

Wrightwood Community Wildfire Protection Plan Certification and Agreement

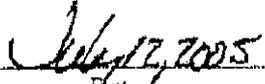
The Community Wildfire Protection Plan developed for/by Wrightwood:

- Was collaboratively developed. Interested parties and federal land management agencies managing land in the vicinity of Wrightwood have been consulted.
- This plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect Wrightwood.
- This plan recommends measures to reduce the ignitability of structures throughout the area addressed by the plan.

The following entities attest that the standards listed above have been met and mutually agree with the contents of this Community Wildfire Protection Plan:



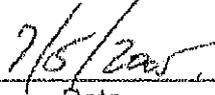
Robert Green
CDF Unit Chief San Bernardino



Date



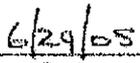
Bill Postmus
First District Supervisor - San Bernardino County Board of Supervisors



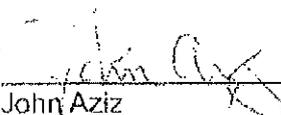
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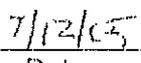
Peter Hills
Fire Chief - San Bernardino County Fire Department



Date



John Aziz
Wrightwood Fire Safe Council CWPP Committee



Date

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Wrightwood Community Wildfire Protection Plan

EXECUTIVE SUMMARY

The Wrightwood Community Wildfire Protection Plan (WCWPP) was developed in partnership with local, state and federal agencies, and community organizations. The plan identifies wildfire risks and develops priorities for funding and programs to reduce the threat of wildfire to the community of Wrightwood and surrounding areas.

Background

Located within the wildland-urban interface (WUI) of the Angeles and San Bernardino National Forests, Wrightwood was designated an "at-risk community" in the Federal Register, August 17, 2001, (Vol. 66, No. 160).

Wrightwood and the surrounding plan area are experiencing tree mortality due to drought and insect infestation. A high accumulation of wildland fire fuels, a history of fire suppression, and the overcrowded forest competing for a limited water supply create an ever growing threat of wildfire.

Recent fires have raised public awareness to the affects of wildfire on losses of life, property, and natural and cultural resources. This heightened awareness has mobilized efforts by development partners to actively address forest conditions in the plan area and educate stakeholders on methods to improve fire defensibility.

WCWPP – Development Criteria

The key topics that should be included in a Community Wildfire Protection Plan are found in the Healthy Forests Restoration Act (HFRA). The intent of the WCWPP is to be developed under HFRA guidelines.

I. INTRODUCTION

Wrightwood Community Wildfire Protection Plan

The goal of the WCWPP is to reduce the risk of wildfire to life, property, and natural and cultural resources in the plan area.

Problem Definition

The plan area sits in a transition zone of mixed conifer and hardwood, with intrusion of woody chaparral. There is an extremely dense and mature understory of grasses, forbs, and shrubs.

What makes it so desirable to live in the plan area is the very hazard that threatens it. People want a rural feeling and the many wooden structures surrounded by native vegetation show just that. A large number of residences are unoccupied year round and many absentee owners allow fuels to build up between visits.

Owners of undeveloped land (comprising thousands of acres) have failed to thin stands of mature timber or clear ladder fuels from beneath the canopy. This has led to conifer densities of more than 300 trees per acre and a thick understory growth.

On National Forest land, the situation is exacerbated by a long history of fire suppression, which has created overcrowded and unhealthy forest conditions. This overcrowding, combined with several years of drought and bark beetle activity, has resulted in increased tree mortality on federal and private lands, within residential neighborhoods, and along crucial egress routes.

Potential ignition sources for this dense fuel load are diverse and numerous. Natural ignition from lightning strikes along ridge tops is a typical cause of fire at the higher elevations. Fires can be started through irresponsible human actions such as unattended campfires, children playing with matches, or illegal use of fireworks. Mechanical equipment, vehicles, and target shooting are other sources of accidental ignitions. Arson is a serious concern, and historically a frequent cause of local wildfires.

Given current forest conditions and the potential for ignition, the threat of wildfire is a serious and immediate danger.

Plan Area Boundaries

The WCWPP addresses wildfire risk and mitigation actions for the Swarthout Valley, Blue Ridge, Big Pines, Table Mountain, Horse Canyon, and Lone Pine Canyon.

(Appendix: Map of plan area)

Implementation Strategies

- Promote wildfire preparedness and public safety.
- Build connections to the people and resources that can help plan area stakeholders accomplish fire safety objectives.
- Educate the community on the responsibilities of living in a high-risk wildfire environment.
- Recommend preventive action measures and identify incentives to stakeholders.
- Build and maintain relationships between development and supporting partners.
- Seek and utilize grant and funding sources.
- Focus on collaborative decision-making, stakeholder participation, and landscape-scale fuel treatment projects.
- Protect, restore, and enhance the forest ecosystem

II. PLANNING PROCESS

WCWPP Development Partners

Key planning partners include representatives from:

- Angeles National Forest and San Bernardino National Forest (USFS)
- TEAMS Enterprise (USFS)
- California Department of Forestry and Fire Protection (CDF)
- San Bernardino County Fire Department (SBCFD)
- Wrightwood Fire Safe Council (WFSC)

Stakeholders

A stakeholder can be defined as any person, agency or organization with a particular interest, or stake, in fire safety and the protection of assets from wildfires. The process of identifying stakeholders and their interests is ongoing, and will be evaluated continuously through the evolution of this CWPP. It is the goal to participate with as many stakeholders as possible and continually update planning efforts involving stakeholder input.

Identified Stakeholders

- American Red Cross–High Desert Chapter
- Big Pines Camping Association
- California Highway Patrol
- California Department of Transportation
- California Department of Fish & Game
- Citizens of the Wrightwood community and surrounding area
- Los Angeles Board of Supervisors
- Los Angeles County Sheriff
- Los Angeles County Fire Department
- Mountain Area Safety Task Force
- NASA/Jet Propulsion Laboratory
- San Bernardino Board of Supervisors
- San Bernardino County Sheriff
- San Bernardino County Flood Control District
- San Bernardino County Code Enforcement
- San Bernardino National Forest
- Snowline School District
- Southern California Edison
- Southern California Gas Company
- Southern California Water Company
- Verizon
- Wrightwood Chamber of Commerce
- Wrightwood Disaster Preparedness Team
- Wrightwood Municipal Advisory Council
- Wrightwood Property Owners Association
- Wrightwood USPS

Plan Development

In June 2004, the Wrightwood Fire Safe Council (WFSC) began a collaborative effort with federal, state, and county agencies throughout the area to develop a CWPP. Agency partners provided information and feedback to the WCWPP committee throughout the development of the plan.

III. COMMUNITY PROFILE

General Description

The plan area includes six zones of diverse topography with a mix of residential, commercial, and recreational use.

Swarthout Valley

The village of Wrightwood sits at the center of the Swarthout Valley surrounded by National Forest land. The Swarthout Valley is a rift valley located on the San Andreas Fault. Most of the town is settled on a northern exposure, while a much smaller part has a southern exposure. The valley lies within multiple jurisdictions: two national forests, the Angeles and San Bernardino; and two counties, Los Angeles and San Bernardino County. There are four ingress/egress routes accessing the Swarthout Valley.

Blue Ridge

Blue Ridge lies to the south of the Swarthout Valley and is wholly within National Forest land. Steep slopes descend to the outer undeveloped private properties surrounding the village of Wrightwood. The area includes two public campgrounds, open late spring through fall, which sit on the Pacific Crest National Scenic Trail. There are two critical communication sites and two ski areas. Wright Mountain is home to a USFS designated "sensitive" species of Bighorn sheep. The population is designated a fully protected population under California Fish and Game Code §4700 and re-listed by the Regional Forester as a Sensitive Species. Additionally, it is identified as a Management Indicator Species in the Forest's Land and Resource Management Plans.

Big Pines

The Big Pines District, formerly LA County Big Pines Park, is on National Forest land and is nominated for consideration as a National Historic District. The area contains many Forest Service assets and private structures dating back to the 1930s. It is also the location of several organizational camps, public campgrounds, three ski resorts, and Jackson Lake, which host visitors throughout the year. McClellan Flat has numerous recreational cabins, which are occupied seasonally.

Table Mountain

The location of Table Mountain campground, a NASA/Jet Propulsion Laboratory observatory, and a ski resort. Moderate slopes descend to the outer undeveloped private properties surrounding the village of Wrightwood.

Horse Canyon

Horse Canyon is an area of shallow canyons with numerous isolated residences and businesses. This area has experienced a high number of arson and vehicle-related fire starts and lies within multiple fire jurisdictions.

Lone Pine Canyon

Lone Pine Canyon is the eastern extension of Swarthout Valley. It is a long upslope populated with heavy fuels that leads to the village of Wrightwood. There are three ranches in the canyon, one of which serves as an educational facility for children during the summer months.

Environment and Weather

The plan area sits in the transition zone between Sonoran desert and Montana forest. Humidity averages 20% year-round. During late summer and fall, strong, dry, northeast winds are common.

Weather patterns in the Western United States are influenced by a long-term ocean cycle known as the Pacific Decadal Oscillation (JPL 2004). A full cycle of the Pacific Decadal Oscillation (PDO) runs about 50 years. Scientists believe that the PDO shifted in 1999, leading to a shift from a warmer-and-wetter to a cooler-and-drier weather pattern in central and southern California. Due to the PDO shift, there could be a long-term trend of less water available to meet vegetation needs.

Wrightwood and the surrounding plan area are located in California Climate Division 6. Precipitation data from this division shows that since 1998, only two years were at or above the 10-year average of 17 inches. Since 1895, precipitation in this climate division appears to be highly variable, with numerous occasions where multiple years successively showed below-average precipitation. These frequent droughty periods may have played a role in historic fire activity in the area.

The plan area has a very limited water supply that is derived from wells. There have been periods when the aquifers that supply the wells have been unable to keep up with local demand. Large wildfires could severely deplete local water resources. Related to this factor is the drought condition combined with an over abundance of trees—all of which compete for a limited ground water supply.

Housing and Businesses

The majority of structures in the plan area are single-family dwellings. According to the 2000 census, 2,548 housing units were reported in the planning area. Most commercial buildings are clustered in a small downtown district in the village of Wrightwood. About 900 of the housing units are vacant, weekend homes or seasonal rentals. There are three small motels and numerous "bed & breakfast" facilities in the village.

Local Building Construction Materials/Structure Density

Building material selection varies greatly from historical structures built of logs and cedar shake roofs to buildings of concrete and glass. Many homeowners desire a natural feel in the construction of their homes and surrounding landscaping. As a result, a majority of the area homes have wood siding, wood decks and are surrounded by natural vegetation. Typically, lots are small and there are several pockets of crowded, smaller homes. This is combined with lots that offer a little more space occupied by larger homes. Roofing material is primarily composition asphalt shingles, with a few homes having wood shake, ceramic, or tile.

Population

According to the 2000 census for zip code 92397, the full time population of the plan area is 4,247 residents. The number of potential evacuees within the plan area spikes dramatically in winter and summer. (Appendix: Census)

In the winter, visitor numbers can potentially reach 20,000 to 25,000 people due to skiing and snow play activities. In spring, summer, and fall, visitor numbers may reach 7,000 to 10,000 people.

Recreational Use

The plan area sits within two of the most visited National Forests in the nation, offering opportunities for many types of recreational use. State Highway 2, a California scenic byway—passes through most of the plan area and the village of Wrightwood. This major artery through the Angeles National Forest brings large numbers of visitors to the area in every season.

Along the plan area section of State Highway 2 are two small lakes, several campgrounds, numerous trails, thirteen organizational camps, and three ski resorts that attract a wide variety of visitors. Entry into the area may be made by foot, bicycle, horse, motorcycle, and automobile.

The Pacific Crest National Scenic Trail passes through the planning area and hikers often use Wrightwood as a re-supply point. There are also dirt roads for motorized backcountry travel. Additional activities include, birding, cross country skiing and snow shoeing, picnicking, rock climbing, horseback riding, bicycling, hunting, fishing, and wildlife study and research. Many visitors choose simply to drive through and visit the two National Visitor Centers at Big Pines Historic District and Grassy Hollow or enjoy the views from scenic vista points.

IV. FOREST CONDITIONS & WILDFIRE IN THE PLAN AREA

Topography and Fuels

The plan area zones contain diverse topography with elevations ranging from 3,200 to 8,500 feet.

Swarthout Valley

The average elevation of this area is 6,000 feet. The valley is made up of alluvial deposits sitting directly on top of the San Andreas Fault. Fuels vary from grasses and forbs, pockets of chaparral, to conifers and occasional hardwoods.

Blue Ridge

Blue Ridge ranges from 7,500 feet to 8,500 feet in elevation. The north facing slope, between the top of Blue Ridge and the Swarthout Valley is heavily timbered in mixed conifer and hardwoods, descending to the community of Wrightwood with heavy understory and ladder fuels.

Big Pines

The Big Pines elevation varies from 5,600 to 6,800 feet. This area sits in a Montane forest of overly-dense mixed conifer and hardwood.

Table Mountain

The summit of Table Mountain is at an elevation of 7,500 feet. It descends to the east to about 6,000 feet. Table Mountain is a sparse conifer forest. As the ridge descends the vegetation changes from mixed conifer to chaparral populated with dryer flashier fuels. This fuel profile extends down to the developed area of Wrightwood.

Horse Canyon

This area sits at an elevation of 4,850 feet. It is an area of shallow, jumbled canyons with many unimproved roads adjacent to Sheep Creek Wash. The area has a moderate to high fuel density comprised of dense chaparral.

Lone Pine Canyon

This is a 7-mile long, steeply descending valley with elevations varying from 3,200 to 6,000 feet and is the easterly section of the San Andreas Fault, which continues through Swarthout Canyon. The north and south slopes of the valley are moderate and covered in dense chaparral.

Local Fire Ecology and History

Fire has always been an important part of the ecosystem in the plan area. Historically fires have started in the chaparral areas and then moved into the timber zones where they have slowed and allowed suppression to be completed. Even before fire suppression was available, the fires that burned usually went out, or at least became much less intense in the timber zones. These periodic low intensity fires provided a healthy ecosystem by clearing the smaller vegetation (ladder fuels) and thinning trees—returning nitrogen to the soil and producing an open area under the tree canopy. It also reduced competition for water, allowing trees to survive prolonged periods of drought. Years of fire suppression and the resulting unchecked growth of trees have combined to create an overload of fuels.

The plan area has survived many fires over the last century. The Scout Fire to the northwest, the Stockton Fire to the southeast, the Biedebaugh Fire to the south, the Narrows Fire to the southwest, and most recently, the Louisiana Fire to the east, Lytle to the southeast, and Springs Fire to the north.

Weather Factors

Moist weather systems approach the mountain area from the northwest, west, and southwest. Northern systems are often cold and can hit hard and fast; southern systems, typical during increased ENSO (El Niño Southern Oscillation) cycles, are usually warmer and bring more moisture.

From 1849 until 1994, annual rainfall totals were higher—up to 28 inches annually. Since 1994, it appears the weather cycle is returning to an arid period. The last decade has seen average rainfall in the single digits.

The plan area is affected by dry northeast winds, which typically occur in fall and contribute to the peak fire season. It is the prolonged dry air masses that determine fuel moistures, which remain low year round.

Natural and Existing Fuel Breaks

There are some natural fuel breaks in or near the plan area. Sheep Creek, Heath Creek and Swarhout Creek provide natural fuel breaks. Old fuel break systems are still evident in the area of Table Mountain and Blue Ridge. In the Lone Pine Canyon area, old fuel breaks have been reestablished and new breaks added.

Fuel and Vegetation types

Fuel load in the plan area is moderate to heavy. Fuel type changes with elevation. At lower elevations, there is a chaparral environment consisting of Manzanita, Fremontia, Chamise, etc. The middle elevations are typical Pinon pine and Juniper environments. At higher elevations, slopes are densely covered with predominately Jeffrey Pine, a mix of other conifers, and hardwoods. All elevations have an understory component of grasses and forbs such as Sage, annual and perennial grasses, Indian Paintbrush, etc. Within the developed areas, there has been extensive planting of non-local species such as Cottonwoods and fruit trees. The aforementioned weather conditions contribute to a low fuel moisture level year round.

Fire Regime Condition Class

The condition class scale was developed to exhibit the departure in severity, intensity, and frequency of fires burning in the ecosystem in its current condition as compared to fire's historic or reference condition. The departure being described in these assessments results in changes to one or more of the following key ecological components: vegetation characteristics (species composition, structural stages, stand ages, canopy closure and mosaic pattern); fuel composition; fire frequency; severity and pattern; other associated disturbances; and the introduction of invasives, grazing, and insect and disease mortality.

Reference conditions are very useful as indicators of ecosystem function and sustainability, but do not necessarily represent desired future conditions, i.e., they may not reflect sustainable conditions under current climate, land use, or managerial constraints, and they may not be compatible with social expectations.

Condition class is a relative description of the degree of departure from historical fire regimes and generally describes how 'missed' fires have affected key ecosystem vegetation components.

A simplified description of the fire regime condition classes and associated potential risks follows:

Class Number	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	<p>Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics.</p> <p>Composition and structure of vegetation and fuels are similar to the natural (historical) regime.</p>
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	<p>Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) are low. Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are moderately altered.</p>
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	<p>Uncharacteristic conditions range from low to moderate; Risk of loss of key ecosystem components are moderate. Fire behavior, effects, and other associated disturbances are highly departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are highly altered.</p> <p>Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.</p>

(Appendix: RiskAssessmentZones - Details Condition Class 2)

Swarthout Valley has been classified as Condition Class 2. Condition class for the remaining plan areas will be determined in future WCWPP revisions.

V. WILDFIRE RISK ASSESSMENT PROCESS

Assessing the risk consists of evaluating the potential for wildland fire ignitions within a given area. The plan area for the WCWPP includes six zones with greatly diverse risk potential. Therefore, they must be addressed individually, beginning with the area with the highest density of structures.

Risks are defined as those uses or human activities, or natural causes that have the potential to result in a wildland fire ignition. Wherever there are concentrations of people or activity, the potential for ignition is increased. In assessing the risk within a given area, it is helpful to look at historical fires. Historical fires alone, however, are not an accurate reflection of the risks within a given area.

Possible causes that must be considered, but are not limited to:

Structure fires	Fireworks
Prescribed burns	Children playing with matches
Permitted burns	Discharge of Firearms
Vehicles, equipment, or machinery	Power lines
Railroads	High pressure gas lines
Arson	Lightning
Smoking	Earthquakes
Campfires	

Assessing the Hazard

Assessment of the hazard deals with identifying the areas of like fire behavior based on fuels and topography. Given a normal fire season, how intense, and at what rate of spread would a wildland fire burn? What is the resistance to control? Under average fire season conditions, fire intensity is largely a product of fuels, weather, and topography.

Hazards are defined as the fuels and topography of an area. The objective in examining hazards is to determine the potential for a "large" fire to result from a fire ignition. This can be more simply put as determining the degree of difficulty in suppressing a fire once it has been ignited. It is important to examine hazards without regard for anything else. The evaluation of the critical fire weather index can also be utilized, such as energy release component, burning index, or ignition component. These indicate the "potential to burn."

Assessing the Values

Assessing the values consists of identifying those elements that are determined significant enough to require enhanced fire protection. These elements include developed or natural conditions as well as public and firefighter safety.

Values are defined as natural or developed areas where loss or destruction by wildland fire would be unacceptable. This is called the "potential for loss."

Value considerations will be:

Life
Residential/Structures
Commercial Development
Political/Social
Cultural/Historical
Improvements
Visual Resources
Recreation

Air Quality
Water Storage
Threatened and Endangered Species
Habitat, wildlife, and fish
Riparian/Water Quality
Pumping systems
Power supplies
Others specific to Wrightwood

Fire Protection Evaluation

1. Identify:

- Hazards Fuel and others
- Risks
- Values

2. Develop Priorities

3. Determine:

- Types of trends of fires
- Occurrence zones

Steps for Determining Hazard Ratings

Step 1: Identify the interface boundary or fire management compartments.

Step 2: Assign Fuel Hazard Rating

For each management compartment, a fuel rating of 1, 2 or 3 is given based on the following:

Fuel Characteristics	Rating
Small, light fuels (grass, weeds, small shrubs, fine fuels)	1
Medium size fuels (brush, shrubs, small trees)	2
Heavy, large fuels (woods, trees, timber, heavy large brush)	3

A rating will be assigned to each management compartment that best represents the primary fuel type. If there are vast differences in an area we can sub-divide it for the assessment.

Step 3: Determine the Slope Hazard Rating

In this step, slope ratings are determined and assigned. The slope rating will become a factor (or multiplier) of the fuel rating. General slope rating is provided in the following chart:

Slope Description	%	Rating
Flat to mild slope	0 - 15%	1
Mild to medium	16 - 40%	2
Medium to moderate	41 - 60%	3
Moderate to extreme	61% +	4

Step 4: Assign Factored Hazard Rating

Multiply slope ratings by the fuel rating. (A multiplication factor is used because slope has a great influence on the speed of fire spread.) The result of multiplication becomes the factored hazard rating.

Step 5: Assign Structure Hazard Rating

Structures will be divided into five rating categories based on very general design characteristics. A structure rating will be assigned to an area that best represents the overall area. Structures in the area will not all be the same. Some averaging has been done.

A structure design that best represents the management area will be chosen. Clearly, there will be only a few occasions when a design characteristic will exactly match the definitions in the chart. Where combinations exist within an area, we will adjust the number up or down.

Step 6: Determine Total Hazard Rating

The last step in this assessment is to total the factored value and the structure rating in order to prioritize interface areas.

Step 7: Establish Interface Priorities

Based on the total score of each area, develop a priority listing of our interface and management compartments.

VI. RISK ASSESSMENT ZONES

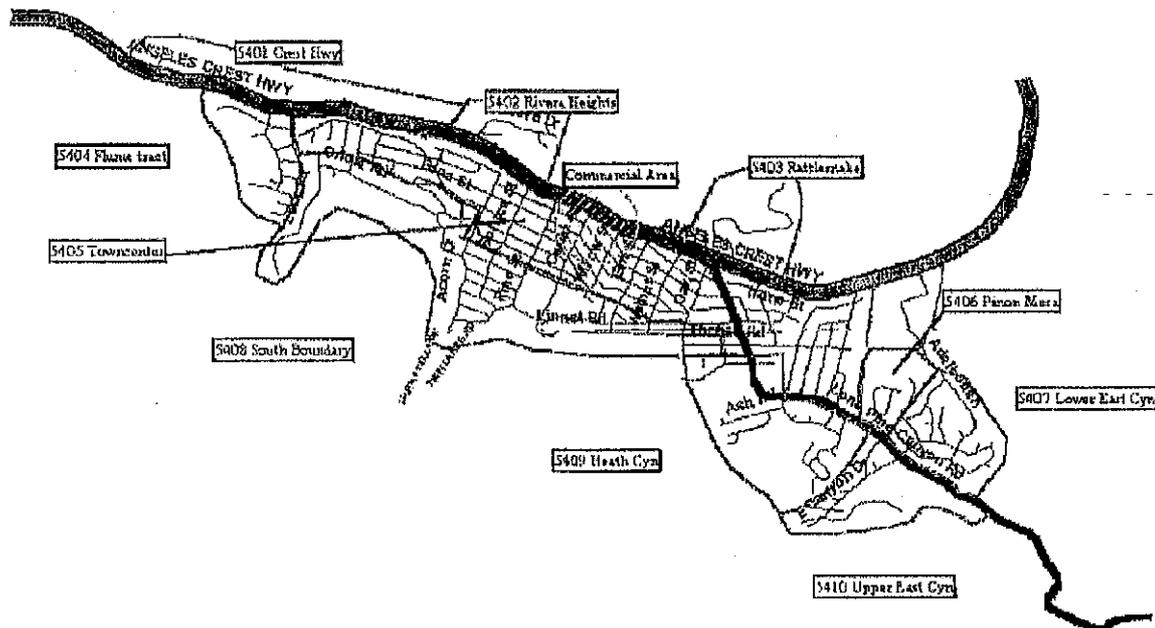
Zone A. Swarthout Valley

The map displayed shows the town of Wrightwood divided into fire area compartments. Each compartment has been given a name and identification number.

Compartment Definitions

<i>Comp. No.</i>	<i>Name</i>	<i>Description</i>
5401	Crest Hwy	A rural setting with a few homes over a large area, south slope
5402	Rivera Heights	Crowded homes, south slope, light vegetation
5403	Rattlesnake	Mobile homes and a few rural south slope homes
5404	Flume Tract	Homes not crowded north gentle slope
5405	Town center	The heart of Wrightwood, crowded homes, small lots, north slope
5406	Pinon Mesa	Small cluster of homes atop a mesa with steep approach, no setback
5407	Lower E. Cyn	Large homes with sparse vegetation
5408	South Boundary	Homes that border the southern wildland, north slope
5409	Heath Canyon	Large homes in a cleared area of north slope
5410	Upper E. Cyn	Homes with some cleared area others w/heavy timber
5411	Commercial Area	The business area of town. Cleared with few hazards

Compartment Map ([Click here for larger map](#))



Zone A. Hazard Rating and Compartment Prioritization

Area (highest to lowest rating)	Fuel Hazard Rating	Slope Hazard Rating	Factored Hazard Rating	Structure Hazard Rating	Total Hazard Rating
5406 Pinon Mesa	3 x	3 =	9 +	10 =	19
5410 Upper East Cyn	3 x	2 =	6 +	7 =	13
5404 Flume Tract	3 x	2 =	6 +	5 =	11
5405 Town Center	3 x	2 =	6 +	5 =	11
5408 South Boundary	3 x	2 =	6 +	5 =	11
5409 Heath Canyon	2 x	2 =	4 +	4 =	8
5403 Rattlesnake	2 x	1 =	2 +	5 =	7
5411 Commercial Area	1 x	1 =	1 +	6 =	7
5401 Crest Hwy	1 x	1 =	1 +	4 =	5
5402 Rivera Heights	2 x	2 =	4 +	1 =	5
5407 Lower East Cyn	2 x	1 =	2 +	2 =	4

Zone B. Blue Ridge

This area has been assessed in the USFS Wrightwood Project Proposed Action.

Zone C. Big Pines

This area has been assessed in the USFS Big Pines Fuel Reduction Project.

Zone D. Table Mountain

This area has been assessed in the USFS Big Pines Fuel Reduction Project.

Zone E. Horse Canyon

Horse Canyon assessment will be deferred to a future revision of the WCWPP.

Zone F. Lone Pine Canyon

This area has been assessed in the USFS Lone Pine Canyon Fuels Reduction Project.

VII. COMMUNITY PREPAREDNESS

Public Resource Code Requirements

California Public Resource Code section 4291 requires property owners to be responsible for the following minimum hazard abatement measures (Appendix: CalifLaw - Section 4291 - Revision)

1. Remove dead vegetation and thin brush (leaving individual ornamentals) 30-100 feet around all structures, or to the property line. (Certain areas of Los Angeles County may require additional clearance up to 200')
2. Create 10-foot clearance of flammable vegetation around propane tanks.
3. Remove tree limbs overhanging structures, and within 10 feet of chimneys and stovepipes.
4. Remove leaves and pine needles from roofs and rain gutters.
5. 1/2" mesh screen is required on fireplace chimneys and woodstove pipes.
6. U.S. Forest Service-Approved spark arresters are required on all internal combustion engines, such as chainsaws, mowers, tractors, weed eaters, etc.
7. California Department of Forestry and Fire Protection burning permits are required where burning is applicable.

Public Resources Code requirements offer insufficient protection for a residence built on a slope and/or property surrounded by flammable, continuous vegetation such as forest with understory, or brush. In the plan area, more defensible space is necessary to create a safety zone. The concept and creation of defensible space is addressed in the next section.

Creating & Maintaining Defensible Space

Residents who live or work in the wildland interface must understand the question is not *if* a wildfire will threaten your home or business, but *when*. The one controllable factor that can determine whether or not a structure survives wildfire is the distance and quality of clearance of flammable vegetation from the structure. This basic truth is often difficult to impress upon residents of a wildland interface.

Vegetation adjacent to structures is a primary factor influencing whether the building survives wildfire. Plants are fuel, and function as a fuse between wildfire and structures. Defensible space is the modification and maintenance of vegetation surrounding structures, so that flammability and risk of damage to the structure by approaching fire is reduced.

The first 10-30 feet from the structure are by far the most critical. Other factors discussed in this section may necessitate fuel modification another 100 feet or more from structures.

Defensible space is not necessarily bare ground, but well-considered landscaping---firescaping. Appropriate, well-maintained vegetation can lessen both fire speed and intensity, allowing firefighters a place and opportunity for effective defense of structures. No unusual methods or tools are necessary.

Defensible space is created by:

- Altering plant arrangement.
- Maintaining low plant height.

- Increasing moisture content of vegetation.
- Decreasing the volume of flammable vegetation.

The 3 Rs of defensible space are:

1. Removal of flammable vegetation such as trees and brush.
2. Reduction of available fuel by pruning tree limbs, removing leaves and dead wood from shrubs, and cutting dead grass.
3. Replacement of hazardous vegetation with less flammable species that are planted in irrigated, maintained flowerbeds.

The First 10 Feet

In the first 10 feet surrounding a structure, anything is easily ignited including patio furniture, fencing, pine needles, leaves, grass, branches overhanging any part of the structure, roof and rain gutter debris, certain ornamental vegetation, firewood or stacked lumber must be removed or reconsidered. For instance, fencing should be fire resistant and patio furniture should be stored when you are away. Branches of large trees should be pruned up 15 feet in this area, and no closer than 10 feet from the structure. Smaller trees should be trimmed from the bottom up to 1/3 total height.

It is recommended that this area be paved, covered in stone or gravel, low, irrigated ground cover, weeded flower or vegetable gardens, or left as bare, mineral soil. Mineral soil is soil that has all organic material removed from its top layer.

The 30-Foot Benchmark

30 feet of clearance from the house is the absolute minimum distance recommended by the State. A ground fire unable to approach closer than 30 feet to a structure prevents direct flame contact and radiation. A 30-foot clearance creates an area in which firefighters are able to work.

In this area, flammable brush, shrubs, fuel ladders, and dead fuels on the ground and in trees must be removed. Dead grass should be mowed to no more than 2 inches. Leaves, pine needles, and other ground litter must be removed. Individual shrubs should be at least 30 feet from the house. Shrub separation distances are discussed below.

In the 10-foot to 30-foot area, tree branches should be pruned to at least 10 feet from the ground. Tree separation distances are discussed below. Stacked firewood, lumber and other piles of materials should be no closer, and preferably much further than 20 feet from the house, with three feet of bare mineral soil scraped around each pile. The same kind of vegetation described in the 10-foot area is appropriate here as well.

100 Feet from Structures

The space around a home that is 30 feet to 100 feet from the structure, if managed properly, can allow a wildfire that enters the property to slow, cool, and drop to the ground. Dead material larger than one-inch diameter should be removed. Fine fuels, dead material smaller than one-inch diameter, should be left in a layer of no more than 3 inches, or otherwise removed. Tree limbs should be pruned no less than 10 feet from the ground. Please review the guidelines below for height and spacing requirements for green vegetation.

Additional Considerations

The amount of work, or how much removal, reduction and replacement of vegetation to create defensible space on the rest the property requires the consideration of two factors: the slope of the property within 200 feet of structures, and vegetation (or fuel) types that surround it. Defensible space distance refers to the number of feet from any structure.

Vegetation Types on Properties:

- **Grasses:** wildland grasses and scattered brush with grass growing beneath it.
- **Brush:** different kinds of brush, such as sage, fremontia, ceanothus, manzanita, mountain mahogany, and pinyon.
- **Trees** include forested areas. But, if a significant amount of grass or brush grows beneath the forest canopy, then grass and/or brush should be considered the dominant vegetation when considering defensible space.

Planning Recommended Defensible Space

- **Flat to gently sloping (0-15%)** property surrounded by brushy vegetation: 100 feet of defensible space is necessary.
- **Moderately sloping (16-40%)** property: 100 feet of space is necessary when the property is bordered by grass and mature forest without understory. On moderate slopes surrounded by brush or forest with understory, 200 feet of clearance is recommended.
- **Steep slopes (+41%)**: 100 feet of space is critical when bordered by grass and 200 feet of space when bordered by brush or forest.

If recommended distances exceed the distance to the property boundary, collaborate with neighbors to create the necessary defensible space. Defensible space is increasingly effective when it is implemented on adjoining properties. If the adjoining property owner is unknown, contact the County for information. Landowner permission is required prior to undertaking work on a neighbor's property.

Insufficient clearance of surrounding or adjacent properties, even if otherwise conscientiously undertaken on one property, may result in firefighters bypassing a home and deploying elsewhere in order to protect structures with defensible space.

Types of Dead Fuels and Recommended Treatments

- **Snags**, or standing dead trees, must be removed within defensible space. Dead trees on the ground should be removed if they have fallen recently. Fallen trees that are decomposing into the duff (the organic, upper layer of soil where vegetative decomposition occurs) can remain, although all branches should be removed.
- All dead brush must be removed within defensible space.
- Pine needles in excess of 2" in depth should be removed.
- Leaves, twigs, branches and pinecones that are on the ground should be removed within defensible space.
- Firewood, stacked lumber, compost and hay should be stored a minimum of 30 feet uphill from the house—100 feet is best.

Vegetation Continuity or Coverage

Brush and timber can form dense, continuous, highly dangerous fuel beds. The more complete the coverage by brush and trees, the greater the hazard, since fire is offered an uninterrupted burn route or fuse. A key element in developing defensible space is breaking up the continuity and density of vegetation through separation.

Separation Recommendations

Brush separation distances depend upon slope and brush height. Separation involves both plant removal and pruning to reduce plant height.

- Flat to gently sloping ground (0-15% slope): separation distance between brush and shrubs should be twice the brush height. For example if brush height is two feet, then twice the brush height is four feet. Brush and shrubs two feet high should be maintained four feet apart.
- Moderate slopes (16-40%): separation distance should be four times brush height. Brush and shrubs two feet high should be maintained at a separation distance of eight feet.
- Steep slopes (41%+): separation distance should be at least six times brush height.

Tree separation distances are measured from the outer edges of the tree canopy rather than their trunks. Separation, of course, can be achieved only by removal. Decisions regarding selection of trees to leave, versus trees to remove should be undertaken by an experienced individual, as should actual felling of trees.

Canopy Separation Distances

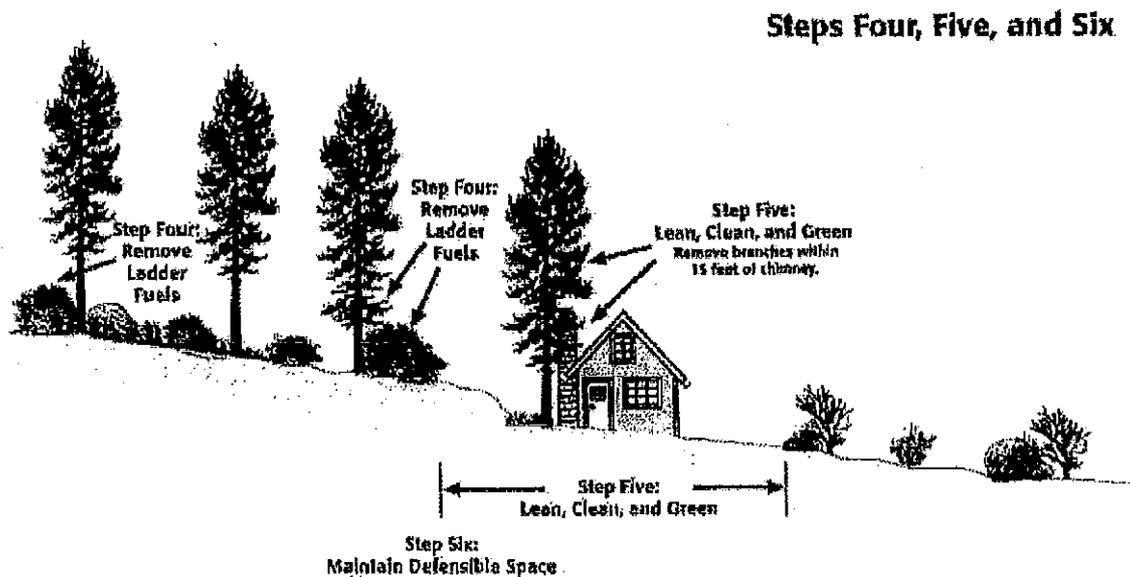
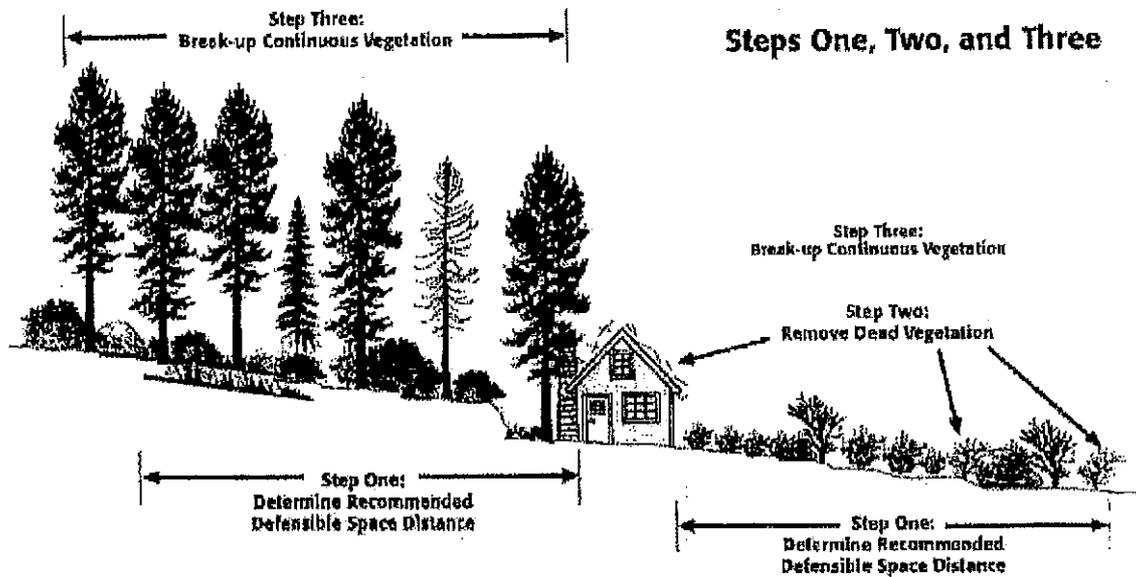
- Flat to gentle (0-15%) slopes: 10 feet minimum separation of trees.
- Moderate (16-40%) slopes: 20 feet minimum separation of trees.
- Steep (41%+) slopes: 30 feet minimum separation of trees.

Note of Caution:

Every tree is an individual and there is no "one size fits all" when it comes to pruning trees to enhance defensible space. It may take a tree several years to recover from a poor pruning job. Young trees obviously cannot handle a lot of limb removal. The best rule is to use good judgment and to seek advice from others when performing work on trees.

Ladder Fuels

Ladder fuels are layers of vegetation that once ignited, allow a ground or low-burning fire to climb into higher layers of vegetation. Very often, the higher the fire, the more intensely it may burn, the faster it may spread, and the greater its resistance to control. Grass and pine needles, for example, may ignite brush, which may in turn ignite low tree limbs and then torch forest canopies, allowing a ground fire to become a crown fire, a conflagration that blows from tree to tree.



Vertical separation of vegetation layers mitigates the ladder fuel risk. The standard for vertical separation between layers of vegetation is three times the height of the lower fuel: if brush three feet tall is growing beside a Jeffrey Pine, then there should be a distance of nine feet between the top of the brush and the lowest branch of the pine. Separation can be achieved by pruning the top of the bush or removing it, as well as removing lower tree branches.

Lean, Clean & Green

The "Lean, Clean & Green" philosophy emphasizes that particular care be given the area closest to the house, the most important in the defensible space concept. Within at least a 30-foot radius from the house, vegetation should be kept:

- **Lean**--only small amounts of flammable vegetation.
- **Clean**--no dead fuels or other flammable material.
- **Green**--plants are green and healthy during fire season.

Accomplishing Necessary Work

Large projects should be sketched to desired outcome before proceeding. Ask for advice from CDF, the Forest Service, Fire Safe Council, County Fire Department, and/or neighbors. If a person is not able to physically work and cannot afford to hire help, contact the Fire Safe Council to learn about available options.

If a professional is hired to assist, consider a landscape architect, landscape contractor, forester or registered arborist, or a tree service. In all cases, request proof of insurance, licenses, references, and obtain more than one estimate.

Slash Disposal

Even a modest amount of vegetation reduction and removal can generate impressive amounts of slash. The job is not complete until all slash is gone—do not procrastinate. Plan slash disposal strategy from the outset. If a dozer undertakes clearance on the property, tell the operator ahead of time to separate material into widely spaced small piles, rather than a large windrow. There are several basic methods to dispose of slash:

- Separate and salvage all firewood.
- Use a chipper to grind smaller material into mulch.
- Rent a large dumpster from the local waste disposal company or haul slash to the nearest landfill.
- Request an evaluation by CDF or the Forest Service regarding burning your piles. They will inspect your piles, provide excellent advice, advise regarding burning legalities, and issue a permit. Never burn without a permit and a careful reading of its conditions.

Maintenance of Defensible Space

Creating defensible space will be of little value if not adequately maintained. Establish a regular routine of maintenance; review planning annually, and schedule concentrated work time on the property each spring before the onset of fire season.

Reducing Structural Vulnerability

Homes are fuel. In a conflagration burning in dense vegetation and driven by high winds, temperatures may reach 2,000 degrees or more. In such conditions, everything will burn, however house location, design, and construction materials are key to limiting losses from most wildfires and are elements of defensible space strategies. Clearly, structures are far more likely to survive wildfire if steps have been taken to make it fire resistant. (Appendix: CalifLaw -- Assembly Bill 1216)

Location/Topography

Fire usually burns uphill and more intensely on hillsides as well. Hillside sites should be avoided, since they are difficult to protect. The increased flame length of fires burning upslope can directly expose structures to flames.

If building occurs on a ridge, structures should be set back at least 30 feet from the edge of the downhill slope in order to limit the same effects. Building should not be undertaken in saddles or at the top of steep draws in order to avoid the fire chimney effect of concentrated heat. Sites adjacent to large areas of continuous vegetation that are not managed to reduce fire hazard are also ill-considered.

Access

The road and/or driveway to a structure must offer a safe evacuation route as well as reasonable ingress for firefighters to respond quickly.

Driveways should be as short as possible with vegetation trimmed back 20 feet from the road edge. Large trees in this zone should be limbed no lower than 15 feet. Driveways longer than 50 yards should have turnouts at their midpoints or every hundred feet that allow vehicles to safely pass.

Water

If a home is not part of a community water storage and distribution system it should have at least 2,500 gallons of water storage in either a water tank, pond, or pool. A well is probably not adequate to deliver the volume of water necessary for firefighting.

Roofs

Most home losses are due to roofs catching fire. Wind-blown embers from a fire will find a burning environment among wooden shakes and shingles. A fire-resistant roof installation is perhaps the most important wildfire safety precaution for a structure.

Roofing is rated from A to C, based upon fire resistance, with C the least resistant. Class A roofs are much safer than mixed-class roofing. Clay, metal, and concrete tile roofing, as well as metal panels and composition shingles, can last decades. A fire resistant subroof is essential. Roofing must be installed so that embers cannot blow or fall into spaces between covering material.

When designing a home, one consideration should be that steep roofs permit embers to slide off more readily and allow less accumulation of tree litter. Additionally, all eaves should be enclosed.

Vents should be screened with fine mesh galvanized steel hardware cloth. This applies to foundation vents as well. Gutters should be metal with screens to help prevent debris build-up. Spark-arresting screening and/or chimney caps must conform to local codes. (Appendix: CalifLaw)

Windows

Windows and skylights are easily broken at low levels of fire intensity. Thermal pane glass should be used in all windows and skylights. It is preferable that there be no skylights at all. Window size and the number of windows should be reduced on sides of the house facing heavily vegetated areas. Operable metal shutters and fire resistant curtains should be considered.

Siding

With the obvious exception of shingle siding, wood siding itself is relatively fire resistant, but vulnerable to embers in vertical joints or where planks may overlap. Stained or painted siding retains higher fuel moisture content than untreated siding. Vinyl siding melts at relatively low temperatures and should be avoided. Stucco, stone and metal exterior walls are most desirable and should be backed by sheathing in order to prevent fire entry.

Doors

Solid metal doors, or steel-jacketed, insulated doors, while perhaps aesthetically unpleasing, offer maximum fire resistance. Solid core wood doors are a good second choice.

Decks and Porches

Decks and porches should be treated with retardant and enclosed beneath with fireproof materials. Awnings and covers of metal and fiberglass are fire resistant, while fabric should be avoided. Materials such as outdoor furniture, firewood and lumber should never be stored below. When decks are built over a slope, posts, girders and joists should be steel.

Other Structures

Outbuildings, fences, and arbor trellises should be constructed of metal or other fire resistant material. Outbuildings should be in a location where ignition will not compromise defense of the house. Flammable materials such as paint and gas should be stored well away from other structures. Propane tanks should not be enclosed and have at least 15 feet of clearance around them. The area beneath tanks must also be kept clean.

Swamp Coolers

Hardware cloth should be installed in back of the cooler pads to prevent embers from entering the house.

Pet Doors

If you must have pet doors, they should be installed so they can be sealed closed when you are away or in the event of wildfire.

Firescaping

Firescaping is defensible space landscaping. It is landscape design that limits the vulnerability of structures and property to wildfire. An appropriate landscape may be the primary factor in whether a structure survives wildfire. The goal is to create an environment surrounding structures that is not likely to burn in any but the most extreme conditions.

An effective firescape integrates defensible space concepts into the landscaping objectives of aesthetics, erosion management, entertainment environment, and wildlife habitat considerations.

Through careful selection, location, and maintenance of plants, firescaping reduces:

- Probability of ignition
- Fire rate of spread
- Fire intensity

Home Fire Safety

Smoke Detectors

In a fire emergency, functioning smoke detectors can mean the difference between life and death. Smoke detectors should be positioned on the ceiling just outside each bedroom. When bedroom doors are closed during sleep, an additional detector should be placed in the bedroom. More than half of all fatal house fires occur at night. Detectors will wake a family if a fire starts while sleeping. Make sure detectors are State Fire Marshall approved. Test monthly and change batteries annually in the fall at the end of daylight saving time.

Fire Extinguishers

Extinguishers are an essential emergency tool in every structure. Again, be sure they are State Fire Marshall approved. Extinguishers should be mounted in easy-to-reach spots. They must be checked annually to see that they have maintained their charge, and must be recharged or replaced after use.

VIII. PLAN AREA EVACUATION

If a wildland fire threatens communities in the plan area, fire command will determine if and when an evacuation is required. Notification can be made by several means: the San Bernardino County Telephone Emergency Notification System (TENS), law enforcement agencies driving through the affected neighborhoods going door to door, and public service announcements through local media outlets including community web sites.

Based on fire behavior and available egress routes, evacuees may be directed to temporary assembly areas or shelters that have been pre-determined by the High Desert Chapter of the American Red Cross. Evacuees may be directed to pre-established shelter-in-place zones if the fire threat is too immediate to allow for evacuations out of neighborhoods.

San Bernardino County Animal Control will direct small animal and livestock evacuation and shelter, and will assist with transportation.

Egress routes out of the plan area are affected by many natural conditions including fire, regular snow closures, flooding, mud or rock slides, avalanche, fallen trees, and earthquake. These conditions may restrict or eliminate potential evacuation routes. (Appendix: Evacuation)

Many residents of the plan area commute to jobs outside the plan area. The intermediate school and high school are also located outside the plan area. Evacuation or road closures may affect the reunification of families due to these factors.

IX. MONITORING & EVALUATION

Plan Monitoring

Plan monitoring is used to determine whether plans and goals identified within the WCWPP are valid for current circumstances. At the end of the year an accomplishment review should be prepared by development partners. The review should briefly describe implemented and non-implemented actions along with explanations of why activities were modified or not completed.

This plan will be modified to reflect changing conditions brought about by project implementation or natural occurrences.

Project Evaluation

Annual projects should be jointly developed by local agencies, USFS, CDF, SBCFD, and WFSC to identify how and when plans and goals identified within the WCWPP will be implemented.

Project evaluation should be used to measure success of actions as they are implemented. Project evaluation will be used to determine if any of the fuel treatments, educational strategies, or defensible space recommendations should be modified in response to condition changes brought about by plan implementation or natural occurrences, or when an action may no longer be necessary.

Initially, project evaluation would rely on San Bernardino County Code Enforcement statistics, USFS/CDF reports on fuel modification progress, and fire behavior in treated areas.

It is recognized that some cause-and-effect evaluations may require multiple years of monitoring before valid conclusions are reached.

Recommendations to change fuel treatments, educational strategies, or defensible space recommendations will be based on monitoring. The results of all plan monitoring and project evaluation will be reported in the accomplishment study and made available to partners and stakeholders.

X. CURRENT PROJECTS

Fuel Reduction

Hazardous fuels reduction must be addressed on public lands and private parcels in the plan area. Reducing hazardous fuels around homes, along transportation corridors and surrounding public lands can significantly minimize losses to life, property, wildlife, and natural resources from wildfire. The core focus of the WCWPP is reducing losses to life and property and helping protect the plan area by reducing hazardous fuels while moving toward a more fire-adapted ecosystem.

Below is a brief description of current fuels reduction projects:

Big Pines Fuel Reduction Project – Status: In progress

(Appendix: TEAMS Enterprise – [Map](#) - [Document](#))

The Big Pines area is designated as **zone C** in the WCWPP. This plan also affects **zone D**, Table Mountain. The purpose of the Big Pines Fuel Reduction Project is to provide community protection by reducing fire intensity around special-use organizational camps, the Big Pines Historic District, ski resorts, a NASA/Jet Propulsion Laboratory facility, the McClellan Flat recreation cabins, and the Big Pines Visitor Information Station. Existing conditions in the project area have a significant proportion of dead and dying pine trees and white fir. The forest stands and understory are dense; ladder fuels are abundant and conducive to high intensity stand replacement fire. Dense chaparral, along Big Pines Highway, is also conducive to intense fire and poses a threat to life and property.

The overall desired forest condition is to maintain a vegetative structure where fire intensity is low, with average flame lengths of four feet or less, and where fire suppression is effective, rapid, and safe. Therefore, there is a need to reduce standing dead and live fuels, ladder fuels, and the continuity of understory and chaparral fuels in order to meet the project objectives and the desired future condition of the project area.

Treatments focus on creating an open, park-like stand with widely spaced overstory trees (conifers and hardwoods), with scattered shrubs and small trees in the understory and herbaceous plants on the ground. Surface and ladder fuels are to be maintained at low enough levels to avoid crowning, torching, and other severe fire behavior. Chaparral will be removed in shrub fields and forest stands, thereby breaking up the vegetative continuity to reduce the risk of high intensity fire to low, with average flame lengths of four feet or less, providing for effective, rapid, and safe fire suppression.

Lone Pine Canyon Fuels Reduction Project – Status: In progress

(Appendix: TEAMS Enterprise – [Map](#) - [Document](#))

This plan is designed to offer protection for the plan area by creating a fuels buffer on the National Forest area of Lone Pine Canyon. This area is designated as **zone F** in the WCWPP. Lone Pine Canyon is an area of chaparral fuels with scattered clumps of coniferous trees. Due to the density of chaparral in this area, there is a higher than normal chance of an uncontrollable fire running up the canyon as if in a funnel. This project is designed to mitigate the increased potential by giving the fuels a mosaic appearance over time. This mosaic would support the Forest Land Resource Management Plan's (FLRMP) preferred alternative as indicated on IV-30 of the FLRMP.

Watershed Recovery Project

Through the Natural Resources Conservation Service (NRCS) Watershed Recovery Project funding has been provided to remove dead and dying trees in selected southern California counties. San Bernardino County Fire Department is administering NRCS funds and is working with the Wrightwood Fire Safe Council to identify private land parcels in the plan area that require the removal of dead, dying or hazardous trees. As of December 2004, approximately 100 trees have been removed, with additional block projects in process that address parcels in and around the Wrightwood community. NRCS regulations prohibit activity on slopes greater than 40 percent. Many of the large undeveloped parcels on the perimeter of Wrightwood will not be included in the NRSC projects. See Proposed Projects.

Southern California Edison – Status: In progress

In April 2003, the California Public Utilities Commission (CPUC) directed Southern California Edison (SCE) and other utilities in the affected counties to take all reasonable and necessary actions to remove trees that could pose safety hazards and cause electric service interruptions.

SCE is responsible for removing dead or dying trees that could fall into its electrical facilities based on the following criteria: the height of the tree must be equal to or greater than its horizontal distance from SCE's lines or facilities, and it must be dead or dying.

Through mid-October 2004, SCE has removed approximately 98,500 dead or dying trees. Approximately 86,100 of those were in San Bernardino County. SCE anticipates the vast majority of future removals will be dying—not dead—trees.

Education

Wildfire Awareness Day

The First Annual Wildfire Awareness Day, organized by the Wrightwood Fire Safe Council (WFSC), was held in 2004. This major event drew 1,000 attendees—a significant number for the area's population. Representatives from San Bernardino County Fire, Angeles National Forest, and the California Department of Forestry and Fire Protection participated in the event, along with a Forest Service entomologist, who answered questions regarding the Bark Beetle problem facing Southern California forests.

Exhibits included fire fighting equipment, examples of bark beetle activity, and San Bernardino National Forest's "Wildfire Education Experience". The WFSC prepared a comprehensive document on Healthy Forest Practices and information on effective watering techniques. Maps illustrating three proposed fuel reduction projects were displayed, and WFSC members, along with agency representatives spoke to attendees and answered questions about the projects.

Healthy Forest Restoration Guidelines Handout

This document was created by the Wrightwood Fire Safe Council to educate plan area stakeholders on methods to create a healthy forest environment around their homes. Also included is information on proper tree watering techniques. (Appendix: WFSC)

Wrightwoodfsc.com

WFSC has established a community web site that contains a document library that includes fire safety information, county and state ordinances, healthy forest practices, and information regarding community

meetings and schedules. Guidelines and reimbursement forms are available for plan area stakeholders who have removed dead and dying trees eligible for removal by SCE.

Educational Presentations

The WFSC has developed an educational presentation that discusses fire safety, healthy forest practices, and fuel reduction recommendations

San Bernardino Mountain Safety Resource Guide

San Bernardino County created a publication which was mailed to plan area residents that includes information on preparing for wildfire.

"Living with Wildfire" Newspaper Insert

This publication was created by several collaborative organizations. It was distributed as an insert in San Bernardino County newspapers. The publication discusses fire safety and preparedness specific to WUI residents.

Community Projects

Adopt-a-Hydrant Program

The Wrightwood Fire Safe Council has established a program to keep fire hydrants clear of weeds, snow, and other obstacles. Hydrants are being repainted and marked with reflective tape. Missing marker poles will be replaced and existing poles will have reflective tape applied as needed. As a result of the program, the Wrightwood community now has an accurate map locating all fire hydrants. This map will be used by local fire station 101 for dispatching, and copies will be carried in all emergency vehicles and strike team books.

Chipper Day

To encourage residents to reduce fuels around structures, the Wrightwood Fire Safe Council sponsored a Chipper Day, where residents brought slash to a central location. Materials were chipped and redistributed for mulch.

Residential Inspections

The WFSC performs on site inspections to help stakeholders with healthy forest practices and creating defensible space around structures. Council members also assist in identifying dead or dying trees that are eligible for the SCE tree removal program.

Weed Abatement

The WFSC works with plan area residents and San Bernardino Code Enforcement to help resolve disputes on yearly property inspections.

XI. PROPOSED PROJECTS

Fuel Reduction

Wrightwood Project Proposed Action – Status: Under final plan development

(Appendix: TEAMS Enterprise – Map or Document)

The defined project area (zones A and B in WCWPP) does not meet desired conditions as defined by the Angeles National Forest Plan. Currently, this area contains dead and dying conifers due to drought, bark beetle activity and disease. Existing fuel breaks are incomplete or have not been maintained. A collaborative wildfire risk reduction strategy has not been implemented. Most forested stands in the project area are susceptible to moderate- to high-intensity fire, insects, and disease. Forest and woodland understory plant communities are deficient and chaparral/shrub fields are abundant.

These conditions conflict with the overall desired condition for the project area as defined by the forest plan:

- Reduce fuel hazards by means of fuel breaks and age-class management of chaparral (Forest Plan 4-32).
- Modify fuel conditions to reduce fire behavior to a level commensurate with resource management objectives, and protect values on and adjacent to the forest. Fire intensity would average flame lengths of four feet or less and fire suppression would be effective, rapid, and safe (Forest Plan 4-32).
- Coordinate fuels management activities with those on adjacent private land and other agencies (Forest Plan 4-32).
- Keep pest-related damage at acceptable levels emphasizing prevention through silvicultural procedures such as thinning and control of species composition to reduce tree stress (Forest Plan 4-11). The forest would generally be healthy, vigorous, and diverse.
- Manage timber stands to provide a recreation forest (Forest Plan 4-52). The forest would have an all-aged or irregular-sized structure, with old growth trees being retained as long as possible, controlled stocking levels, mixed species composition, healthy, vigorous trees, and a near natural appearance.
- Reduce the potential for loss of forested areas to uncontrolled fires (Forest Plan 4-52). Silvicultural treatments that emphasize the fire resistance of the stand would be emphasized.

Therefore, there is a need to implement collaborative fuel reduction actions, reduce standing dead and live trees, modify species composition, regenerate chaparral/shrub fields, and create fuel breaks to meet the project objectives and the desired future condition defined by the Angeles National Forest Plan.

XII. POTENTIAL PROJECTS

Fuel Reduction

Large Undeveloped Parcels

Many of the parcels requiring treatment are beyond the current scope of NRCS program due to slope percentages greater than 40%. Fuel modification on these parcels will require special removal techniques funded by private, state, federal or grant funds.

Pinon Mesa

Pinon Mesa (identified as compartment 5405 in the zone A risk assessment) has the highest hazard rating in the Swarthout Valley. There are numerous homes on the mesa, which is at the top of a steep slope covered with extremely dense fuels, and only one egress route out of the area. The WFSC is working with San Bernardino County Fire Department, CDF, and NRCS to develop a strategy to mitigate the serious fire threat presented by this compartment and thereby creating a safety zone/anchor point for suppression efforts. (Appendix: Pinon Mesa)

State Highway 2

The clearance of hazardous vegetation along State Highway 2 is a collaborative effort between the Wrightwood Fire Safe Council, Wrightwood Property Owners Association, and Wrightwood Municipal Advisory Council, and Caltrans. This will be an on-going project to maintain safe clearances throughout the spring, summer, fall, and winter, as required. (Appendix: Caltrans - Letter - Vegetation Control)

The specific sections of Highway 2 easements that require removal of hazardous vegetation is from the Los Angeles/San Bernardino County line to the junction of Highway 138. Within this section, the prioritization is as follows:

1. Mile marker 2.79 to the Sheep Creek Bridge
This section has the largest concentration of fuels, and according to USFS and San Bernardino County wildfire risk assessments, it is adjacent to the area with the most hazardous fire conditions in the community. This area is downslope of Pinon Mesa.
2. LA/SB county line to mile marker 3.40
3. Mile marker 3.40 to Highway 138

County Flood Control Properties

Within the plan area, there are a number of county properties that have not been maintained with respect to brush clearance per county code. Attempts to have these conditions remedied have to date met with no success. Further intervention is required from the office of the San Bernardino County Fire Marshall.

Education

Healthy Forest Workshops

The WFSC long term plans for education include: Healthy Forest Workshops for area stakeholders, educational seminars presenting experts in the field of healthy forest restoration, and promoting use of native and fire resistant vegetation, and landscape planning. The WFSC has begun vegetation reduction and dead tree removal on a large, undeveloped parcel to help demonstrate the benefits of healthy forest practices.

Community Projects

Emergency Response Enhancement Program

Currently many structures in the plan area do not have adequate address markings—and many do not have *any* markings. Although more recent building codes require lighted address markers, a majority of structures, built prior to code revisions, are not sufficiently marked. The WFSC is working toward attaining funds to ensure all plan area structures are identified with address numbers providing visibility in all conditions to improve response times to emergency calls. Emergency service assets currently waste precious time searching for unmarked streets and structures.

Return and Recovery After Evacuation

The WFSC believes it is crucial to plan for return and recovery after a wildfire. Focus at this time must be on preparedness and prevention. Future revisions of this document will include a comprehensive evaluation of the needs in these areas.

Communications and Information

The County Fire Department has a long upheld tradition of personally providing information to community members during fires and other disasters by manning a community information kiosk. This point of contact with the department has served to keep community members prepared, informed, and calm through many fire seasons. Efforts must be made to actively coordinate with San Bernardino County Fire and the Forest Service to ensure this service is provided in the future.

Hydrant Snow-removal Project

The WFSC is seeking funds to assist in the removal of snow around fire hydrants that have not been adopted which are located in the business area of Wrightwood.

XIII. COMMUNITY HAZARD REDUCTION PRIORITIES

BASE MAP

Pinon Mesa

Establish a safety zone/anchor point for fire suppression and improve fire response capability to protect structures on Pinon Mesa.

Large Undeveloped Private Parcels

Seek grants to assist owners with fuel mitigation projects on parcels that surround the community to reduce wildfire risk to community and critical infrastructure.

Wrightwood Fuel Reduction Proposal

Create shaded fuel breaks surrounding Swarthout Valley to protect the community, natural and man-made resources, communications infrastructure, recreational facilities, and to improve wildlife habitat for a sensitive Bighorn sheep population.

Lone Pine Canyon

Establish fuel breaks and perform prescribed burns to produce a small-pattern mosaic of varying aged growth, help improve wildlife habitat, and to protect historic structures.

Big Pines Fuel Reduction

Establish a safe egress corridor through the west end of the plan area. Protect critical government assets at the NASA/JPL Table Mountain Observatory. Protect structures in the designated Big Pines historical district, recreational assets including organizational camps, and improve wildlife habitat.

Watershed Recovery (NRCS)

Eliminate dead, dying, and diseased hazard trees from private parcels to reduce wildfire risk to the community, natural and man-made resources, and critical infrastructure.

Southern California Edison

Eliminate potential ignition sources through the removal of dead, dying, and diseased trees adjacent to power lines to reduce wildfire risk to residences, the commercial district, natural and man-made resources, recreation areas, and critical infrastructure.

Highway 2

Establish a safe egress route through the plan area and remove potential ignition sources from this major transportation corridor to reduce wildfire risk to residences, the commercial district, natural and man-made resources, recreation areas, and critical infrastructure.

Flood Control Channels

Ensure County Flood Control complies with County Code regulations to maintain required brush clearances to protect structures and a well critical to the community's water supply.

XIV. ACRONYMS AND ABBREVIATIONS

ANF	Angeles National Forest
ARC	American Red Cross
BA	Basal Area
CDF	California Department of Forestry and Fire Protection
CT	Commercial Thin
CWPP	Community Wildfire Protection Plan
dbh	Diameter at Breast Height
FEMA	Federal Emergency Management Agency
FS	Forest Service
GIS	Geographic Information System
HFI	Healthy Forests Initiative
HFRRA	Healthy Forests Restoration Act of 2003
HP	Hand Pile
ICS	Incident Command System
JB	Jackpot Burn
LS	Lop and Scatter
MAS	Masticate
NF	National Forest
NFP	National Fire Plan
NWS	National Weather Service
OES	Office of Emergency Services
OHV	Off Highway Vehicle
RT	Recommended Treatment
PCT	Pre-Commercial Thin
PRUNE	Prune Branches
SMZ	Stream Management Zone
SBCFD	San Bernardino County Fire Department
SBNF	San Bernardino National Forest
SR	State Route
TENS	San Bernardino County Telephone Emergency Notification System
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WCWPP	Wrightwood Community Wildfire Protection Plan
WUI	Wildland Urban Interface

XV. GLOSSARY

Burnable Acres: Any vegetative material/type that is susceptible to burning.

Community at risk: At-Risk Community—In Title I of the HFRA, this term means an area comprised of an interface community as defined in the notice *Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire* issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with Title IV of the U.S. Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat.1009) (66 FR 753, January 4, 2001).

This refers to a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to Federal land and in which conditions are conducive to a large-scale wildland fire disturbance event and for which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

Condition Class: Based on coarse scale national data, Fire Condition Classes measure general wildfire risk as follows:

Condition Class 1. For the most part, fire regimes in this Fire Condition Class are within historical ranges. Vegetation composition and structure are intact. Thus, the risk of losing key ecosystem components from the occurrence of fire remains relatively low.

Condition Class 2. Fire regimes on these lands have been moderately altered from their historical range by either increased or decreased fire frequency. A moderate risk of losing key ecosystem components has been identified on these lands.

Condition Class 3. Fire regimes on these lands have been significantly altered from their historical return interval. The risk of losing key ecosystem components from fire is high. Fire frequencies have departed from historical ranges by multiple return intervals.

Vegetation composition, structure and diversity have been significantly altered. Consequently, these lands verge on the greatest risk of ecological collapse. (Cohesive Strategy, 2002, in draft)

Fire Management Planning: A generic term referring to all levels and categories of fire management planning, including: preparedness, prevention, hazardous risk assessment, and mitigation planning.

Fire-prone Ecosystem: Ecosystems that historically burned intensely at low frequencies (stand replacing fires), those that burned with low intensity at a high frequency (understory fires), and those that burned very infrequently historically, but are now subject to much more frequent fires because of changed conditions. These include fire-influenced and fire-adapted ecosystems (Cohesive Strategy, 2000).

Firescaping: Landscape design that reduces house and property vulnerability to wildfire. The goal is to develop a landscape with a design and choice of plants that offers the best fire protection and enhances the property. The ideal is to surround the house with things that are less likely to burn.

Fire Regime: A generalized description of the role fire plays in an ecosystem. It is characterized by fire frequency, predictability, seasonality, intensity, duration, scale (patch size), as well as regularity or variability. Five combinations of fire frequency, expressed as fire return interval in fire severity, are defined:

Fire Regime I—This term means an area that historically has had low-severity fires every 0 to 35 years and that is located primarily in low-elevation forests of pine, oak, and pinyon-juniper

Fire Regime II—This term means an area that historically has had stand-replacement-severity fires every 0 to 35 years and that is located primarily in low- to mid-elevation rangeland, grassland, or shrubland

Fire Regime III—This term means an area that historically has had mixed-severity fires every 35 to 100 years and that is located primarily in forests of mixed conifer, dry Douglas-fir, or wet ponderosa pine

Firewise: A public education program developed by the National Wildland Fire Coordinating Group that assists communities located in proximity to fire-prone lands. (For additional information visit the web site at: <http://www.firewise.org>)

Forbs: Any broad-leafed, herbaceous plant other than those in the Poaceae, Cyperaceae and Juncaceae families.

Fuel Breaks: A generally wide (50 to 1,000 feet) strip of land on which native vegetation has been permanently modified so that a fire burning into it can be more readily controlled.

Healthy Forests Initiative: On August 22, 2002, President Bush established the Healthy Forests Initiative, directing the Departments of Agriculture and the Interior, and the Council on Environmental Quality, to improve regulatory processes to ensure more timely decisions, greater efficiency, and better results in reducing the risk of catastrophic wildland fires.

Healthy Forests Restoration Act: The Healthy Forests Restoration Act of 2003 contains a variety of provisions to expedite hazardous-fuel reduction and forest-restoration projects on specific types of Federal land that are at risk of wildland fire or insect and disease epidemics. The act helps rural communities, States, Tribes, and landowners restore healthy forest and rangeland conditions on State, Tribal, and private lands.

National Fire Plan: In 2001, the U.S. Congress funded the National Fire Plan to reduce hazardous fuel and restore forests and rangeland. In response, the Secretaries of Agriculture and the Interior, along with Western Governors and other interested parties, developed a 10-year strategy and implementation plan for protecting communities and the environment.

Restoration: The active or passive management of an ecosystem or habitat toward its original structure, natural compliment of species, and natural functions or ecological processes (Cohesive Strategy, 2000).

Severe Wildland Fire: Fire that burns more intensely than the natural or historical range of variability, thereby fundamentally changing the ecosystem, destroying communities and/or rare or threatened species/habitat, or causing unacceptable erosion (OAG/T-RCED-99-79) (Society of American Foresters, 1998).

Silvicultural: The art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable level.

Sporax: (tetrasodium borate decahydrate) applied to all cut conifer stumps of live trees and trees greater than 8" in diameter that have died within the last year to prevent infection by annosus root disease.

TENS - Telephone Emergency Notification System, formerly referred to as "reverse 911," can dial all of the known phone numbers in a chosen geographical area and provide those who answer with pre-recorded emergency information. The Sheriff's Department has the authority to activate the system at the request of the incident commander for a particular emergency.

Wildland Urban Interface: The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel.

Windrow: Brush, wood, etc., concentrated (usually by machine) along a line, to clear the intervening ground for regeneration.

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