFS Road 36N35) – This long road traverses clearcuts of varying ages on SPI lands and forests on USFS lands, so the vegetation bordering it is quite variable. Major portions of this road, on USFS lands, will be treated under the Bowerman Cooperative Fuel Break Project. Treatments on sections of road on SPI lands are in the planning stage. (Maps D3, E3, and F4)

B.9 Long Canyon Road (County Road 115) and Internal Roads - County Road 115 is the only paved access road into the Long Canyon community and there is only one road (Mountain Aire Drive) into the subdivision south of County Road 115. A fire along these roads could potentially block access by fire engines as well as egress from the area by residents. County Road 115 is bordered by a mixed-conifer forest with dense and well-developed fuel ladders, although a shaded fuel break was created in the spring of 2000 along much of the road through the residential area. It is recommended to maintain this fuel break by thinning areas of dense sapling and pole size trees for 50 feet along each side of the road. (Map D1 and D2)

The powerline accessing the subdivision runs along the south side of the road, with ~50 feet of clearance on both sides. Through SPI, on the south side, past harvesting has removed all the trees for most of the way to the subdivision. On the north side large trees were thinned. There are areas of dense saplings (mixed IC/DF/SP) mixed with some deerbrush. It is recommended to thin and/or masticate these areas to reduce the fuels.

B.10 USFS Roads 35N10 and 35N10B – USFS Road 35N10 provides access to the Long Canyon Trailhead. Both roads provide access to proposed ridgetop fuel breaks on USFS lands in Section 32 and ridgetop and roadside fuel breaks on SPI lands in Sections 33 and 34, T36N, R8W, MDB&M. Although these roads are outside the Trinity Center CSD boundary, they are the only potential control point between a fire burning east out of the Trinity Alps Wilderness and the Long Canyon Subdivision. They run through uncut forest

on USFS lands and are bordered in many places by dense seedling and sapling size trees. Creating a shaded fuel break on both sides of the roads will facilitate using the roads as a control point for backburning.

B.11 Unnamed roads on SPI in Sections 33 and 34 – These two roads, one in Section 33 and one in Section 34, connect two proposed ridgetop fuel breaks. The road in Section 34 connects with SR 3. Creating roadside fuel breaks in addition to the proposed ridgetop fuel breaks will aide in protecting the Long Canyon subdivision, Lake Forest Estates, and the whole Covington Mill area from fires burning from the north. (Maps D1 and D2)

B.12 Mule Creek Road (USFS Road 35N23Y) - Mule Creek Road is the only escape route from the Long Canyon residential area in the event Long Canyon Road is closed by fire to the east. It is also the only control point west of SR 3 for backburns in the event of a fire burning east from the Trinity Alps Wilderness. It runs entirely through USFS lands and is mainly bordered by dense forest and some plantations. Fuel reduction has been done in the past for most of its length but needs to be maintained. It is advisable to create a shaded fuel break for at least 150 feet on both sides of the road. (Maps D1, E1, and F2)

B.13 Guy Covington Drive (County Road 160) – Guy Covington Drive accesses the internal roads within the subdivision, the Bowerman Boat Ramp, Alpine View Campground, USFS Road 35N24 that connects with Bowerman Ridge Road, and 35N14Y which continues south along Trinity Lake. There are areas along this road that are bordered by dense forest. It is recommended to install 50-foot roadside fuel breaks where needed to thin dense sapling and pole size trees. (Map E2)

B.14 USFS Road 35N14Y – This road, bordered by dense forest, provides ingress and egress to Alpine View Campground and Bowerman Boat Ramp. Land ownership varies between SPI and USFS. It is recommended to install 50-foot roadside fuel breaks where needed to thin dense sapling and pole size trees. In addition, USFS should implement a routine mowing and maintenance program to maintain sight distances for campers and reduce the chance of wildfire ignition due to boat trailers (Map E2).

B.15 USFS Road 35N24 – This is an important road for fire response as it connects with Bowerman Ridge Road. The section of road crossing SPI lands in Section 15, T35N, R8W, MDB&M is planned for roadside fuel reduction. It is recommended to create a roadside fuel break on that portion on USFS lands in Section 14 that is outside of the Bowerman Cooperative Fuel Break Project by thinning areas of dense sapling and pole size trees for 50 feet along each side of the road. The road surface needs to be maintained to facilitate emergency access. (Map E3)

B.16 Lake Forest Estates - Lake Forest Drive is currently the only paved access road into Lake Forest Estates. Should a fire enter the estates along the lower portion of this road, the fire could block access by fire engines, as well as egress from the area by residents. There are currently three possible options for developing alternate access

routes into the community. One of these is over existing USFS roads to the west (see Project B.16a below), one is by constructing a road to connect with a road through a SPI clearcut to the north (see Project B.16b below), and one is over an existing road through Travis Maxon's property to the south (see Project B.16c below). In some cases these roads lack adequate width and sight visibility to safely accommodate vehicles traveling opposite directions, especially wider vehicle like fire engines. In an emergency, rapid response and evacuation will be delayed without road grading and/or widening, construction or reconstruction of turnouts, pruning, and/or brush and tree removal. The following projects are intended to improve access and safety for vehicles. (Map E2)

a) - Obtain and improve emergency access through USFS - Enter into an agreement with the USFS to use roads 35N24YB and 35N24Y for emergency access. The agreement should include a provision to maintain the road surfaces so that two-wheel drive and fire emergency vehicles can safely travel over them. It should also have a provision for fuel reduction along each side of the road, as specified in A.1 and A.2 in General Road Treatment Specifications. (Maps D1 and E2)

Road 35N24YB is a single-lane dirt road currently impassable to passenger cars due to rutting, rocks, and a berm ("tank trap") at the Taylor Gulch crossing. The impassable section of road is in the first one-half mile past the private road into SPI land in the southern half of Section 5. The surface of this road will need to be graded and the berm removed at Taylor Gulch to provide access to the Taylor Gulch loop road (35N24Y), and eventually to Mule Creek Road (35N23Y).

Road 35N24Y is a single lane dirt road, with turnouts, currently passable to passenger cars and two-wheel drive and low clearance trucks, although there is some rutting which slows travel.

The gate at the junction of 35N24Y and 35N23Y should be left unlocked during fire season to facilitate emergency traffic.

b) - Obtain and construct emergency access through SPI - In the event emergency access cannot be obtained through National Forest as described in Project B.16a above, it is recommended that emergency access be negotiated through Sierra Pacific Industries lands. SPI has an all-weather road that accesses a landing at the bottom of the clearcut north of the community. If this road was connected to the road that accesses Highway 3 near the bus stop (across from Guy Covington Dr.), as it appears to have been at one time, it could provide a looped emergency access in the event of a fire. This access would be most valuable for the landowners in the upper portion of the settlement if Lake Forest Drive were blocked. Access to the road would have to be controlled to prevent wood theft, resource damage, and liability to SPI. If an agreement could be arranged, SPI could provide a responsible person with the appropriate lock to assure that the road is controlled but accessible. (Map D2)

c) - Obtain and improve emergency access through Travis Maxon - In the event

emergency access cannot be obtained through National Forest or SPI lands as described in Projects B.16a and B.16b above, it is recommended that emergency access be negotiated with Travis Maxon. Mr. Maxon has a gated, dirt surface, single-lane road with turnouts that runs from the end of Sugar Pine Drive south, west, and then southeast to connect with SR 3 just north of Taylor Gulch. This road should only be used in an extreme emergency and only for one-way traffic as it is narrow, with only a few places to pass oncoming vehicles. It should most likely be used only by emergency vehicles as it could be hazardous for people unfamiliar with driving this type of road. Access to the road would have to be controlled to prevent wood theft, resource damage, and liability to the owner. If an agreement could be arranged with Mr. Maxon, he could provide a responsible person with the appropriate lock to assure that the road is controlled but accessible. (Map E2)

B.17 Grizzly Lane (Private) – Although it is advisable in some areas to reduce ladder fuels along both sides of the road, the steep side slopes would make this a difficult endeavor. (Map E2)

B.18 Unnamed road south of Grizzly Lane (Private) - As this is a private road the decision to treat fuels is the responsibility of the property owners. (Map E2)

B.19 Strope Creek Lane (Private) – As this is a private road the decision to treat fuels is the responsibility of the property owners. (Map E2)

B.20 Hayward Flat Road (USFS 35N26Y) – Roadside fuels have been treated in the past by the USFS. It is advisable to maintain past treatments and ensure treatments are at least 50 feet wide on either side of the road. USFS should implement a routine mowing and maintenance program to maintain sight distances for campers and reduce the chance of wildfire ignition. (Maps E2 and F3)

B.21 Estrellita Road (Private) – This is a private road so the decision to treat fuels is the responsibility of the property owner(s). (Map F2)

B.22 Ridgeville Road (Private) – The property owners have done a good job of treating the fuels along most of the road. There are a few sections where thinning of saplings and pole-size trees would enhance safety of travel in the event of a wildfire. Funding for this work could come from a CalFire Forest Health Program grant to the Trinity County RCD. (Maps F2 and G1)

B.23 Estrellita Heights Road – This is a relatively short section of road to the dwellings. The property owners have done a good job of treating the fuels along the uphill side of the road. There are a few sections below the road where thinning of saplings and pole-size trees would enhance safety of travel in the event of a wildfire. (Map F2)

B.24 Rainier Road (County Road 134) - In the event of a wildfire blocking travel on Long Canyon Road (County Road 115), an alternative emergency travel route is Mule

Creek Road (35N23Y), which connects with Rainier Road at its south end. To enhance safety of travel along this route as well as to provide a shaded fuel break in the event of a wildfire traveling from the west, the fuel reduction that has already been conducted should be maintained and enhanced by creating a 150-foot roadside shaded fuel break on either side of the road. (Map F2)

B.25 USFS 35N80 - Roadside fuels have been treated in the past by the USFS along this road to Clark Springs Picnic Area, Campground, and Boat Ramp. It is advisable to maintain past treatments and ensure treatments are at least 50 feet wide on either side of the road. (Map F2)

B.26 Granite Peak Road (USFS 35N28Y) – The first ¼-mile of this road runs through uncut forest and along an old plantation on USFS lands before entering SPI lands. It is advisable to treat fuels for 50 feet on either side of this road to the Granite Peak Trailhead. The road on SPI lands has also been proposed for treatment. (Map F2)

Project 2 - Establish Community-Wide Fuel breaks

A series of shaded fuel breaks are recommended to protect residential areas from fires burning in from surrounding USFS or SPI lands, and to protect the resources on those lands from fires burning out from residential areas. Ideally, fuel breaks should be wide enough to stop a crown fire and allow it to drop to the ground, where control efforts would be more effective. Fuel break specifications will vary depending upon landowner objectives and in the case of the USFS, management plan direction. Shaded fuel break standards developed for the NRCS are in Appendix B.

Once community wide fuel breaks are established, it is expected that periodic prescribed burning of the fuel breaks would be a quick and inexpensive method to maintain them. Burning could be done using crews from the Trinity County Resource Conservation District, the Hayfork Watershed Research and Training Center, CALFIRE, USFS and/or Trinity River Conservation Camp. Fuel breaks are recommended in the following locations (refer to North Trinity Lake Wildfire Response Plan maps) and can be accessed at https://drive.google.com/drive/folders/1KhvzEsybWC9JsNmbJM2betEWmXdpuQ-k

A. Trinity Knolls, Northwoods Estates, Trinity Meadows (Map A2)
The purpose of these two fuel breaks is to help protect these residential areas from fires burning from the north and east from SPI lands and to help protect SPI lands from fires originating in the residential areas. The two proposed fuel breaks are as follows:

A.1 This fuel break originates at the junction of 37N80Y and a SPI road of unknown designation on SPI lands in Section 33, T37N, R7W, MDB&M. It runs along a ridge in a southeasterly direction to where the ridge splits northwest of the headwaters of Flume Creek in Section 6, T36N, R7W, MDB&M. It then follows the spur ridge easterly through SPI lands in Section 6 to its terminus with SR 3 on USFS lands in Section 5.

A.2 This fuel break originates where the ridge splits northwest of the headwaters of Flume Creek on SPI lands in Section 6, T36N, R7W, MDB&M. It runs through SPI lands along a spur ridge in a southeasterly direction to its terminus south of the Trinity Knolls and Northwoods subdivisions in Section 8, T36N, R7W, MDB&M.

B. Trinity Center (Maps A2, B2, & C3)
The purpose of these three fuel breaks is to help protect the residential and campground areas north of Trinity Center and the town of Trinity Center from fires burning from the west and south from SPI and USFS lands and to help protect those lands from fires originating in the residential areas. The three proposed fuel breaks are as follows:

B.1 This fuel break originates at the junction of two SPI roads of unknown designation on a ridge between Brush Creek and Rancheria Creek in Section 1, T36N, R8W, MDB&M. It runs in a southeasterly direction through SPI lands in Sections 1 and 6, T36N, R7W, MDB&M along a ridge with an existing fuel break then through USFS lands in Section 7 to its terminus at SR 3.

B.2 This fuel break originates north of the junction of two SPI roads of unknown designation on Rancheria Ridge between Rancheria Creek and the North Fork of Swift CK in Section 1, T36N, R8W, MDB&M. It runs in a southeasterly direction along the ridge with an existing fuel break through SPI lands in Section 1 and Section 12 to its terminus at the

boundary with the Trinity Wildfire Mitigation Project north of Swift Creek Rd.

B.3 This fuel break originates at the Norwegian Repeater southwest of Trinity Center on SPI lands in Section 19, T36N, R7W, MDB&M. It runs through SPI lands in an easterly direction along a ridge then through USFS lands in Section 20 to its terminus at the south end of the first private road off of Mary Avenue northwest of the Trinity Center Boat Ramp.

C. Long Canyon Residential Area (Map D1)
The purpose of these fuel breaks (and the northernmost Lake Forest Estates fuel break) is to help protect the Long Canyon residential area from fires burning easterly from the Trinity Alps Wilderness and southerly from SPI lands and to help protect USFS and SPI lands from fires originating in the residential areas. The three proposed fuel breaks are as follows:

C.1 This fuel break is outside of the Trinity Center CSD boundary. It originates at the junction of 35N10 and 35N10B in Section 32, T36N, R8W, MDB&M then runs southeasterly on a ridge through USFS lands to its terminus at the northwest corner of Section 5, T35N, R8W, MDB&M. With private landowner permission it could be extended down the ridge to Long Canyon Road, although that area is part of the Trinity Wildfire Mitigation Project.

C.2 This fuel break originates outside of the Trinity Center CSD boundary at Bee Tree Gap, the junction of 35N10B and a SPI road of unknown designation in Section 32, T36N, R8W, MDB&M. It runs southeasterly on a ridge through SPI lands in Section 33, through the northeast corner of Section 5, to its terminus in Section 4 north of Long Canyon Road at the Trinity Wildfire Mitigation Project boundary.

C.3 This fuel break ties in two proposed roadside fuel breaks on SPI lands in Sections 33 & 34, T36N, R8W, MDB&M. It originates on a ridge at a hairpin turn on a SPI road of unknown designation in Section 33 and runs southeasterly on a ridge to tie in with another road of unknown designation in Section 34.

D. Lake Forest Estates (Maps D1 and D2)
The purpose of these fuel breaks is to help protect the residential areas of Lake Forest Estates and Covington Mill from fires burning easterly from the Trinity Alps Wilderness and to protect USFS and SPI lands from fires originating in the residential areas. The two proposed fuel breaks are as follows:

D.1 This fuel break originates at the junction of Mule Creek Road (USFS Road 35N23Y) and the Taylor Gulch Loop Road (USFS Road 35N24Y) in Section 6, T35N, R8W, MDB&M. It runs easterly through USFS lands along the ridge between 35N24Y and 35N24YA to the knob where two ridges originate.

D.2 The northernmost fuel break runs easterly through USFS and SPI lands in Section 5 and 6 along a ridge to 35N24YB then along the road to the northwest corner of Lake Forest Estates. It then runs east through SPI lands adjacent to the north boundary of Lake Forest Estates to its terminus at SR 3.

D.3 The southernmost fuel break runs southeasterly along a ridge through USFS lands in Sections 7-9 to its terminus at SR 3 in Section 16.

E. Maxon Fuel break (Map E2)
This proposed fuel break on private land originates at the northern junction of Lower Lake

View Drive and Lake Forest Drive in Section 9, T35N, R8W, MDB&M then runs southeasterly to its terminus with SR 3. It is described in the Maxon California Cooperative Forest Management Plan of April 15, 2024. Its purpose is to help protect Lake Forest Estates from fires burning from the south and to protect the Maxon property from fires originating in Lake Forest Estates. Funding for this work will come from a CalFire Forest Health Program grant to the Trinity County RCD.

F. Grizzly Lane Area (Map E2)
Originating at the junction of SR 3 and Grizzly Lane in Section 9, T35N, R8W, MDB&M, this fuel break runs southeasterly to the highest knob in Section 16 then runs northeasterly down a ridge through private and USFS lands in Sections 16, 9, and 10 to its terminus with Guy Covington Drive. Portions of this fuel break are within the Trinity Wildfire Mitigation Project and portions are within NRCS projects on private land. Its purpose is to help protect the private land from fires burning from the south and the public lands from fires originating in the residential areas to the north.

Project 3 – Coordinate With Agencies Currently Implementing Fuel Management Projects

Much of Trinity County has burned over the past 100 years (Trinity County Fire History 1910 - 2021, Figure 5). One of the few areas that hasn't burned is the North Trinity Lake area, specifically within the Trinity Center Community Services District. To protect this area, there are currently numerous fuel management projects underway or recently completed by various entities in the North Trinity Lake Area.

Projects have been completed/proposed by the US Forest Service, Trinity County Resource Conservation District (TCRCD), Watershed Research and Training Center (WRTC) and Trinity Center Volunteer Fire Department. Some have been incorporated into the Community Wildfire Protection Plan (CWPP), while others were developed in response to specific issues or funding opportunities. The following is a list of projects recently completed, currently undergoing environmental planning, or being implemented.

To better coordinate these efforts and determine gaps and overlaps, a series of GIS maps were developed by the TCRCD as part of this contract. Proposed and previous projects were captured using shapefiles provided by agencies/entities. Proposed community fuel breaks have been overlaid. The map series, entitled North Trinity Lake Wildfire Response Plan, consisting of 11" by 17" maps, is available at https://drive.google.com/drive/folders/1KhvzEsybWC9JsNmbJM2betEWmXdpuQ-k

The following projects are not listed in any particular order.

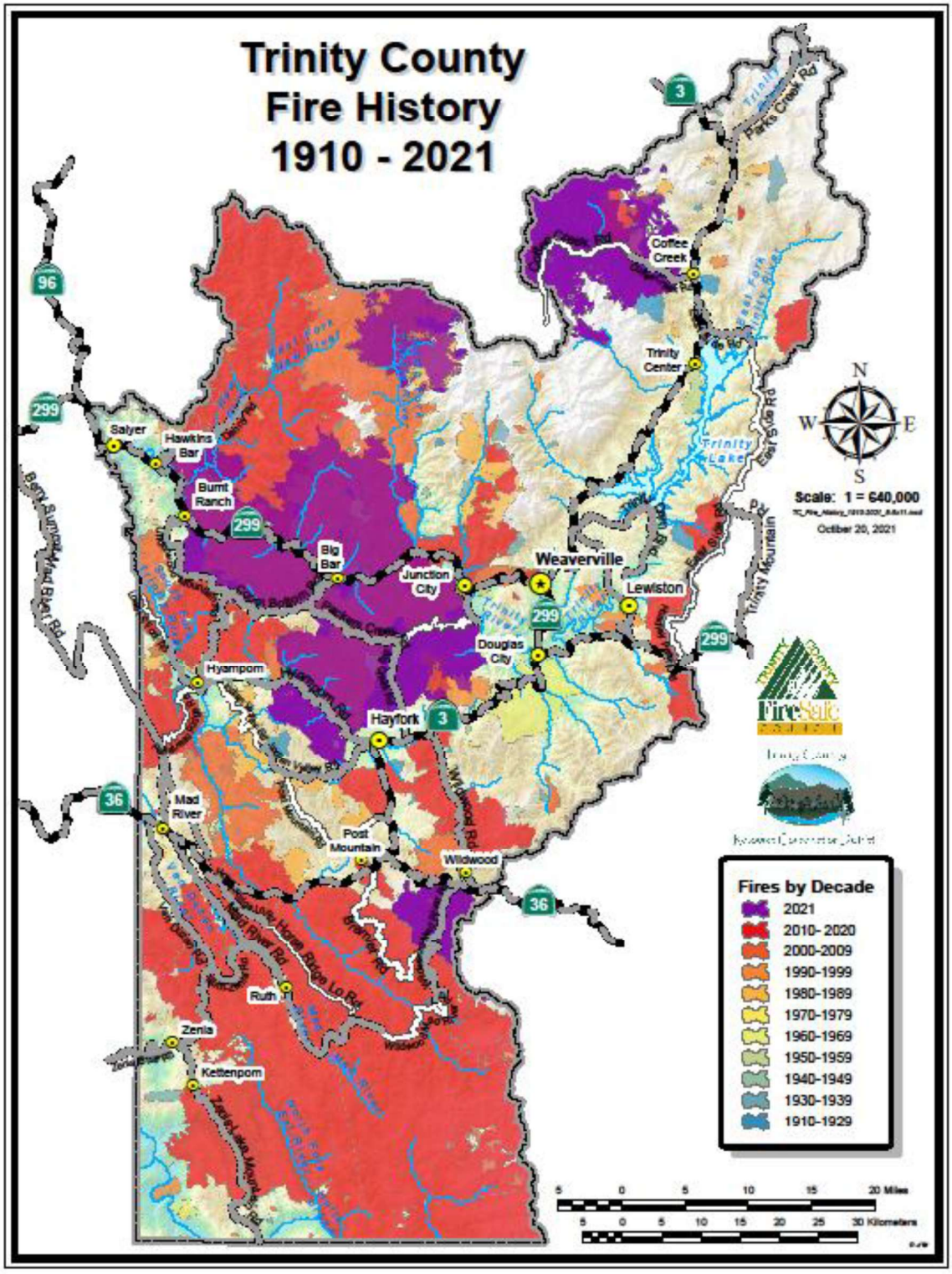
A. Trinity PUD Wildfire Mitigation Project (Maps A2, B2, C2, C3, D1, D2, E2, F2)

Description: The Trinity PUD received a USFS Community Wildfire Defense Grant ($9.5 million) to increase shaded fuel breaks, conduct hazard tree abatement and remove ladder fuels along power lines. The project is on private property, primarily SPI lands.
Lead Agency: Trinity County Public Utilities District
Contact; Dave DeLange, TPUD
Funder: US Forest Service
Environmental Documentation: complete
Implementer: Trinity PUD contractors
When implemented: beginning in summer 2024

B. Trinity Center Ball Park (Map B2)

Description: thin & RX burn on 5-year schedule
Lead Agency: USFS
Contact: Tim Ritchie
Funder: TCRCD has funding from Sierra Nevada Conservancy for assistance
Environmental Documentation: NEPA done, update for thinning potentially as part of North Trinity Communities Risk Reduction Project
Implementer: USFS, TCRCD & WRTC (subcontract)
When implemented: thin done; partly Rx burned Fall 2023

Figure 5


Trinity County
Fire History
1910 - 2021
Coffee Creek
Trinity Center
Trinity Lake
Weaverville
Lewiston
Junction City
Douglas City
Hyampom
Hayfork
Big Bar
Burnt Ranch
Salyer
Hawkins Bar
Mad River
Post Mountain
Wildwood
Ruth
Zenia
Kettenpom
Scale: 1 = 640,000
October 20, 2021
Fires by Decade
2021
2010- 2020
2000-2009
1990-1999
1980-1989
1970-1979
1960-1969
1950-1959
1940-1949
1930-1939
1910-1929

C. Trinity Knolls Water Tank Protection (Map A2)

Description: Fuel reduction (thin from below) 50' uphill from homes on Placer Drive and around the Trinity Knolls Mutual Water Company water tanks
Lead Agency: Trinity Center Volunteer Fire Department
Contact: Carol Fall
Funder: California Fire Foundation, Title III of Rural Schools
Environmental Documentation: CEQA completed
Implementer: TCRCD
When implemented: 1st round April 2024; pile burning expected winter 2024

D. Hobel Dump Fuel Break (Map C2)

Description: Reduce fuels on 10 forested acres surrounding the Hobel dump, owned by Trinity County.
Lead Agency: TCRCD
Contact: Kelly Sheen
Funder: Coastal Conservancy grant to North Coast RCD Collaborative
Environmental Documentation: CEQA
Implementer: TCRCD
When implemented: Anticipated Spring 2025

E. Guy Covington Fuel Reduction (Map D2 & E2))

Description: Reduce fuels on USFS and SPI lands at the intersection of Guy Covington Drive and Hwy 3 to facilitate ingress/egress in the event of a wildfire.
Lead Agency: TCRCD
Contact: Tara Jones, TRMU District Ranger
Funder: Shasta-Trinity RAC & CalFire
Environmental Documentation: NEPA
Implementer: TCRCD
When implemented: Completed in 2023

F. Covington Mill Neighborhood Fuels Reduction Project (Map E2)

Description: Reduce fuels on private parcels in Covington Mill
Lead Agency: TCRCD
Contact: Chris Cole
Funder: TCRCD fee for service, CalFire grant
Environmental Documentation: CEQA
Implementer: TCRCD
When implemented: 2022

G. TCRCD Long Canyon & Lake Forest Project (Map E2)

Description: Roadside fuel reduction on some roads in Lake Forest Estates, some sections of Long Canyon Road and some spur roads in subdivision

Lead Agency: TCRCD
Contact: Chris Cole
Funder: CalFire grant
Environmental Documentation: CEQA
Implementer: TCRCD
When implemented: 2020 or early 2021 (also done by RCD in 2000 on participating properties on Long Canyon Road in the subdivision)

H. NRCS EQIP Grizzly Lane (Map E2)

Description: Shaded fuel break and forest health fuel reduction for 3 landowners on Grizzly Ln.
Lead Agency: NRCS
Contact: Chris Cole
Funder: NRCS - EQIP
Environmental Documentation: NEPA
Implementer: landowners
When implemented: Completed in 2018/2019

I. North Trinity County Community Risk Reduction Project (Maps E1 & E2)

Description: Tentatively includes shaded fuel break along Hwy 3, Mule Creek/Rainier Rd, Boulder Lake Road. Other components such as prescribed fire to be identified. Part of the USFS Wildfire Crisis Strategy, Upper Trinity River Watershed Fire Resilience Planning and Prioritization Project.
Lead Agency: USFS
Funder: USFS for Planning, unknown for implementation
Environmental Documentation: Pre-scoping NEPA underway
Implementer: USFS

J. Lake Forest Plantations (Maps D1, E1, E2, & F2)

Description: Thinning of USFS plantations, some mastication but mostly thin & pile burn; future broadcast burn on larger units
Lead Agency: USFS
Contact: Shay Callahan
Funder: CalFire grant
Environmental Documentation: NEPA done in 2012
Implementer: TCRCD
When implemented: most completed 2023; will work on rest 2024 until money runs out

K. Trinity Roads Partnership (SPI) (Maps A1, A2, B1, C1, C2, D3, E3, F1, & F3)

Description: Fuel reduction along select SPI roads, mostly mastication along roadsides (75-100 feet on each side of road but less on steep slopes); cut & chip where mastication infeasible.

Lead Agency: TCRCD
Contact: Shay Callahan
Funder: CalFire – Forest Health Program; just got notification of funding
Environmental Documentation: CEQA done
Implementer: TCRCD
When implemented: 2025

L. Trinity Wildfire Mitigation Project (Maps A2, B2, C2, C3, D1, D2, & E2)

Description: ~4,100 acres (includes some in Weaverville); ~800 acres on small private parcels, >3,000 acres on SPI; likely only 3,500 acres actually treated due to funding limitations. Projected 800 acres treatments around homes, driveways, and on <2 acre parcels & larger parcels area-wide treatments w/ owner permission; THP exemptions (mostly in Weaverville area where mortality greater) where possible to remove commercial products; on SPI priority will be roads, border of SR 3, border with private lands; not likely to treat on SPI where masticator or feller buncher can't operate. TCVFD has requested priority to be clearance around critical infrastructure such as water treatment plant, cell towers and radio repeater.
Lead Agency: McConnell Foundation
Contact: Shay Callahan
Funder: FEMA
Environmental Documentation: CEQA complete 6/23; FEMA needs to complete CEQA/NEPA
Implementer: TCRCD subcontractor for planning, tracking, outreach, & monitoring; implementation goes to national contracting
When implemented: hopefully start Spring 2025

M. Bowerman Cooperative Fuel Break (Maps B2, C2, C3, D3, E2, E3 & F4)

Description: Creates a fuel break on USFS lands along Hwy 3 and Bowerman Ridge Rd, intended to tie into fuel breaks on SPI lands. Includes commercial thinning, roadside manual and mastication fuel reduction.
Lead Agency: USFS, WRTC lead on NEPA
Funder: CalFire Forest Health Program grant
Environmental Documentation: EA should be done soon, resolving issues with NFWS
Implementer: USFS administrates harvest; WRTC does fuel work
When implemented: unknown

N. Trinity Camps (Maps B2, E3, F2, F3, F4 & G1)

Description: Fuel reduction around USFS campgrounds (Alpine View, Minersville, Clark Springs, Hayward Flat, Tannery, Captain's Point, Ridgeville, etc).
Lead Agency: USFS
Funder: CalFire
Environmental Documentation: EA signed, timber sales for initial work
Implementer: USFS
When implemented: some of harvest 2024

Project 4 - Educate the Community

4.1 **Hold an annual Fire Safety Event-** Annual educational Fire Safety Events, with fire professionals from TCVFD, CALFIRE, USFS, TCRCD, and/or WRTC, should be held to provide information on defensible space, home hardening, evacuation zones and procedures, current and proposed fuel reduction projects, fire safe landscaping, insurance issues and maintenance of fuel breaks along roads and water access points.

4.2 **Develop a communication plan-** Encourage year-round and seasonal residents to sign up for ReadyTrinity to receive notices in the event of a wildfire. Provide information to Trinity Center residents regarding the emergency siren warning. Provide information to residents and visitors on County websites and social media which can provide reliable information on fire and evacuation status. Develop alternate non-electronic methods of notification of fire and evacuation status, such as sign boards.

4.3 **Encourage participation in the Wildland Fire Assessment Program (WFAP)-** Residents who sign up for WFAP receive an inspection of their home and property which identifies actions that can be taken to potentially reduce risk from wildland fire damage and increase likelihood that their home will survive a wildland fire.

4.4 **Encourage participation in FireWise Community activities –** Community educational and volunteer activities are required to maintain certification as a FireWise Community, which both increases the resilience to wildfires and may decrease homeowner insurance premiums.

Project 5 - Provide Emergency Fire Vehicle Access - In some cases roads will need to be signed and upgraded to expedite access by emergency fire engines. If access to homes is unsafe for fire engines, firefighters may have to leave them unprotected.

5.1 **Sign driveways with resident's 911 addresses -** Signs provide fire fighters unfamiliar with the area with landmarks. In addition, they allow for improved response, not only for fire fighters, but for all emergency responses. TCVFD and the Auxiliary currently distribute and sell reflective address signs and should continue that program.

5.2 **Sign culverts, septic tanks, or other sensitive areas to indicate weight capacity.** Engine operators can more quickly and safely drive to homes when bridges, culverts and other crossings are clearly marked as being capable of supporting the weight of the engines. Fire engines weigh between 17 ½ to 20 tons, water tenders more. Consult the Department of Transportation, Highway Design Manual, "Minimum Thickness of Cover for Culverts" table (Appendix C) to determine adequacy for engine crossing. Any soft ground, septic tanks, buried water lines or other hazards to equipment should be marked to protect them and the equipment.

5.3 **Construct turnarounds in driveways**. Most modern fire engines require a minimum of 27-35 feet radius to be able to turn around, although a smaller distance can be provided if there is a turning space to back into. If an engine cannot safely enter and exit a driveway, it may have to leave a home unprotected, or set up a hose lay from the road. However, setting up a hose lay from some of the narrower internal roads might inordinately restrict other emergency traffic.

5.4 **Implement "Blue Dot" Signage program** – Distribute blue reflective dots that indicate a water source available for firefighting needs, including water tanks with standpipes, ponds or pools accessible for drafting and hydrants.

APPENDIX A

Fuel Break Standards

Objectives and guidelines for fuel breaks are as follows:

a) Fuel breaks should be located to take advantage of existing fire barriers, such as Long Canyon Road, State Route 3, Trinity Lake, timber harvest units, meadows and streams (refer to map packet). Where needed, timber stand improvements, timber harvests, slash disposal, and/or prescribed fire should be used to reduce the fuel hazard on lands bordering the fuel breaks.

b) Fuel break corridors should be at least 200-300 feet wide. Fuel breaks visible from the road or homes should be visibly pleasing.

c) Fuel breaks should be easily accessible by fire crews and equipment at many points.

d) Fuel breaks should be designed so that they incorporate and imitate the forms of natural openings in the forest.

e) Ground cover (duff, needles and low grasses) should be retained to keep soil disturbance to a minimum.

f) Low growing vegetation (shrubs and suppressed trees) should be removed, except as in 5) below.

g) Emphasize retention of tree species that are adapted to fire and beneficial to wildlife. Retain California black oak, Oregon white oak, Pacific madrone, Douglas-fir, ponderosa pine, sugar pine and incense cedar. Oaks and madrone are more resistant to crown fire than conifers. Although these hardwoods can be killed by relatively low intensity surface fires, they will resprout. Oaks and madrone also provide acorns or berries as well as habitat for a variety of wildlife.

The conifer species listed in h), when mature, have thick bark and can survive low to moderate intensity fires, although white fir tends to be more susceptible to damage from fire and resultant disease infections.

h) Thin residual trees to encourage open stands. Spacing between residual trees depends on a number of factors, including the size and species of trees, the amount, size, and species of understory vegetation retained, steepness of slope, position of the fuel break in relation to the topography, aspect, the characteristics of the adjacent forest and landscape, and landowner objectives.

For maximum protection from crown fires, the crowns of mature conifers (single trees or clusters of several trees) should be 20 feet apart, with an average canopy closure of from 30-50%. Where slash and low growing fuels are minimal in and adjacent to the fuel break, a spacing of 10-15 feet is adequate and will increase

shading, thereby reducing the regrowth of low growing vegetation. In this case, an average canopy closure of from 40-60% should be adequate.

Intermediate trees should be thinned so that crowns are about 6 feet apart. The spacing between crowns should not be uniform. Many spaces will be larger, but few should be smaller than the recommended distances. Favor retaining Douglas-fir, ponderosa pine and sugar pine over incense cedar. Always favor trees, regardless of species, with full, healthy crowns on at least 40% of the bole.

i) Retain snags. A minimum of 2 snags (>20 inches dbh and 20 feet tall) per acre should be retained if no safety or fire control conflict exists.

j) Retain large woody debris. Retain a minimum of 5-6 logs (greater than 10 inches in diameter and 10 feet long) per acre, except in fire safety areas. Logs should be scattered rather than concentrated together.

k) Provide wildlife cover. Provide islands of preferred browse species (up to 30 percent by area) within fuel break areas. Trees within these islands should be pruned at least three times the height of the browse species which are left.

l) Fuel breaks should be designed to allow for the use of prescribed fire, mastication, or disking to provide long-term maintenance of the area. Seedlings and brush will rapidly appear in an open forest stand and must be removed periodically. Prescribed fire, mastication and/or disking on flatter slopes, are perhaps the best ways to kill the excess reproduction, while maintaining ecosystem conditions which promote healthy, large trees and a sustainable open forest stand.

m) On Sierra Pacific Industries lands, the proposed fuel break treatment will vary depending upon the location of the fuel break, as follows:

For maximum protection from crown fires, the crowns of mature conifers (single trees or clusters of several trees) should be 20 feet apart. Intermediate trees should be thinned so that crowns are about 6 feet apart. Fuel ladders should be eliminated by cutting intermediate and suppressed trees. Concentrations of dead fuels should be burned.

1) Prune post-harvest conifer trees to 16-24 feet above ground, but do not in any case reduce live crown to less than 40% of the bole.

2) Remove all hardwoods under 6 inches dbh and thin larger hardwoods to 10 ft^2 basal area per acre, favoring retention of California black oak, Oregon white oak, and Oregon bigleaf maple. Prune remaining hardwoods to 16-24 feet. If there is less than 10 ft^2 basal area per acre of hardwoods, retain the largest and healthiest trees in the stand.

3) Protect clumps of young, vigorous conifer saplings and poles by

removing hardwoods, downed woody debris and other materials for a 5–10-foot radius around clumps.

4) Construct tractor or hand fire lines on the upper sides of fuel breaks.

APPENDIX B

NRCS Fuelbreak Specifications

1. Fuelbreak Description

Fuelbreaks are designed to change the behavior of a wildfire by reducing the quantity, density, and configuration of potential fuels that the fire encounters when it enters the fuelbreak. The effectiveness of fuelbreaks is dependent upon proper location, installation, and maintenance and adequate defense by fire suppression forces.

Fuelbreaks are not designed to completely stop the progress of a fire, but can slow its rate of spread and its intensity so that suppression forces have a higher probability of successfully controlling and containing the fire. Fuelbreaks may provide safety zones and evacuation corridors for residents and firefighters, as well as locations for ignition of backfires to reduce fuels ahead of the fire.

Fuelbreak installation includes:

a) thinning of brush and small trees (the understory) in order to slow the horizontal rate of spread of the fire;

b) removal (cutting and disposal) of understory vegetation to inhibit the vertical spread of fire into the crowns of adjacent trees;

c) removal (pruning) of the lower branches of trees over 20 feet in height (the overstory) in order to slow or prevent the vertical spread of the fire into the crowns of the trees;

d) disposal of slash created by fuelbreak installation, or treating it to reduce flame lengths to acceptable levels; and

e) disposal or reduction of existing fuels on the forest floor (surface fuels).

2. Fuelbreak Location

Fuelbreaks are most effectively located in the following areas:

a) along ridges, where fires naturally slow their progress under most conditions;
b) 100 feet to 200 feet around structures, where fires are likely to start;
c) along roads, power lines, and pipelines, where openings already exist;
d) around wet areas, rock outcrops, mined areas, and other topographically strategic locations where fire spread may be reduced;
e) adjacent to areas where fuel reduction treatments, such as thinnings and surface fuel treatments, have already been done, where fire intensity and spread are already reduced;

f) connecting to existing fuelbreaks, to expand protected areas in a systematic way;
g) or in other locations as recommended by NRCS or CDF staff, a qualified Technical Service Provider, or a California Registered Professional Forester (RPF).

3. Understory Vegetation Treatment

Understory vegetation includes perennial shrubs and trees between 1½ feet and 20 feet in height. The treatments prescribed below are designed to create a horizontal and vertical separation between layers of forest vegetation through which a fire could spread.

Where the overstory is very sparse or non-existent, only horizontal separation of understory vegetation is required.

Where there is an overstory, the overlapping and interlaced branches and limbs (fuel ladder) through which a fire could carry from the understory into the crowns of the overstory trees is reduced or removed, to avoid the potential for crown fire.

4. Treatment Specifications

a) Horizontal Separation

Remove understory shrubs and trees to create a horizontal spacing between individual plants or groups of plants as per Table 1 below.

Understory shrubs, such as manzanita, *Ceanothus* species, and California coffee-berry, should be separated by specified distances according to the average width of the shrub crown (plant foliage) as measured from the dripline*. Shrub species are a natural component of the ecosystem and single plants or clumps, representative of the pre-treatment stand, should also be retained as spacing goals permit. Hardwood sprout clumps may be considered as shrub species or as tree species (see below) according to management goals.

Tree species should be retained across the treatment area in the approximate proportion they represent before treatment. Spacing between tree species is shown in Table 1 as a D+10 spacing. Such spacing is calculated by estimating or measuring the diameter of the tree in inches, adding 10, and converting the result into feet. For instance, the bole of a 5-inch diameter tree would be separated from the bole of any adjacent tree by 15 feet, a 6-inch tree by 16 feet, etc. Spacing requirements may be modified (as approved by NRCS staff) in order to control stocking and favor the growth of desired trees or other vegetation.

Trees or shrubs may also be left in groups (with their crowns touching), in which case the spacing between groups should be as per Table 1. (*Note: Unlike the distance between individual trees/shrubs, the distance between groups varies by slope percent, as shown in Table 1.)*

If the area in which the fuelbreak is installed is being managed for production of commercial timber or maintenance of overstory hardwoods, additional trees should be recruited from the understory to eventually grow into the overstory. As existing overstory trees die, fall over, and/or are harvested, the resulting openings can be occupied by seedlings and saplings of "Group A and B commercial tree species"* that are retained during maintenance treatments. Spacing distances should be as shown in Table 2. [**As defined by the California Department of Forestry (CDF) in the CA Forest Practice Rules (CA FPRs).]*

The horizontal spacing requirements of these specifications can be accomplished either by separating understory vegetation by the distances shown in Table 1, or by removal of all shrubs over 3 feet tall under a maximum overstory cover density, as shown below:

Table 1. Minimum Distance Between Individual Understory Plants/Groups of Plants

Distance Between Foliage of Shrub Species (horizontal distance in feet between driplines*)						
Width of Foliage of Understory Shrubs	2.5	6	9	13	17	
Minimum Distance Between Individual Understory Shrubs	5	11	14	17	19	
Distance Between Boles of Understory Trees (horizontal distance measured from center of bole)						
Minimum Distance Between Tree Boles	Diameter of Tree (D, converted to feet) + 10 feet					
Distance Between the Dripline of Clumps of Understory Trees and/or Shrubs (slope dependent)						
	Width of Clumps (feet)					
	10	20	30	40	50	60
Slope (%)	Distance Between Clumps (feet) Based on Slope Steepness (left column) and Clump Width (above)					
0%	15	19	27	34	40	46
20%	17	30	38	45	50	54
40%	20	38	53	65	75	83
60+%	25	48	68	85	100	113

(*The "dripline" of a shrub or tree is the farthest edge of the plant foliage from which moisture can drip to the ground surface.)

OR

Where there is =>50% overstory tree cover, remove all shrubs over 3 feet tall, retaining sapling- and pole-sized trees as per the tree spacing in Table 2.

b) Vertical Separation

Create a vertical separation between understory and overstory vegetation by reducing the vertical continuity of vegetation. Remove understory vegetation and/or prune tree branches, as per the specifications in Table 2 below.

Table 2. Maximum Understory Vegetation Height Based on Height to Base of Overstory Crown

Height to base of tree crown (feet)	10	20	30	40	50
Maximum ht. of understory vegetation (feet)	2	5	8	11	14

c) Pruning

Prune residual trees to create the separation distance between understory and overstory vegetation layers as per Table 3 below.

Do not prune trees excessively, so as to reduce the percentage of the bole occupied by live, healthy branches to less than 40%. If retaining 40% of the bole in live crown will result in inadequate clearance between understory and overstory vegetation layers or between surface fuels and understory vegetation, the spacing between understory vegetation and/or overstory trees should be increased as per the specifications of Section 5 below.

Table 3. Maximum pruning height for trees up to 24 feet tall

Tree Height (feet)	**Maximum Pruning Heights (feet)**
4	0
8	4.5
12	7.0
16	9.5
20	12.0
24	14.0

5. Overstory Tree Spacing

Successful fuelbreak installation may require that overstory trees be thinned to increase the distance between their crowns, so that fire will not carry from crown to crown.

(Note: Trees over 10 inches in diameter may have commercial value, but their sale requires a Timber Harvest Plan or Exemption, as specified in the CA FPRs, and may require consultation with a Registered Professional Forester (RPF). ***EQIP funding will not supplement the cost of plans, exemptions, RPF consultations, or slash treatments required for commercial harvests.)***

Table 4 below shows the recommended post-treatment crown closure of the overstory stand based on slope and aspect. ("Crown closure" is the percentage of the overhead view that is covered by the crowns of the overstory vegetation, and can be quantified by use of a shade densiometer.)

Hardwood Trees: while not as valuable commercially as conifers, hardwoods are less flammable and provide valuable wildlife habitat and species diversity. Where hardwoods are present in the pre-treatment stand, provisions should be made for their representation within the fuelbreak. Fuelbreak areas with a wildlife habitat emphasis may include a higher proportion of hardwoods than areas where conifer timber production is emphasized.

The vertical spacing requirements of these specifications can be accomplished by separating overstory and understory vegetation by the distances shown in Table 2 or by retention of 100% of the overstory, depending on site-specific conditions, as shown below.

Table 4. Recommended Maximum Crown Closure Based on Average Percent Slope

Recommended Maximum Crown Closure (Percent) by Aspect and Slope				
Slope (%)	**North Aspect**	**East Aspect**	**West Aspect**	**South Aspect**
0-20	75	70	65	60
21-40	65	60	55	50
41-60	60	55	50	50
60+	55	50	50	50

Note: The maximum crown closure for ponderosa pine forests may be reduced 10% from the above values (ex. 60+%, South Aspect, from 50% to 40% crown closure).

OR

Retain up to 100% of the existing crown closure, depending on site-specific vegetative, topographic, and other factors, and approval by NRCS staff.

6. Fuelbreak Widths

a) Minimums. The minimum width of any Fuelbreak will be 150 feet.

b) Maximums: The maximum fuelbreak width shall be based on slope and aspect, as shown in Table 5.

Table 5- Maximum Fuelbreak Width (Based on Slope Steepness and Aspect)

Aspect	Slope (%)					
	<10 %	**<20 %**	**<30 %**	**<40 %**	**<50 %**	**60+%**
North	150’	150’	150’	150’	225’	330’
East	150’	150’	150’	175’	225’	330’
West	150’	150’	175’	225’	275’	330’
South	150’	150’	200’	250’	300’	330’

7. Slash Treatment

Successful fuelbreak installation requires that fuels created by thinning and pruning of vegetation be disposed of or otherwise treated so that the resulting fuel bed will neither initiate a crown fire within the fuelbreak nor increase the rate of spread of a fire through the fuelbreak during average severe fire weather conditions* as defined by CDF. *(* Average severe fire weather conditions are atmospheric and fuel conditions where fuel moisture content (dry weight basis) of 1-hour time lag fuels is 3%, 10-hour fuels is 4%, 100-hour fuels is 5%, live fuel moisture is 70%, and mid-flame wind speed is 7+ mph in a closed forest canopy (40+% crown closure).*

Wherever feasible, slash generated by fuelbreak construction should be disposed of by hauling away, masticating, chipping on site, piling, piling and burning, and/or broadcast or jackpot burning. Slash should be disposed of within four months of the start of operations except when burning is employed, which may be completed by April 1st of the year following the start of operations. *(Note: To prevent infestations of Ips bark beetles, slash disposal must follow the specifications found in NRCS 666B - Forest Stand Improvement. Slash burning should follow the specifications found in NRCS Code 338 - Prescribed Burning.)*

Lopping and Scattering Exception: On steeper slopes and in some situations on gentle slopes, it may be unnecessary from a fire safety standpoint, or impractical for safety, environmental, or economic reasons, to treat all slash by the methods outlined above. These situations must be defined and approved by NRCS or CDF staff or a qualified Technical Service Provider. All, or a portion of the slash may then be treated by lopping and scattering, provided that the following guidelines are adhered to:

a) Remove pruned limbs at least 6 feet horizontal distance away from the underside of tree canopies that are within 10 feet of the ground.

b) Remove slash from close proximity (=>6 feet) to the base of all trees.

c) Lop slash into lengths of less than 4 feet so that the majority of its length contacts the ground.

d) Scatter slash so that either it does not create fuel concentrations or fuel concentrations are interspersed with larger areas of little or no fuels.

8. Snag (Dead Tree) Treatment

Retention of snags is generally incompatible with fuelbreak installation, because the dry, dead wood within a snag has the potential to easily ignite. Turbulent air during a fire can then readily transport embers from snags into unburned areas, causing spot fires. However, short snags (under 20' tall), especially large diameter 'soft' (rotten) hardwood snags, pose much less danger of fire spread and may be left as per the following specifications:

a) If the fuelbreak is on a ridge, fell all dead trees (snags) for a distance of 100 feet on either side of the ridge.

b) In other areas, fell all snags that are greater than 20 feet tall within and for a distance of 20 feet on either side of the fuelbreak. Utilize felled snags as logs for wildlife habitat as per section 9 below.

9. Surface Fuel Treatment

Existing (pre-installation) surface fuels greater than or equal to 2 inches in diameter, including dead and down branches, logs, and shrubs, must be reduced by utilizing the specifications for slash treatment in section 7, above, e.g.:

a) Dispose of surface fuels by hauling away, masticating, chipping on site, piling, piling and burning, and/or broadcast or jackpot burning,

b) or, as allowed by NRCS staff, lop and scatter to 12 inches from the ground surface.

c) Retain logs over 10 inches in diameter for wildlife habitat, as per 9, below.

Note: Slash burning must follow the NRCS specifications found in Code 338 - Prescribed Burning.)

10. Wildlife Habitat Maintenance

Fuelbreak construction may accomplish the intended fuel reduction goals while accommodating wildlife occupancy. The following measures should be included into fuelbreak installation, as feasible, on a site-specific basis.

a) Retain a maximum of 5-6 logs/acre (either pre-existing or created by treatment) =>10 inches in diameter and =>10 feet long. Logs should be scattered (separated from other logs by at least twice their diameter), situated well away (at least 6 feet horizontally) from the base of trees, and limbed so that no protruding limbs can carry fire into other vegetation.

b) Retain islands of preferred browse plant species (e.g., buckbrush, deerbrush, and mountain mahogany). Separate islands of understory species as per the clump spacing specifications in Table 1 above. *(Note: on average, islands of browse plants should occupy no more than 20% of the fuelbreak.)*

c) If heavy equipment is available, create root-sprung stumps by uprooting portions of the stumps, to create ground cavities for burrowing species.

d) Install boxes on trees to maintain habitat for birds and mammals that require cavities for nesting and denning.

e) In mixed conifer-hardwood stands, retain at least 10% of the residual stand in hardwood species.

11. Visual Buffers

Around houses, dense clumps of trees and other vegetation that provide visual buffers between neighbors may be retained, but must be separated by the spacing for groups of vegetation specified in Table 1.

IV. BASIS OF ACCEPTANCE

V. OPERATIONS AND MAINTENANCE

The more open the overstory is following fuelbreak construction, the more maintenance will likely be required, because the openings that are created encourage establishment and growth of understory vegetation, compared to more shaded areas.

Fuelbreaks should be annually inspected and all downed woody material =>2 inches in diameter must be disposed of or treated as per section 9 above.

Maintenance of the fuelbreak must be conducted at least every three to five years, to the following specifications:

a) Reduce vegetative cover by mowing, browsing, grazing, spraying, or by other methods to control grass and brush sprouting and to avoid a build-up of dead litter.

b) Remove lower tree and/or shrub branches that have died and stumps that pose a fire hazard.

c) Dispose of or treat slash created by maintenance as per section 6 above (adhering to local and state regulations and laws for disposal by burning).

d) Control access by vehicles or people to prevent damage.