

# **CAL FIRE**

## **SAN BERNARDINO**

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### 2009 Unit Fire Plan

**San Bernardino County MAST**  
“Mountain Area Safety Taskforce”



***Consistency, Continuity, Efficiency, Effectiveness,  
Collaboration & Cooperation.  
Working Together for the Future!***

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**SAN BERNARDINO UNIT**

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June 1, 2009



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**PLAN APPROVAL**

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DOUG MCKAIN, UNIT CHIEF

DATE

## EXECUTIVE SUMMARY

The San Bernardino Unit is the largest of all CAL FIRE Units. Its eastern edge takes up almost 2/3 of the California boarder along Arizona and Nevada, and is made up of three counties, Mono, Inyo and San Bernardino.

The San Bernardino Unit administers Approximately 900,000 acres of State Responsibility Area (SRA) in the three Counties. Approximately 532,000 acres are located in the Inyo and Mono Counties, with the balance located in the southern portion of San Bernardino County.

Currently San Bernardino Unit contracts with the Cities of Yucaipa and Highland for medical, structural and wildland fire protection and has wildland fire protection agreements with the cities of Chino, Chino Hills, Loma Linda and Redlands. These wildland contracts add over 18,000 acres to the San Bernardino Unit's wildland fire protection responsibilities.

Additionally San Bernardino Unit is responsible for the administration of approximately 500,000 acres of SRA within the County of Los Angeles.

San Bernardino Unit operates nine state fire stations, six city stations, four conservation camps, one regional training center for inmates, one heli base and one large air tanker base. Two of the state fire stations and one of the conservation camps are located in Inyo County and are referred to as the Owens Valley Division. Although over sixty percent of the Units SRA acres are in the Owens Valley Division, less then ten percent of the Units SRA fires occur in the Division. Fire occurrence in the Owens Valley Division is directly related to the amount of highway traffic and recreational use in the area, rather than any population growth, because the Division is primarily a major tourist destination. San Bernardino County however, has had a very rapidly growing population. Population increases have had a significant effect on the wildland fire problem in the Wildland Urban Interface areas within the Unit.

In 2000 the Mountain Area Safety Taskforce or MAST was formed. MAST is a coalition of local, state and federal government agencies, private companies and volunteer organizations, in San Bernardino and Riverside counties working together to help prevent catastrophic wildfires, and to address the public safety concerns affiliated with the Wildland Urban Interface. The San Bernardino Unit continues to be an active participant in MAST and its efforts to coordinate projects related to public safety, fuel reduction and forest health. MAST operational meetings are held monthly where projects by the various agencies are coordinated to help insure the best use of public funds, develop more effective fuel reduction projects and educate the public. The MAST has achieved a remarkable degree of success in this interagency cooperative environment, and CAL FIRE San Bernardino Unit is proud to be a part of this effort.

Doug McKain  
Unit Chief

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## GOAL AND OBJECTIVES

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***The overall goal of the San Bernardino Unit Fire Plan is to reduce total costs and losses from wildland fire in the Unit by protecting assets at risk through focused prefire management prescriptions increasing initial attack success and through engaged collaboration with local stakeholders and public agencies.***

The San Bernardino Unit Fire Plan has five strategic objectives:

- 1) To create wildfire protection zones that reduces the risks to citizens and firefighters.
- 2) To assess all wildland areas, not just the state responsibility areas. The analysis will include all wildland fire service providers - federal, state, local government, and private.
- 3) To identify and analyze key risks and issues so that recommendations for changes in public policy may occur.
- 4) To have a strong Unit fiscal policy focus in order to affect the maximum of available funding sources for wildland fire protection projects.
- 5) To translate these analyses into “on the ground” accomplishments by focused collaboration efforts with public and private partners..

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## FIRE PLAN FRAMEWORK

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Five major components will form the basis of an ongoing fire planning process to monitor and assess the San Bernardino Unit's wildland fire environment:

- 1) **Wildfire protection zones.** Areas of low fire risk intended to buffer communities from devastating wildfire.
- 2) **Initial attack success.** Measurements of the percentage of fires that are successfully controlled before unacceptable costs are incurred. This measure can be used to assess the department's ability to provide an equal level of protection to lands of similar type.
- 3) **Assets protected.** The assets addressed in the plan are citizen and firefighter safety, watersheds and water, timber, wildlife and habitat (including legally protected species), unique areas (scenic, cultural, and historic), recreation, range, structures, property, and air quality.
- 4) **Prefire management.** This aspect focuses on evaluating which prefire activities to best protect assets from wildland fires. Specific themes of these activities include the Unit fire prevention collaboration at every opportunity, management of fire-prone vegetation, the management of fire ignition sources, fire prevention enforcement and education, and implementation of fire safe concepts in all existing and planned urban areas at risk from wildfire.
- 5) **Fiscal framework.** A framework to evaluate and insure that the most cost-effective means are being used to protect assets from wildfire.

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## STATUS OF FIRE MANAGEMENT IN THE SAN BERNARDINO UNIT

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- Components of the San Bernardino Unit's Fire Plan process are being evaluated and verified using computer models, field surveys, community stakeholder involvement and historical data.
- Thirteen Fire Safe Councils exist within the Unit. Planning projects range from community clean-up days to fuel break improvements. Significant vegetation mortality resulting from several years of sustained and record setting drought and bark beetle infestation has increased the fire danger throughout the Unit but most significantly in the mountain communities. The Fire Safe Councils have been instrumental in, project implementation community outreach, public information, as well as representing the public on the Mountain Area Safety Taskforce (MAST) and support of CAL FIRE with its efforts to get increased awareness of fire safety.
- MAST began removing dead and dying trees under state and federal grants, including a \$70 million grant from the USDA's Natural Resources Conservation Service. At the height of the program, Southern California Edison contractors were taking out 650 trees a day. Since 2004, MAST members have removed more than 1.5 million dead or dying trees, and more are being taken out every day.

- Annual fire safe inspections are being conducted. Engine companies are conducting LE 100 inspections. An effort is being made to have engine companies make face to face contact with every homeowner in the highest risk areas that are experiencing the greatest degree of vegetation mortality. Additionally, due to the significant increase in timber removal operations, commercial operations have been targeted as presenting a greater than average threat of causing an ignition. All MAST agencies are being instructed in what fire prevention/safety requirements that CAL Fire, local San Bernardino county fire districts and the US Forest Service require.
- Work on the ground has begun on a collaborative fuel break project with the Forest Service and the Riverside Unit, in the Oak Glen/Yucaipa area. The Fuel breaks are intended to provide protection for the communities of Oak Glen, Yucaipa, Cherry Valley and surrounding areas. Because of the intermix of federal and private land, a collaborative approach is necessary to develop a viable project that will provide firefighters a potential control line in these areas. Some work has begun on the ground and planning is ongoing. See Appendix 5,6,7,8
- Planning has begun for a fuel reduction project in the Rovana area of Inyo County. The project will reduce heavy concentrations of live and dead fuels in a riparian corridor which historically carry fire in the Owens Valley.
- Several fuel reduction and fuel break projects have been identified in a draft CWPP for Inyo and Mono Counties. The San Bernardino Unit will be working with Fire Safe Councils and local government to evaluate and implement projects.
- A cost share fuel reduction program for small private landowners named Forest Care has been developed and is currently operating in San Bernardino and Riverside County. The program is a collaborative program between CAL FIRE and the San Bernardino National Forest Association (SBNFA), with funding from the US Forest Service. Forest Care combines the strengths of CAL FIRE (professional resource managers, name recognition, surety of a government organization) with SBNFA (fiscal and organizational nimbleness) to provide a small diameter fuel reduction program for forested landowners with 20 acres or less and is specifically targeted to small residential lots, typically one quarter acre or less.

Currently the program has treated over 1,000 private parcels and has funding to treat approximately 2500 additional parcels. Forest Care has partnered with both San Bernardino County Fire/Public Works/Code Enforcement, local fire districts and the US Forest Service to promote appropriate thinning in all areas of the community. Additionally, preliminary work has begun on establishing a similar program in Mono and Inyo Counties. See Appendix 2

- Fuel reduction is being carried out in support of the San Bernardino Sheriff's Evacuation Guideline for the Mountain Communities version 2009 and several community fire defense projects in the Crestline, Lake Arrowhead and Big Bear areas.

- Fuel break and fire access road improvements, Community Defense Fuel Modification, points of refuge and essential service sites have been identified for enhanced protection, prioritized and scheduled under MAST coordination, per the Incident Action Plan. See Appendix 9,10,11,12
- Public education programs are being conducted to promote fire safety from a pre-fire management/fire prevention perspective. The focus of MAST has expanded to include the strategic removal of green vegetation and thinning live trees in densely wooded areas. Property owners also are being informed of the need to thin the live trees and vegetation on their property to gain an upper hand on the bark beetle infestation and reduce the risk of catastrophic wildfires.
- Unit Fire Prevention staff in cooperation with Southern California Edison are conducting inspections of electrical utility lines for compliance with clearance and maintenance regulations throughout the Unit. Enhanced Forest Practice Act law enforcement inspections are underway due to the huge increase of dead, dying and diseased tree cutting activity by Southern California Edison and other private contractors in the San Bernardino mountains.
- San Bernardino Unit personnel are assisting the Inland Empire Fire Safe Alliance and other Fire Safe Councils with the development of Community Wildfire Protection Plans (CWPP) in support of their efforts to obtain federal fire prevention assistance funding. These efforts are also showing positive results with regard to public awareness of the wildland fire risks in their communities.
- The San Bernardino Unit in conjunction with CSR Resource Management Staff as well as Sacramento FRAP staff has begun beta testing and use of the WinDET program, a GIS Data Base program. The program will track spatially as well as empirically fuels reduction and other land treatment projects.
- The San Bernardino Unit continues to be active in the Mountain Area Safety Taskforce (MAST) and its efforts to coordinate projects related to public safety, fuel reduction and forest health. MAST operational meetings are held monthly where projects by the various agencies are coordinated to help insure the best use of public funds, develop more effective fuel reduction projects and educate the public. The MAST has achieved a remarkable degree of success in this interagency cooperative environment.
- Unit personnel in collaboration with local Fire Safe Council grant funds and planning efforts have been instrumental in the establishment of community fire defense projects in the Wrightwood, Crestline, Twin Peaks Big Bear and Oak Glen areas and more are being planned throughout San Bernardino mountain communities.

- Chino Valley Independent Fire District (CVIFD) has applied for and is now implementing a Federal Emergency Management Agency (FEMA) fuels reduction grant for the Sleepy Hollow area in Carbon Canyon. While CVIFD is the lead agency on the project, CAL FIRE has provided technical support, through the Unit Forester, to guide the District in developing the project. Currently, the planning and environmental review is nearly complete. CAL FIRE will continue to provide the CVIFD with technical support as well as providing hand crews for the implementation of this fuels reduction project.

This important project is located in an area characterized by roads with very poor access and heavy fuel loading right up to the edge of homes. Despite a fire in the fall of 2008 which burned very close to the community, danger from wildfire is still very high. This project will help protect both the community from wildfires threatening homes as well as protect the Chino Hills State Park from fire coming out of the community.

- The City of Big Bear Lake, in collaboration with the MAST has received a grant to replace shake shingle roofs. Part of the stipulations for the homeowner to receive grant funds is that the property must meet, and pass inspection of the PRC 4291 defensible space requirements that have been set forth by CAL FIRE.

## STAKEHOLDERS

A stakeholder is defined as any person, agency or organization with a particular interest - a stake - in fire safety and protection of assets from wildland fires. Fire Safe Councils are a way for stakeholders in the San Bernardino Unit to become involved in risk identification and appropriate community fire defense plans and projects.

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### FIRE SAFE COUNCILS IN THE SAN BERNARDINO UNIT

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The Unit continues to develop Fire Safe Councils by identifying and targeting individuals and organizations with an interest in hazard reduction and fire safety. There are currently 13 Fire Safe Councils active within the San Bernardino Unit. See Appendix #3.

#### **Goals:**

- To develop local community participation in pre-fire planning projects and events.
- To establish Fire Safe Councils with the intention of mobilizing private citizens within the communities who share a common, vested interest in wildland and urban fire prevention and loss mitigation.

Recent accomplishments include incorporation of all councils as non-profit/501c3 tax exempt entities, the final word in community fire prevention organizations in their respective communities, networking with local, state and federal agencies, as well as with other community groups with the goal of more effective citizen awareness and commitment.

Committees have been established in all 13 councils in order to explore the availability of grant money and to determine funding sources for all manner of pre-fire projects. Work progresses on pre-fire issues such as fuel modification zones, residential smoke alarms, road access identification, hazard reduction, residential housing addressing, demonstration forests, LE-100 inspections and public information and education, targeted community outreach efforts to communities interested in establishing their own fire safe councils and much more. The San Bernardino Unit has elected to support and advise Fire Safe Councils in their quest for funding. As such, Fire Safe Councils have been successful in obtaining more than \$800,000 in federal National Fire Plan funding for operations, planning and pre fire projects throughout the Unit.

Community meetings are held during the year and working group meetings held constantly throughout the council areas with the goal being to increase the effectiveness of all Fire Safe Councils.

Additionally, all San Bernardino Unit Fire Safe Councils and several from the Riverside Unit have collectively organized to form the "Inland Empire Fire Safe Alliance". The goal of this organization is to further enhance the political, fundraising and on-the-ground effectiveness of all member Fire Safe Councils.

## The IEFSA purpose is to:

- promote consistent and comprehensive collaborative community stakeholder messages regarding forest health and fire safe concepts to citizens
- serve as a centralized resource for literature and other media on urban wildland interface, defensible space and forest health
- provide grant administration, writing, and reporting for those councils without the resources to perform these functions; coordinating the member councils to assist one another or contracting the professional services on behalf of the Alliance
- offer to serve as fiscal sponsor to areas without 501c3 status, if needed
- create a one-stop shop for information and research; using the existing councils and their personnel and professional resources to investigate issues and bring to the network
- develop of a monthly newsletter to member FSC's and agencies
- maintain the [www.fireinformation.com](http://www.fireinformation.com) website in conjunction with agency PIO's
- provide coop insurance policy for those without other insurance options
- coordinate regional contracts for equipment, labor, projects to reduce costs
- help organize community presentations, school programs, etc. for those member councils needing this assistance
- provide a "speakers bureau" drawing upon the talent and expertise of various individuals within the Alliance and its member councils
- most importantly, provide a forum for discussion of issues, challenges and successes

## Benefits

- Agencies can contact one organization rather than 13-plus for rapid dissemination of information via email trees etc.
- Assistance to PIO's can help them prepare concise message
- Reduce council expenses due to co-op agreements (i.e. insurance)
- Identification of regional projects will reduce redundancy
- FSC concept can be embraced more readily in some smaller areas by eliminating the need for individual 501c3 status for grants
- Less cost for brochure/literature printing by coop efforts and shared equipment, bulk purchases coordinated to save all member councils money (i.e. "Turboflares")
- Overall consistence in disaster prep programs and efforts - regional perspective
- Alliance has ability to switch focus to other disasters because of infrastructure
- Continuation of projects if local FSC fails in their efforts or needs administrative assistance
- Regional communication link between citizens and others

\*\*\*Consistency, continuity, efficiency, effectiveness, collaboration, cooperation\*\*\*

The success of this organization is measured easily as these cooperative operations manifest themselves in regional grants, regional projects, and regional conferences benefiting all communities, with or without a fire safe council

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## ASSETS AT RISK

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Assets at risk, as identified in the California Fire Plan, are listed in the table below and are considered an integral component of day to day fire protection and resource planning considerations in the San Bernardino Unit:

<b>Asset at Risk</b>	<b>Public Issue Category</b>	<b>Location and ranking methodology</b>
Hydroelectric power	Public welfare	1) Watersheds that feed run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants (Low rank); and 3) cells containing canals and flumes (High rank)
Fire-flood watersheds	Public safety Public welfare	Watersheds with a history of problems or proper conditions for future problems (South Coastal Plain, field/stakeholder input), ranked based on affected downstream population
Soil erosion	Environment	Watersheds ranked based on erosion potential
Water storage	Public welfare	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility
Water supply	Public health	1) Watershed area up to 20 miles upstream from water supply facility (High rank); 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system (High rank)
Scenic	Public welfare	Four mile viewshed around Scenic Highways and 1/4 mile viewshed around Wild and Scenic Rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Public welfare	Timberlands ranked based on value/susceptibility to damage
Range	Public welfare	Rangelands ranked based on potential replacement feed cost by region/owner/vegetation type
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranking based on vegetation type and air basin
Historic buildings	Public welfare	Historic buildings ranked based on fire susceptibility
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Public safety Public welfare	Ranking based on housing density and fire susceptibility
Non-game wildlife	Environment Public welfare	Critical habitats and species locations based on input from California Department of Fish and Game and other stakeholders
Game wildlife	Public welfare Environment	Critical habitats and species locations based on input from California Department of Fish and Game and other stakeholders
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, transmission lines)
Ecosystem Health	Environment	Ranking based vegetation type/fuel characteristics

Approximately 7 billion dollars of assted valuation primarily on, State Responsibility Area (SRA), has been determined to be at severe risk in the San Bernardino Mountains. Several years of normal or below normal precipitation in the region have left fuels in a very dry state. This weather pattern seems to be continuing and the current trend of fuels drying earlier in the season and reaching significantly low fuel moisture levels will continue until weather trends return to cycle of normal to above normal moisture. With 1000 hr fuel moistures at record lows inherently brings a greater risk to all assets in the Unit.

The San Bernardino Unit's response has been to markedly increase the removal of dead and dying trees, primarily at point of refuge sites, essential service locations and along major travel routes as identified through CAL FIRE's collaborative efforts with local fire districts and the Mountain Area Safety Taskforce (MAST) organization. Additionally, the Unit has stepped up Forest Practice inspections of Licensed Timber Operators and contract tree fallers, especially with regard to required fire fighting tool availability.

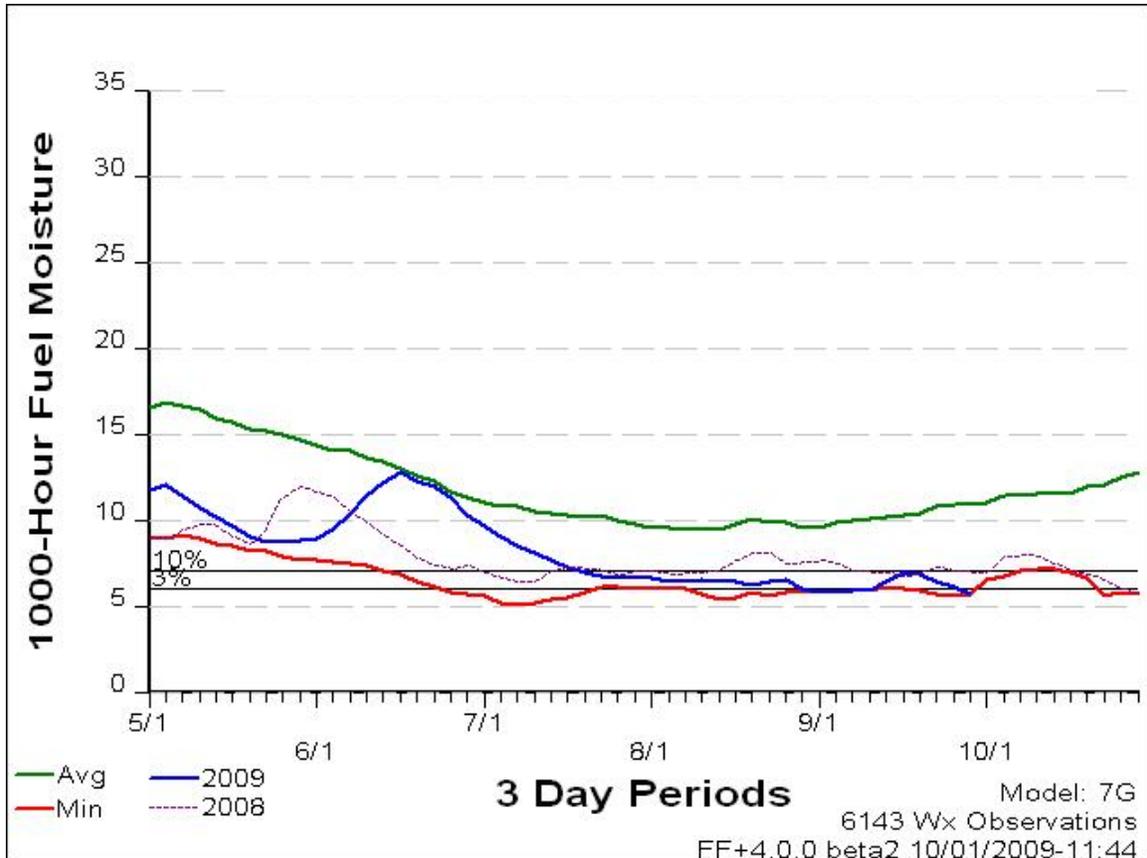
The Unit has been the recipient of federal Forest Health grant funding which has been used for the purchase of needed equipment and the hiring of additional foresters. All other efforts in this regard have occurred without additional staff or crew funding, but are the result of the redeployment of normally assigned Unit resources.

As part of the fire plan process, the fuels, assets at risk, past fire weather history and the level of service that CAL FIRE has provided to the public is constantly being analyzed. Data for these four components have been compiled by staff in CAL FIRE's Fire and Resource Assessment Program (FRAP) in Sacramento. The second fuel analysis was completed on 2004 on CAL FIRE Direct Protection Area (DPA) lands and State Responsibility Area that is currently Federal DPA within the San Bernardino National Forest. In this document, DPA refers to CAL FIRE DPA, unless noted otherwise.

*\*To arrive at a common land area unit to assemble this data, US Geological Survey 7.5 minute quadrangle maps were divided by a 9 x 9 grid, forming 81 equal area blocks of land. Each block contains 450 acres and has been named a quad 81st. Data for the entire Unit has been compiled down to the quad 81<sup>st</sup>*

## FUELS

Long term drought in Southern California has resulted in near record lows for the 1000 hr fuels. This has led to a very high dead to live ratio, which lessens the chance for rebound through out the Unit.



### SAN BERNARDINO MOUNTAINS

Wildland fuels or vegetation are the basic catalyst that supports the combustion process of wildfires. The various fuels found in California have specific characteristics, which allow fire behavior analysts to categorize them based on how they burn. The Fire Behavior Prediction System (FBPS) was the method chosen for categorizing fuels for the fire plan process. This method classifies fuels in 13 basic fuel models, each of which has specific physical and burning characteristics. FBPS are mathematical formulas that require mathematical descriptions of **fuel models** and their respective fuel properties as input. This input combined with meteorological and topographic parameters is used for calculations of fire danger and/or fire behavior.

A **fuel model** is a mathematical representation of various fuel types used in mathematical fire spread models. **Fuel models** are expressed numerically 1-13 that describe fuels in terms that spread models understand (surface area to volume ratio, fuel load, size, shape, compactness, horizontal and vertical continuity, moisture of extinction, etc.). Simply put, **fuel models are tools that help land management agencies and fire planners realistically estimate fire behavior or fire danger.**

The models include 3 grass, 4 brush, 3 timber, and 3 slash fuel types. The fire plan has labeled fuel model #2, a grass model, as a woodland fuel. This modeling system also allows the creation of custom fuel models when none of the 13 models adequately represent the fuels that are found in an area. Custom fuel model #14 was developed for plantation/burned areas, water and rock/barren areas. Custom fuel models #15 and #28 refer to desert and urban fuels respectively.

Table 1.— Description of fuel models used in fire behavior as documented by Albini (1976)

Fuel model	Typical fuel complex	Fuel loading				Fuel bed depth	Moisture of extinction dead fuels
		1 hour	10 hours	100 hours	Live		
		-----Tons/acre-----				Feet	Percent
<b>Grass and grass-dominated</b>							
1	Short grass (1 foot)	0.74	0.00	0.00	0.00	1.0	12
2	Timber (grass and understory)	2.00	1.00	.50	.50	1.0	15
3	Tall grass (2.5 feet)	3.01	.00	.00	.00	2.5	25
<b>Chaparral and shrub fields</b>							
4	Chaparral (6 feet)	5.01	4.01	2.00	5.01	6.0	20
5	Brush (2 feet)	1.00	.50	.00	2.00	2.0	20
6	Dormant brush, hardwood slash	1.50	2.50	2.00	.00	2.5	25
7	Southern rough	1.13	1.87	1.50	.37	2.5	40
<b>Timber litter</b>							
8	Closed timber litter	1.50	1.00	2.50	0.00	0.2	30
9	Hardwood litter	2.92	.41	.15	.00	.2	25
10	Timber (litter and understory)	3.01	2.00	5.01	2.00	1.0	25
<b>Slash</b>							
11	Light logging slash	1.50	4.51	5.51	0.00	1.0	15
12	Medium logging slash	4.01	14.03	16.53	.00	2.3	20
13	Heavy logging slash	7.01	23.04	28.05	.00	3.0	25

The fuel models are used to label the current and historic fuels in the unit. The current fuels are those that exist now. The historic fuels are the climax fuel models or those that existed prior to recent fire occurrence in the area. Past wildfires and Vegetation Management Program (VMP) burns have modified these fuels to their current condition. We must assess these areas to determine the historic fuels prior to the fires or what fuels the land will be converted to. The historic fuel models will be used to label the four CAL FIRE planning belts found in the San Bernardino Unit as grass, brush, and desert or conifer types.

In Southern California only, criteria to issue RED FLAG WARNINGS depend upon Burning Index values for the predominant fuel model that will support and carry fire - a value that changes seasonally. In spring finer fuels such as grass are used. From June until January chemise and chaparral fuel models are used for elevations below 4000 ft - and timber above 4000 ft. If BI's are low and critical weather conditions exist, NO RED FLAG is issued.

Fire behavior differences among the four groups are basically related to the FUEL LOAD and its DISTRIBUTION among the fuel particle size classes. Each fuel model is described by the fuel load and the ratio of surface area to volume for each size class; the depth of the fuel bed involved in the fire front; and fuel moisture and/or moisture of extinction. Additionally, fuel loading varies with fuel depth - and the horizontal or vertical orientation of the fuel bed.

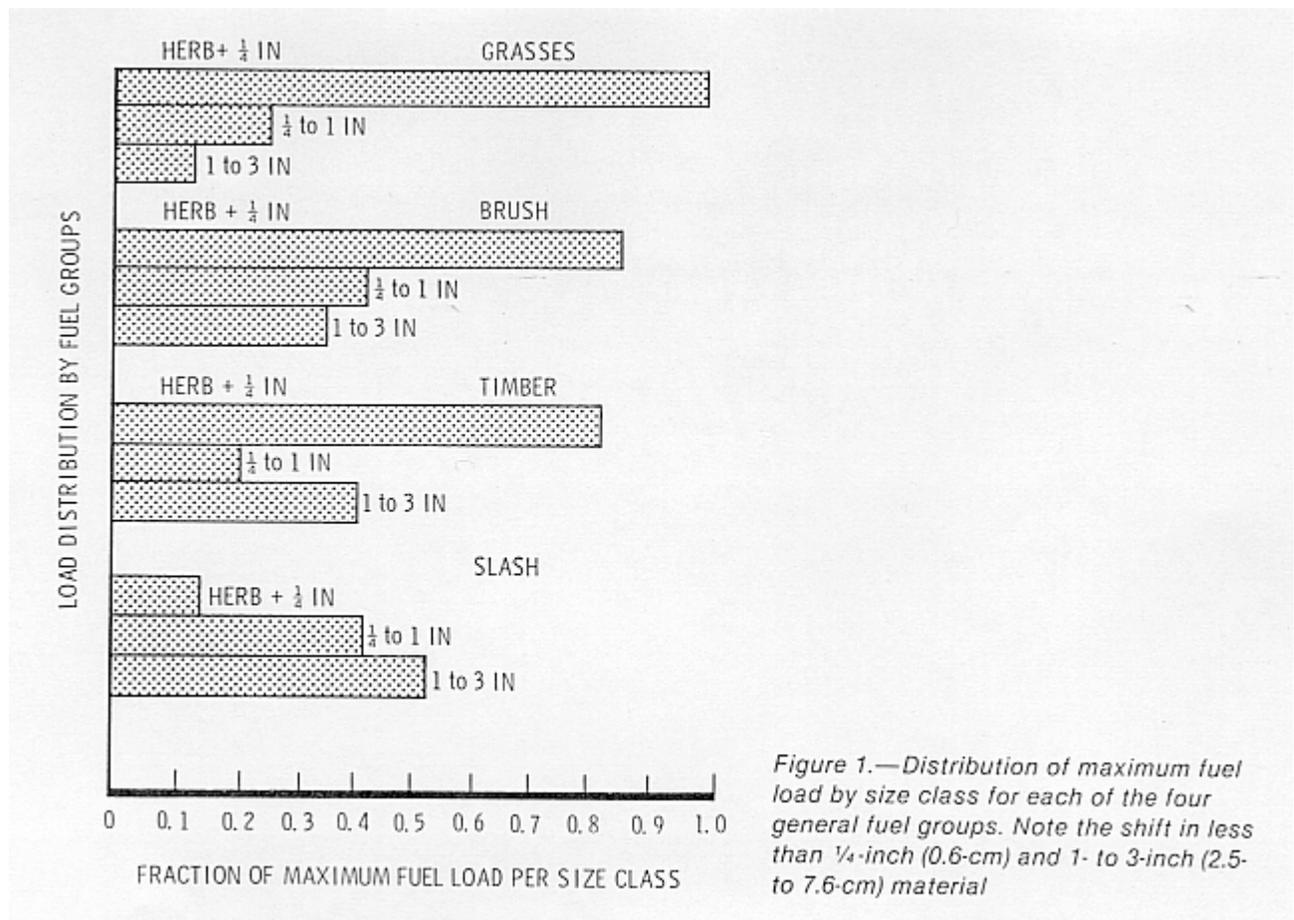


Figure 1.—Distribution of maximum fuel load by size class for each of the four general fuel groups. Note the shift in less than 1/4-inch (0.6-cm) and 1- to 3-inch (2.5- to 7.6-cm) material

A second term associated with fuels is **Ladder Fuels**. These are a continuous arrangement of fuels from the surface to the canopy that carry a fire from the surface up into the canopy. When the fire is carried from one fuel group into another, the fire likely will behave differently as changes occur in fuel models, fuel moistures and meteorological conditions. Often new fire behavior calculations are required if the initial calculations did not account for this change.

The current fuel model, slope class, ladder fuel, crown closure component, and difficulty of control rating are used to derive the fuel hazard rank for each quad 81<sup>st</sup>. CAL FIRE staff in Sacramento determined that there are realistically no low hazard fuels in California, thus the fuels are ranked medium, high, or very high.

San Bernardino fuels models have recently been upgraded from FRAP after significant effort with Unit personnel and preliminary vegetation imagery has been reviewed and validated. Fuels validation, will continue and is constantly being reevaluated to consider the effects of fire history in the Unit.

## **Structure Fuels**

Research on home ignitability implies that homeowners have the ultimate responsibility for reducing home fire loss potential because they alone have the authority to make the necessary changes on their privately owned property.

Home ignitability ultimately may require a change in thinking between the relationship of homeowners and the fire services. Instead of pre-suppression and fire protection responsibilities residing with fire agencies, homeowners (Stakeholders) take the principal responsibility for assuring adequately low home ignitability.

In the San Bernardino Unit federal, state and local fire services have become a community partner providing homeowners with technical assistance, fuels project assistance as well as fire response in a strategy of assisted and managed community stakeholder self-sufficiency.

To this end, San Bernardino Unit Pre Fire and Resource personnel and The San Bernardino National Forest Association, with assistance from the Southern Area Office have collaborated to submit a federal Forest Fire Assistance grant application that would, if successful, assist homeowners with the removal of hazardous fuels on private property. The intent is to avail forest homeowners of the opportunity to receive assistance and at the same time take ownership for reducing the structure ignitability of their homes on small urbanized forest parcels. See Appendix "Small Parcel Hazardous Fuel Reduction Program"

## **The Bark Beetle Situation**

Significant progress has been made in the last six years on the removal of beetle killed trees. However, the beetle killed trees are just a symptom of the greater problem, which is the overstocking of the forest stands across the mountain areas. Even with the removal of thousands of trees, the forest is still over stocked. In many areas, the number of stems per acre exceeds 400 when a healthy stand will have 40-100 stems per acre depending on the site and species.

To that end work has begun to focus on thinning the green fuels rather than just removing dead trees. Most efforts on private land have been focused on trees 12 inches in diameter and smaller. While not ideal, this is the most cost effective means of reducing fuels and creating a healthier more fire safe forest. In the long term, even large diameter trees will need to be thinned to a proper spacing to promote a healthy stand.

The magnitude of the problem has necessitated a multi agency state, federal and local government response. CAL FIRE San Bernardino Unit's role has been to protect public safety by identifying and reducing fuels along major travel routes into and out of these areas. These routes would be used in the event of a wildfire not only for evacuation of residents but also for response by emergency vehicles, CAL FIRE also partners with SBNFA in the green fuels reduction program, "Forest Care". Additionally, the Unit has stepped up Forest Practice inspections of Licensed Timber Operators and contract tree fallers, especially with regard to required fire fighting tool availability. Local CAL FIRE personnel are also working with the MAST organization and local communities to identify fire safe areas of refuge such as schools, parks and community centers that would be safe locations for residents to seek temporary protection in the event of a wildfire. As mentioned previously CAL FIRE conservation camp crews have been busy removing trees that might be susceptible to falling and blocking evacuation routes or threaten areas of refuge. Because of the significant fire and falling hazard these trees posed, essential service sites such as, fire and police stations and communication and fueling facilities, were also targeted.

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#### FREQUENCY OF SEVERE FIRE WEATHER

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The San Bernardino Unit is currently experiencing the significant effects of several years of below normal rainfall. This shortage of moisture is contributing in no small way to the huge increase of conifer mortality in the San Bernardino Mountains. Fire weather is one of the most important factors to consider in a study of wildland fire history and potential for a given area. In the fire plan, past weather data will be used to calculate the Level of Service (LOS), assign a severe fire weather ranking to each quad 81<sup>st</sup>, and run the California Fire Economics Simulator, Version 2 (CFES2). In order to perform these operations, it is necessary to gather past weather records from local weather stations that cover different areas within the Unit. Each quad 81<sup>st</sup> is assigned a weather station from which the data can be collected. To insure the most complete assemblage of weather records, alternate weather stations can also be assigned. Prior to 1991, the CAL FIRE Remote Automated Weather Stations (RAWS) maintained incomplete data due to malfunctions and other equipment problems. During this period and any other time the data is not available, the weather data will come from other weather stations that cover similar areas outside the Unit.

Fire weather data will be used in several ways in future plan analysis. In the LOS program, it will be used to calculate the Burn Index (BI) and Energy Release Component (ERC) to determine the fire intensity for each fire ignition that occurred during the analysis period. From these components and other ignition information, the fire will be categorized as an initial attack success or failure. This software will also calculate the severe fire weather rank (high, medium, or low), for each quad 81<sup>st</sup>, based on the weather data, slope and other quad 81<sup>st</sup> attributes. In CFES2, the historic weather data will be used to project fire indices (BI, ERC, and Rate Of Spread (ROS)) to be used in simulating wildland fires in the future. This information will then be used to analyze how changes in fire suppression forces will affect the Unit's level of service.

## PRIORITY AREAS

Important components of the fire management plan are projects that can reduce the impact of dangerous wildland fires. Projects currently active in the San Bernardino Unit are summarized below.

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### **Fuel Modification along Designated Evacuation Routes and around Shelter in Place Locations**

**As Described in the San Bernardino County Sheriff's Evacuation Guideline**

**For the Mountain Communities Version 2009**

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As previously mentioned, the San Bernardino Unit has experienced record setting drought, and the accumulation of timber in excess of sustainable levels within the San Bernardino Mountains and significant infestation by Bark Beetles and other destructive insects and disease. This has resulted in vegetation mortality affecting some 600,000 acres. The communities within and adjacent to the San Bernardino Mountains are at extreme risk for a life threatening conflagration.

Local, State and Federal agencies with a jurisdictional responsibility, along with Fire Safe Councils, Southern California Edison and other private/commercial interests have formed the Mountain Area Safety Taskforce (MAST). MAST has identified four main priorities:

1. Remove fuel from roads and highways identified in the San Bernardino County Sheriff's Evacuation Plan V. 2009 as evacuation routes.
2. Remove fuel from within and surrounding points of refuge areas as identified in the San Bernardino County Sheriff's Evacuation Plan V. 2009.
3. Remove fuel around all communication and essential service sites within the mountains to ensure reliable fire and law enforcement radio communication and operations in the event of a fire.
4. Create fire defense buffers around mountain communities.

The intent of all fuel reduction projects in the San Bernardino Mountains is to eliminate extreme overstocked conditions. A return to a more natural stocking condition will in and of itself improve community fire safety and an enhanced watershed environment. As such, all efforts of CAL FIRE crews in the San Bernardino Mountains are focused on this goal. Additionally, the San Bernardino Unit has drafted for consideration the "California State Watershed Health Initiative", Legislative Concept Paper (Appendix#1) with the goal of sustained long term maintenance and enhancement of privately held watersheds. If realized to its full potential, this initiative would go a very long way toward meeting the California Fire Plan goal and that of the Mountain Area Safety Task Force objectives of reducing costs and losses due to wildland fires.

## **EVACUATION ROUTES**

The Governor has declared a State of Emergency for this area and directed the Public Utilities Commission to order Southern California Edison (SCE) and Bear Valley Electric to remove all dead trees that constitute a threat to distribution facilities and power lines. As a participant in the MAST, Southern California Edison has prioritized their line clearances to also meet priority area objectives #1 and #2 to the greatest extent possible.

There are 210 miles of designated evacuation routes identified in the evacuation plan. Of those 210 miles, 65 miles are outside the boundaries of the San Bernardino National Forest (SBNF) and the remaining 145 are within the SBNF boundaries. To date there have been no funds allocated to CAL FIRE to carry out the work of removing dead, dying or diseased trees that threaten major travel routes, however, the Unit is hopeful that future initiatives will provide funding relief. Many of the evacuation routes have either Southern California Edison transmission or distribution lines immediately adjacent to them. SCE's clearance has reduced the amount of evacuation route clearance that would have had to be conducted by CAL FIRE and the USFS. Evacuation clearance will take an estimated three to five years to complete and will be carried out in four phases:

1. Remove dead and dying trees that are in danger of falling on and closing off evacuation routes.
2. Remove all dead and dying trees that are within 200 feet of the centerline of all evacuation routes and removing all vegetation necessary to construct within that 200 feet a shaded fuel break
3. Remove dead and dying trees that are within 400 feet of the centerline of an evacuation route and on a 30% or greater slope and removing all vegetation necessary to construct within that 400 feet a shaded fuel break
4. Remove dead and dying trees that are within 600 feet of the centerline of an evacuation route and within a chimney and removing all vegetation necessary to construct within that 600 feet a shaded fuel break

## **SHELTER IN PLACE**

Contained within the evacuation plan are four areas designated as temporary evacuation holding areas and 15 areas designated as Shelter in Place (SIP), pursuant to Sheriff's MAST recommendations. SIP locations are generally schools and organizational camps. In order for these areas to safely shelter civilians who are not trained or equipped to survive in a potential conflagration fuel must be reduced from within and surrounding each of these areas. Dependent on predictable factors of fire behavior such as fuel (type, continuity, etc), slope, aspect etc shaded fuel breaks need to be constructed up to 600 feet from the boundary of the SIP.

Estimated costs associated with the above referenced projects are:

Evacuation route clearance (danger of falling and closing only)	
\$ 270,400	
Evacuation route clearance (200')	
\$ 5,053,620	
Evacuation route clearance (400')	
\$10,107,240	
Evacuation route clearance (600')	
\$15,314,000	
SIP clearance around schools	
\$ 1,547,252	
SIP clearance around organizational camps	
<u>\$ 4,916,400</u>	
<b>Total</b>	<b>\$37,208,912</b>

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**FIRE DEFENSE IMPROVEMENT AND EVALUATIONS**

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Fuel break and "Truck Trail" access in Southwest San Bernardino County were evaluated for effectiveness as defense lines and access roads in the event of wildfire. Recommendations were made to abandon or repair fuel breaks and roads. One road was recommended for abandonment due to urban development and alternate access. Other fuel breaks were identified for improvement due to community developments and proximity to proposed burn projects. Following are associated costs.

Battalion 1 Evaluation	\$478.00
Battalion 2 Evaluation	\$780.00
Battalion 2 Fuel Break Improvement	<u>\$54,194.00</u>
<b>Total</b>	<b>\$55,452.00</b>

Additionally, the Unit has identified private fire road damage in Battalions 1 and 2. Severe winter rains have caused some roads to become impassable, thus making them unusable for fire fighting operations. Approximately \$80,000 has been requested from the federal government in order to affect repairs to these roads.

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## **EDUCATION PROGRAMS**

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A variety of educational programs are conducted to promote fire safety and responsibility. programs ranging from school presentations regarding prescribed burning to public meetings where vegetation management and fire safety are promoted. Public and agency education is a key component of virtually all aspects of fire protection planning and operations in the San Bernardino Unit.

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## **IGNITION MANAGEMENT**

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In addition to the priority project areas listed above, the San Bernardino Unit will continue residential, utility line, and railroad right-of-way inspections to help mitigate potential ignitions. Motorized equipment will be monitored and inspected where needed in an effort to minimize the number of fires caused by "equipment use" (historically, the Unit's largest percentage of fire ignitions).

Unit employee performance is enhanced by localized training in Preliminary Fire Cause and Origin Investigation during the annual Continued Professional Training academies. This course emphasizes effective fire investigation techniques in an effort to reduce the amount of LE-66's (investigation forms) listing fire cause as "undetermined" or "miscellaneous".

During Operation Santa Ana, a collaborative effort with Southern California Edison, Unit fire prevention personnel inspect all of the power poles and power lines in the wind-prone areas of the San Bernardino Unit. This joint program has proven to be very effective by visually inspecting approximately, 1,321 miles of power lines and 9,800 power poles. The first year of the program identified well over 250 Public Resources Code (PRC 4292, pole clearance and PRC 4293, line clearance) violations. The program is implemented in the summer months and after ten years; usually less than 30 violations are discovered. The San Bernardino Unit has not suffered any large damaging wildland fires, originating from inspected power lines, during Santa Ana wind events since this program was initiated in 1999.

## APPENDIX

1. California State Watershed Health Initiative  
Legislative Concept Paper
2. Small Parcel Hazardous Fuel Reduction Program Description
3. Fire Safe Council – Stakeholders Roster
4. San Bernardino Mountains – CDF Fuel Types (map)
5. Oak Glen Community Defense Project
6. Oak Glen Fireshed Analysis Area – Condition Class (map)
7. Oak Glen Fireshed Analysis Area – Proposed Treatment Options (map)
8. Oak Glen Fireshed Analysis Area – Existing Conditions (map)
9. MAST Community Defense Project Barton Flats to Oak Glen
10. MAST Community Defense Project Lake Arrowhead to Cedar Glen
11. MAST Community Defense Project Fawnskin to Sugarloaf
12. MAST Community Defense Project Crestline and Lake Gregory

December 16, 2003

## “California State Watershed Health Initiative”

### Statement of Problem

California’s privately owned urbanizing native forests and watersheds have been protected rather than managed. This has created unhealthy forests and watersheds susceptible to destructive fires, insect infestations and diseases. The State’s privately owned forests are largely overstocked and subject to stress resulting from the typical drought cycles associated with a Mediterranean climate. Combined with the additional impacts of urban development, the health of our State’s privately owned forests and watersheds is rapidly deteriorating and threatens the future existence of communities, local natural resources, water quality and the economy of the State of California.

## **Proposed Solution**

**Based upon values at risk and liabilities, caused by unmanaged forests and watersheds, enforceable regulatory standards which recognize standards for the promotion of a healthy fire resistant forest and watersheds are needed. This proposal focuses on the relationships between the number trees per acre, forest land productivity and the reduction of ladder fuels which promote forest fires and the impacts of development in watersheds.**

**The Uniform Fire (UFC) and the Uniform Building Codes (UBC) provide minimum fire safe standards for new construction. The Public Resources Code (PRC) contains language for such minimum building standards as road widths, turning radii, water flow, and addressing. Additionally the PRC and local weed abatement ordinances establish minimum residential weed clearance standards. These standards have been created to protect life and property.**

**This proposal is intended to create language within the Public Resources Code which would acknowledge that unmanaged private forest lands that exceed specific stocking or tree numbers per acre (density) and site productivity classification are a public nuisance. As a public nuisance land owners would be required to abate or manage said lands, or the State would impose fines or take action to remedy the nuisance at cost to the landowner. Unmanaged forests are increasingly susceptible to destructive fires, insect infestations and forest diseases which are remedied at great cost by all California residents.**

**Compliance with this new regulation would require, rather than persuade, forest landowners to meet minimum and maximum forest stocking or tree numbers per acre standards. The California Department of Forestry and Fire Protection would be charged with enforcement of this regulation and its standards. Inspection of all unincorporated forest land parcels would occur every 5 years**

**This proposal is also intended to create language within the Public Resources Code which would set minimum standards for development within watershed lands, including those contained wholly or in part within incorporated city limits, which would ensure the vitality, health and functionality of those lands as watersheds. Funding for tree removal matching grants would be available only to cities and counties that agree to adopt ordinances, zoning and building codes and planning policies that ensure fire wise construction.**

**Housing, commercial and retail development may be limited based on criteria such as degree of slope, vulnerability to loss from wildland fire, water quality and drainage impacts as well as other negative impacts on watershed functions. Paving limitations or permeable paving alternatives could also be required to ensure that adequate watershed function will be maintained and that Storm water, debris and flooding will be minimized.**

### **Consequence of Inaction**

**Inaction will see the continued build-up of unmanaged forest fuels in State Responsibility Area forests and watersheds throughout the State. The result will be the perpetuation of overstocked, stressed forests and watersheds that are susceptible to destructive and increasingly expensive wildfires, insect infestations, and diseases, which affect public safety and watershed resource values. The lack of minimal state wide development standards in watersheds have allowed cities and counties to approve development in areas of the state without adequate protection of watersheds increasing costs for firefighting and significant impacts to the state's water quality and supply. The fiscal impact of these decisions is borne by taxpayers statewide.**

## **ALTERNATIVE**

**CAL FIRE and its cooperators historically have pursued public education efforts to achieve public support for forest management on private forest lands of all sizes. These efforts have had limited success. The continued urbanization of California forest land and watersheds requires immediate action. There are no other methods to address this expanding problem and its impacts on SRA watersheds. Legislation is required. Education and regulatory enforcement provided by CAL FIRE and its cooperators is required to affect long term change and reduce the cost of the consequences of imperiled forests and catastrophic fire.**

**Ensuring the health and vitality of California's forests and watersheds will result in more natural and fire resistive forests and watersheds. Appropriate land management and building standards will reduce human and property loss to wildfire with resultant savings in the cost of fighting wildfires.**

## **Others Affected**

**Cities and counties, planning agencies, code enforcement and local fire protection agencies, water agencies and districts and watershed groups and authorities.**

## **History**

**Our national and state fire policies were largely established following the large life and property loss fires that occurred in the late 1800's to 1910. These policies established the goal of suppressing all wildfires at ten acres or less. This has resulted in the exclusion of the beneficial effects of wildfire in forests and watersheds contributing to the overstocking of these lands and their susceptibility to drought impacts. Additionally, land management and planning decisions in these lands have been made by local government without adequate consideration of the impacts on watershed functions. "The State, as a quasi sovereign, has a right to protect a waterway from the impacts of private property owners." Oliver Wendell Holmes. Land use decisions in watersheds, by local governments, have negatively impacted the citizens of California living outside the local government's jurisdiction. Those impacts have been reduced water quality and supply, soil erosion, flooding and the increased costs of wildland fire suppression.**

## **Fiscal and Economic Impacts**

The costs of wildland fire suppression have been increasing in California on an annual basis driven largely by the increased efforts required to protect lives and property as development has encroached into the wildland areas of the state. Other fire impact costs, which have not been calculated on a statewide basis, include among others availability and cost of property insurance, flood control impacts, water quality and water supply as well as species habitat and re-forestation. For example following the 2003 fires in San Bernardino County water agencies determined that:

- Total runoff is likely to increase by more than 10% and peak storm flows will increase about 5 times normal.
- Sediment loads carried down stream could be 30 to 50 times normal. This may take years to remove.
- Flood control basins will likely be breached and areas without flood control basins may have catastrophic flood and debris damage.
- Long duration increases in water turbidity including fine sediment may be carried far down stream complicating groundwater discharge.
- A 2-10 fold increase in Total Dissolved Solids (TDS) or salts with increased flows could result in as much as 500,000 tons of added salt in the Santa Ana River and groundwater basins. The runoff water is needed for recharge or consumptive use, significant treatment requirements to remove or mitigate this TDS.
- 20,000 tons of nitrates and phosphorous formerly bound in soil and from airborne deposition will be released into the peak storm flows and make its way into groundwater.
- There will be significant transport of uranium and its radiological progeny downstream in surface groundwater increasing the cost of radon and uranium treatment and future monitoring.
- Increases in organic compounds, including toxic and carcinogenic compounds from partial combustion of forest materials will decrease usability of 70% of the Santa Ana Region's primary water source.
- Sedimentation of the lands used by the San Bernardino kangaroo rat and the Santa Ana woolly star fish will cause choking turbidity reducing the useable habitat for the Santa Ana sucker fish.
- Estimated costs to mitigate the fire effects in the Santa Ana watershed range from \$500,000,000 to \$800,000,000.

**Forest Care  
Program Description  
October 8, 2009**

Appendix. #3

**GOALS AND OBJECTIVES:**

**Goal:** To secure forest health and fire safe communities through continuous fuel reduction on private parcels of land by encouraging landowners to reduce fuels in the short term and to maintain the fuel reduction in the long term.

**Objective:** Educate private landowners of the benefits of fuel reduction for fire safety of their property and the community as well as the benefits of a healthy forest.

- An outreach program will be implemented to provide a financial incentive to private landowners within BDF and on parcels less than 20 acres to reduce hazardous fuels and promote a healthy forest. Priority will be given to a landowner or parcel that lies within a hazardous fuels area or has been identified in a Community Wildfire Protection Plan.

**Objective:** Develop and implement a program and associated systems that can be modeled state wide where similar fuel conditions and community dynamics exist.

- San Bernardino National Forest Association (SBNFA) in conjunction with the California Department of Forestry and Fire Protection (CAL FIRE) will be responsible for the development and implementation of an incentive program for the thinning of pre-commercial, green trees on parcels of private land, forested lots within the San Bernardino National Forest (BDF).

**Objective:** Education of local communities, visitors, and regional communities of the benefits of a healthy forest and the role of fuel reduction in its maintenance.

- Work in conjunction with SBNFA to develop an outreach capability by utilizing a traveling, interactive forest exhibit and offers opportunities for experiential learning through monitoring and maintenance of existing community fuel breaks.

**RESPONSIBILITIES**

See attached letter of agreement between CAL FIRE and SBNFA

**Partnership Structure**

Forest Care is delivered as a partnership. For the purposes of expansion and maximizing efficiency, both partners are co-locating in a single office space in a centralized location to the communities served by the program. The work-share is outlined in the Specific Activities section and the individual organizational structures are shown below.

**SPECIFIC ACTIVITIES**

CAL FIRE will be responsible for the following activities:

1. Maintain Registered Professional Foresters (RPF) or RPF supervised staff members for field evaluation of potential projects, educate landowners, assist landowners in marking projects and confirm projects are completed to standards on parcels less than one acre.
2. Evaluate potential projects, educate landowners, oversight of contract Registered Professional Forester's (RPF's) work, and confirm projects are completed to standard on parcels 1-20 acres.
3. Conduct education on forest health and fire safe topics and market the green tree thinning program at community events, public meetings and interagency meetings.

4. Complete the necessary environmental review through a combination of CAL FIRE staff and contractors.
5. Oversight of the overall project and coordination with other hazardous fuels reduction projects in the area through additional staff positions.

SBNFA will be responsible for the following activities:

1. Establishment as a central public resource for potential participants.
2. Develop marketing plan and materials to communicate about program to target audiences.
3. Develop educational materials for participants to aid them in achieving the long term project objective of healthy forest maintenance.
4. Conduct education on forest health and fire safe topics and market the green tree thinning program at community events, public meetings and interagency meetings.
5. Provide a centralized process for handling a potential of 5,000 stakeholders' requests for assistance.
6. Design database and administer the housing and managing data for confidentiality purposes and future needs of the communities involved.
7. Development of an automated tool for documenting and tracking of potential landowner's participation, contracts, funds available, funds committed, and funds expended.
8. Generate reports from the automated tool described above for both CAL FIRE and SBNFA reporting needs and tracking and reporting of matching funds.
9. Provide staff for grant administration, grant tracking, processing applications and contracts, promoting program with landowners, and phone contact with landowners.
10. Provide consulting forestry firm with necessary information to conduct field surveys of projects, obtain signed contracts and review completed projects.
11. Provide staff and procedures to manage the schedules of CAL FIRE project staff and contracted RPF in field evaluations and meeting with landowners and ensure that all parties work together to complete projects in a timely manner.
12. Process signed contracts.
13. Receive reimbursement requests.
14. Provide forester reimbursement application for field review.
15. Process landowner reimbursement requests and make payments.
16. Reporting to CAL FIRE and USFS on activity of the project. Various other performance measures regarding timeframes and data production.
17. Ongoing monitoring and evaluating project progress toward meeting goals and objectives.
18. Contracting with a consulting RPF forestry firm for marking, layout and filing harvest documents with CAL FIRE for parcels 1-20 acres in size.
19. Coordination with local Agencies on fuel break maintenance and monitoring needs, and volunteer recruitment and coordination to accomplish needs.

Work by private landowners will need to be performed to the specified standards. Once the work is complete a reimbursement request will be submitted by the landowner to SBNFA controlling the reimbursement funds. Next, verification by CAL FIRE that the project meets the program standards will be documented and noted for reimbursement to the private landowner via the SBNFA process for disbursement of funds. Reimbursement will be at 75% of the private landowner's costs or the maximum cap rate, whichever is less.

San Bernardino Unit  
Fire Safe Council Stakeholder Rooster

Appendix. #3

**San Bernardino County**

**Angelus Oaks Fire Safe Council  
Fire Safe Council**

P.O. Box 116  
Angelus Oaks, CA 92305  
Office: (909) 794-6247

**Arrowhead Communities Fire Safe Council  
Council**

PO Box 630  
Rim Forest, CA 92378  
Office: (760) 387-2955  
Office: (909) 337-3383

**Big Bear Valley Fire Safe Council**

P.O. Box 2860  
Big Bear Lake, CA 92315  
Office: (909) 585-7662

**Carbon Canyon Fire Safe Council**

2005 Grand Avenue  
Chino Hills, CA 91709  
Office: (909) 902-5280 x231

**Lytle Creek Fire Safe Council, Inc.**

P.O. Box 94  
Lytle Creek, CA 92358  
Office: (909) 466-7388

**Mountain Rim Fire Safe Council (MRFSC)**

PO Box 303  
Rim Forest, CA 92378  
Office: (909) 337-6844

**Oak Glen Fire Safe Council**

PO Box 820  
Oak Glen, CA 92399  
Office: (800) 686-8677

**Rancho Cucamonga Fire Safe Council**

5840 East Ave  
Rancho Cucamonga, CA  
Office: (909) 948-5325

**Wrightwood Fire Safe Council**

6000 Cedar St  
Wrightwood, Ca.  
Office: (760) 249-3206

**Inyo/Mono Counties**

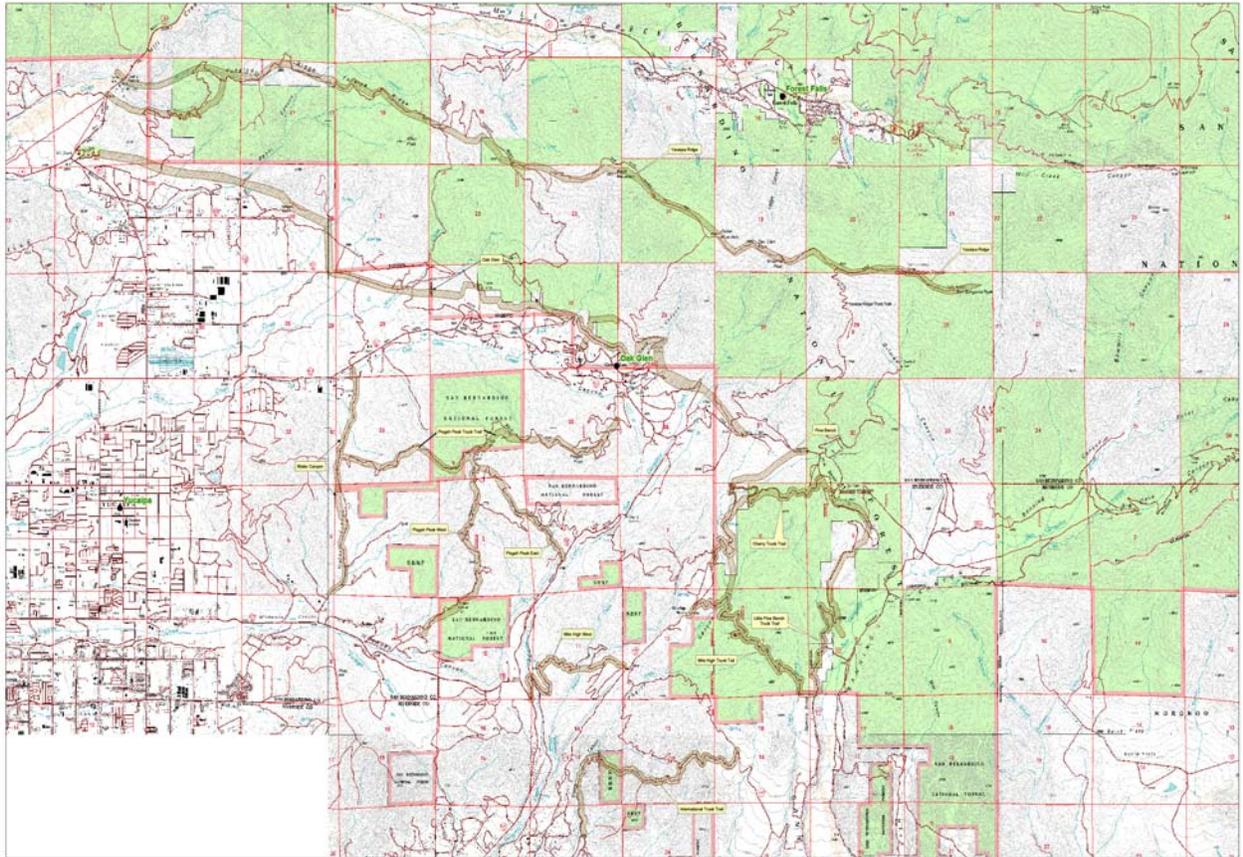
**Eastern Sierra Regional**

76 Canyon Drive  
Bishop, CA 93514  
Office: (760) 872-3004

**Wheeler Crest Fire Safe**

129 Willow Road  
Swall Meadows, CA 93514





## Oak Glen/Banning Community Defense Project Fuel Breaks

3/20/2006

Front Country Ranger District  
San Bernardino National Forest



