

SECTION IV: PRE FIRE MANAGEMENT STRATEGIES

A: FIRE PREVENTION

Goals

The primary goal of the Unit's Prevention Bureau is to limit the number of negligently caused fires. Through training and experience we will increase company officer investigations to reduce the amount of undetermined fires reported in the Unit. The Fire Prevention Bureau will work closely with adjoining agencies to limit linkage blindness for serial arsonist activity.

Objectives

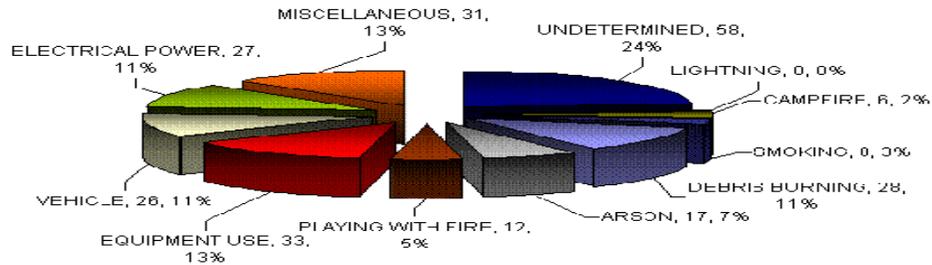
Build on and introduce new public information avenues focusing on LNU cause specific information to prevent ignitions i.e. equipment and debris burning resulted in 61 fires in 2010.

Bi-lateral law enforcement and civil cost recovery levied on electrical utilities to encourage proper conductor maintenance thereby reducing ignitions to 27 in 2010.

By continuing to work towards all company officers being trained to the NWCG FI-210 standard, fewer wildland fires should be undetermined for a final cause allowing for even more accurate ignition problem identification for LNU.

Maintain memberships on Fire Investigation Task Forces within LNU to network with other agency investigators and to share intelligence on possible serial arson activity.

To reduce the number of ignitions.



The top five fire causes were:

1. Undetermined, 58 fires, 24%
2. Equipment, 33 fires, 13%
3. Miscellaneous, 31 fires, 13%
4. Debris Burning, 28 fires, 11%
5. Electrical Power, 27 fires, 11%

The primary cause category for fires within the Sonoma-Lake-Napa Unit in 2010 was: Undetermined. This is based on a 96% LE-66 completion rate.

- ENGINEERING & STRUCTURE IGNITABILITY

One incomplete aspect of the previously discussed vegetative wildfire fuels analysis is the consideration of structures located within the wildland areas. To a wildfire, a structure is *just* another fuel. And as mentioned before, the only element of the three environmental elements that influence the behavior of wildfire that we, as humans, can change is fuel. If a structure is in the planning stages, design and construction material recommendations can be made to make the structure less prone to ignition by wildfire. However, if the structure is already built, the easiest factor to change may be to implement various fuel modifications around the structures in order to protect them from encroaching wildfires. Public Resources Code (PRC) 4291 addresses fuel modification and the concept of "defensible space." Defensible space can both be thought of for protecting a structure and also providing firefighters



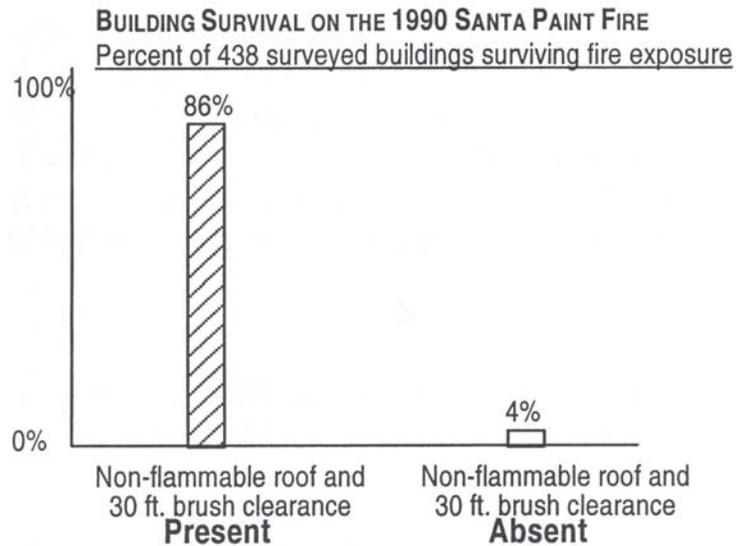
Structures Destroyed by Wildfire During 2004 Fire Season

with a safe environment to position their fire apparatus and perform the necessary function to prevent the structure from igniting. Unfortunately, the proper building construction and defensible space cannot guarantee that the structure will survive all wildfire possibilities.

The following excerpt is from a paper prepared by CDF Battalion Chief Ethan Foote, who is assigned to CAL FIRE's Northern Region office in Santa Rosa. Besides writing this paper, he was the principal researcher on the study of the Paint fire that is mentioned in this excerpt.

"One of the major objectives of wildfire control in general, and pre-fire management hazard reduction in particular, is to reduce the loss of life and property. The historical pattern of building loss during interface fires indicates that vegetation fuel management must go hand-in-glove with ignition resistant building construction to maximize the effectiveness of fire loss mitigation measures.

Building loss and survival on the 1961 Bel Air fire, which destroyed 505 houses, was well documented. The report "Decision Analysis of Fire Protection Strategy for the Santa Monica Mountains" found that 71% of the buildings with 26-50 feet of brush clearance survived the fire. However, the survival rate of buildings exposed to the fire increased to 95% for houses that had both brush clearance and ignition resistant building construction (in this case non-wood roof covering). A similar pattern was seen on the 1990 Santa Barbara Paint fire, shown graphically below.



On the Paint Fire, which destroyed 479 houses and major buildings, the survival rate (above) was 86% for houses with both non-flammable roofing and 30 feet of brush clearance. Only 4% of the 438 houses surveyed in the Paint Fire survived where non-flammable roofing and 30 feet of brush clearance were absent. The modeling of structure loss and survival on the Paint Fire revealed that brush clearance alone only “explained” or accounted for 11% of the variation seen in the structure survival patterns. When brush clearance was combined with roof type in the model, and the effect of defensive actions was accounted for, the model explained 59% of the variability in structure loss.

This is strong evidence that vegetation management *alone* will not be able to fully explain, nor mitigate, building loss on wildfires. Hence the need for the comprehensive approach in this plan, using a combination of vegetation management and addressing recommendation for ignition resistant building construction. There is also strong evidence that this comprehensive approach will work to significantly reduce interface losses. The “Los Angeles Time” (1 April 2004) reporting on the Southern California conflagrations of October 2003 clearly revealed the need for, and effectiveness of, combining vegetation management and ignition resistant building construction for reducing building loss in wildfires:

“Amid the ashes of the mostly costly wildfires in California’s history lies evidence of a crucial lesson: Fire-resistant construction and vigilant removal of flammable vegetation significantly improved the odds of a home’s survival, according to a Times analysis of fire records from more than 2,300 destroyed structures.

The impression left by an out-of-control fire racing through communities can be one of random destruction, with one house, or a whole block, burned to the ground and the next one spared for no apparent reason.

In fact, according to the Times analysis – which covered homes destroyed by the deadliest of the blazes, San Diego County’s Cedar Fire – houses built since 1990 were far less likely to burn than those constructed in any previous decade. Houses built during the 1990s were damaged or destroyed at less than half the rate of houses built earlier.”

The communities and homeowners covered by this plan have, for the past 40 years, had recommendations that can be (and have been) taken to reduce the ignitability of structures. An outcome of the 1961 Bel Air fire was the publication of the “Fire Safety Guides for California Watersheds” by the County Supervisors Association of California in

1965. These recommendations have been updated through the years. The current version of these “Fire Safe Guides” is “Structural Fire Prevention Field Guide for Mitigation of Wildfires” and can be found at [Http://osfm.fire.ca.gov/structural.html](http://osfm.fire.ca.gov/structural.html).

These recommendations for ignition resistant building construction include:

- Roofing
- Eaves & Balconies
- Exterior Walls
- Rafters
- Windows
- Doors
- Attic Ventilation Openings
- Underfloor Areas
- Decking

In response to the persistent loss of life and property in wildfires the most important of the recommendations is now a requirement. All new buildings, and significant re-roofing of existing buildings, in the communities covered by this plan are required to have ignition resistant roofing (California Building Code § 1503). The State of California is also in the process of promulgating changes to the state building code expanding the interface roof requirements and including new requirements addressing exterior wall construction, vents, and ancillary structures.”

At the time of the writing of this Plan, CAL FIRE is engaged in creating updated and more accurate maps to depict fire hazard ranking areas. The previous map that is still being used was produced nearly 20 years ago and was based upon personal observation rather than using a modeling program such as what GIS can provide using inputs including fuel models and slope classes. Sonoma and Calaveras were chosen as the two initial test counties for a mapping project that will eventually be completed statewide. Future building codes will reference these maps with the intent that structures will be modified based upon what hazard zone it will be built in. For example, a proposed structure in a medium hazard zone wouldn’t need as much construction mitigation as the same structure in very high hazard zone.

Figure 18 was produced to depict the concentrations of structures in the Unit. County parcel data was used, and rankings are done using the Q81st defined areas. The colors represent different housing density classes as described in the table below. The term unit is utilized instead of structures because “large” structures such as multi-family dwelling or condominium are considered to have more units per parcel than using “houses.”

Density Class	Housing Density
Very High	Over 1 unit per 5 acres
High	1 unit per 20 acres to 1 unit per 5 acres
Medium	1 unit per 160 acres to 1 unit per 20 acres
Low	Less than 1 unit per 160 acres
Not Ranked	Not Populated (e.g. wilderness areas)

Description of Housing Density Classes

Besides what was mentioned in Foote's excerpt, there are other considerations outside of what PRC 4291 encompasses. Some of these considerations are included in local "firesafe" ordinances at the county level such as access, water supply, and addressing. Access refers to the road surface, width, grade, and pullouts to allow passing. Water supply describes on-site water storage and delivery systems. Addressing specifies signing standards in order to locate a structure. These additional considerations are inspected when the structure is built, and it is the structure owner/occupant's responsibility to maintain the road, water supply, and address. Too often this maintenance isn't performed.

And still yet are other hinderers to firefighting such as locked gates, inadequately constructed bridges, roads blocked by vehicles, heavy accumulation of vegetation along road, and bad addresses provided by 9-1-1 operators

Wildland Urban Concerns



Example of good address signing



Example of poor road signing



CAL FIRE fire engine



Example of fire protection water storage

Wildland Urban Concerns



Example of poor, overgrown road access



Example of locked gate access



Examples of poor overgrown access

CAL FIRE uses an internal form referred to as “LE-100” (Law Enforcement form #100) to complete PRC 4291 defensible space inspections. Common terminology for CAL FIRE personnel is “LE-100 inspections” or “defensible space” inspections.

Additional information regarding defensible space, PRC 4291, and local ordinances is available at CAL FIRE fire stations, and CAL FIRE’s website (www.fire.ca.gov).

- INFORMATION AND EDUCATION

The Sonoma-Lake-Napa Unit remained engaged in public information and education activities in 2010. In 2010, the Unit was asked to report their monthly prevention activities. Doing so gave us a clear picture of activity in the field with regards to public information and education. The Sonoma-Lake-Napa Unit dedicated an impressive amount of personnel hours towards information and education. These efforts were reported to region monthly and reflected well on the Unit. The Unit participated in over 2,691 hours of public education activities, making an estimated 57,169 public contacts. This effort represented 10% of the total Region effort in information and education hours, a fact we can all be proud of.

Every contact with a member of the public is an opportunity to educate. The importance of fire safety, whether the message is defensible space, exit drills in the home (E.D.I.T.H), changing smoke detector batteries, or dialing 9-1-1; these messages must be delivered to the public whenever possible. It is critical that each public contact contain an element of education.

Department wide, the new website, readyforwildfire.org has progressed the department's defensible space message. Each and every Unit employee should be aware of this website and its benefits for educating the public on defensible space and general fire resistive building construction.

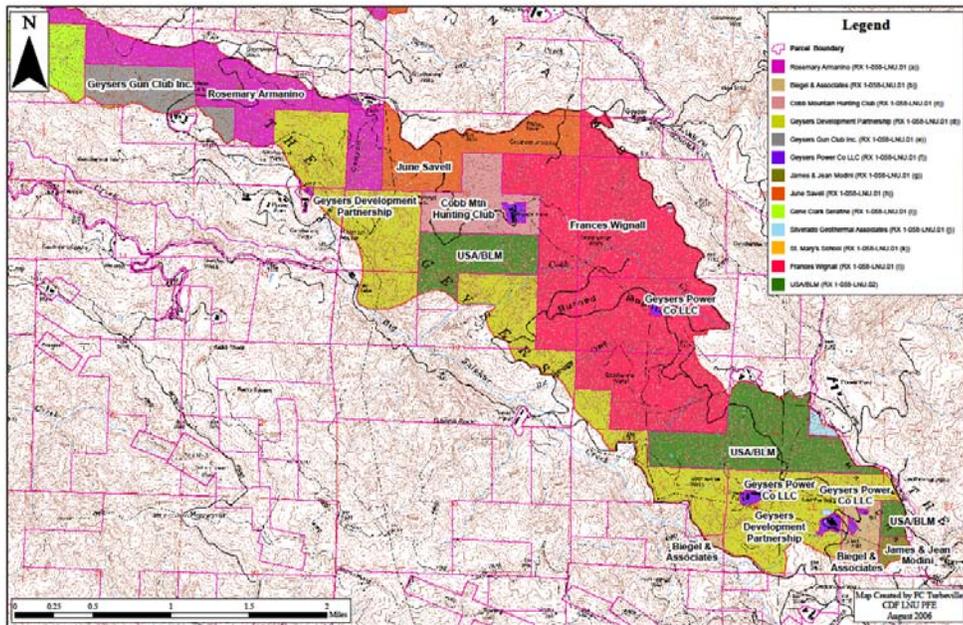
The Sonoma-Lake-Napa Unit is situated a major media market. This reality makes delivering our messages difficult. By placing signs in high traffic areas, and increasing our personal interaction, we are able to combat our limited interaction with the media. The fire service makes contact with people on the worst day of their lives, what we teach them about fire safety can reduce the impact of that worst day, or help avoid it entirely.



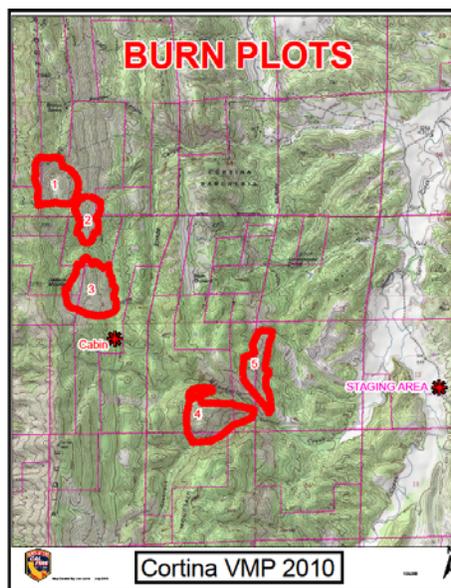
B: VEGETATION MANAGEMENT

The Vegetation Management Program (VMP) is a cost-sharing program that focuses on the use of prescribed fire, and mechanical means, for addressing wildland fire fuel hazards and other resource management issues on State Responsibility Area (SRA) lands. The use of prescribed fire mimics natural processes, restores fire to its historic role in wildland ecosystems, and provides significant fire hazard reduction benefits that enhance public and firefighter safety.

Currently LNU is working on two VMP projects, the Geysers in Northern Sonoma County and the Cortina Ridge in Colusa County.



Geysers VMP



Cortina VMP

FUELS REDUCTION

LNU is actively conducting several fuels reduction projects throughout the Unit. These consist of shaded fuel breaks in areas identified in the communities at risk section of this plan (these areas are also identified appendix A "High Priority Pre Fire Projects").

SUPPRESSION REPAIR

After a damaging wildland fire the Unit will take every measure to assure the act of wildland fire suppression repair is completed. The objective of wildland fire suppression repair is to provide for prompt action following wildfire and associated fire suppression activities to minimize, to the extent practical:

1. Loss of soil and on-site productivity.
2. Discourage the spread of noxious weeds.
3. Deterioration of water quality and adverse change in runoff characteristics.
4. Threats to life and property, both on-site and off-site.

FOREST AND RANGE HEALTH

Unique to LNU, there are two State Forests managed by the Department on behalf of the public. Boggs Mountain Demonstration State Forest (BMDSF) is a 3,493-acre mixed conifer forest located in Lake County and Las Posadas Demonstration State Forest (LPDSF) is a 796-acre mixed conifer forest located in Napa County, which also incorporates the most eastern stand of redwood in California.

State Forests are working landscapes that are mandated to conduct research, demonstration, and education on sustainable forestry practices using active forest management, including periodic timber harvests. Management of the State Forests is required to protect values relating to recreation, watershed, wildlife, range and forage, fisheries, and aesthetic enjoyment. The concept of forest sustainability includes the protection of forest ecosystems, both terrestrial and aquatic. Important issues include stewardship of managed forestlands to maintain biodiversity and ecosystem functions thereby providing healthy forest and rangelands. Timber harvesting also significantly reduces the amount of fuel continuity on the State Forests through the removal of snags, providing shaded fuel breaks, burning slash debris, and restoring road systems to enable better egress and ingress for fire equipment and personnel.

BMDSF is managed as a working forest that facilitates research and demonstrates diverse timber management practices to private timberland owners and the public at large. BMDSF provides for healthy sustainable ecosystems as well as a financially viable timber management program. The Forest is managed over the long term for a dynamic mosaic of diverse habitats and high volume inventory.

LPDSF also provides for demonstration and research activities; however it is unique in the State Forest Program because merchantable timber harvesting is not allowed under the deed restriction and the Forest is not open to the public at large. Because of its diversity of terrain and ecosystem characteristics, the Forest provides for interesting research projects.

Fuel reduction projects are on going on both BMDSF and LPDSF. Such projects include vegetation management, broadcast burning, pre-commercial thinning, and the removal of dead, dying, and diseased trees. Both Forests have been impacted by forest pests such as western pine beetles, flat-headed woodborers, and annosus root disease. Treatment methods to reduce the brood material are practiced on both State Forests, such as lopping and scattering slash or burning slash to reduce the population of pine beetles.

The objectives of such forest management include enhanced protection from wildfire impacts on the forestland resource and the developed interface lands of the rural residential communities adjacent to and near both State Forests. These objectives are accomplished through the reduction of flashy fuels, fuel accumulations, and fuel ladders that foster crown fires. The prescribed burning that occurs on the State Forests reduce ground fuels, reduce overgrown brush, and thin the understory to reduce vertical and horizontal continuity of fuels while protecting overstory conifers and hardwoods. The benefits of these

low intensity fires include reducing the accumulation of hazardous fuels, enhancing wildlife habitat, control forest disease, provide new growth, and reducing the potential for catastrophic wildfires.

Outside of the State Forest Program, LNU is active in enforcing the Forest Practice Rules on private timberland where Timber Harvesting Plans (THPs) have been submitted. Most of the THP submitters are small non-industrial timberland managers and timber harvesting is common in Sonoma, Lake, and Napa Counties. While evaluating THPs in the field, the Forest Practice Inspector enforces the Public Resources Code and Forest Practice Rules, which provide protection for forest and rangelands. Such rules include provisions for the operation of fire causing equipment, use of hydrocarbon powered engines near forest, grass, or brush lands, and for the operation of chainsaws in the forest environment. The Forest Practice Rules provide specific protection to lakes and watercourses, wildlife, and plants through restrictions on silviculture methods, harvesting practices and erosion control, site preparation, hazard reduction, and fire protection.

Benefits from harvesting timber on private land are similar to those when harvesting timber on the State Forests, including the reduction of fuels, removing dead, dying or diseased trees, improving road networks, providing new growth by opening the stand to more sunlight, and controlling forest pests. A common forest disease found in Sonoma and Lake Counties is Sudden Oak Death. Many THPs are located within the Board of Forestry and Fire Protection Zone of Infestation. As a result, each THP must identify feasible measures to mitigate adverse impacts from the timber operation. The Forest Practice Inspector also enforces these measures. Treatments typically include inspection of equipment on the timber operation site, unprocessed saw logs do not leave the Zone of Infestation, and non-merchantable material remains on-site. Such measures also help reduce the potential for catastrophic wildfires.

The enforcement of the Forest Practice Rules and Public Resources Code on private timberlands and the active forest management on the two State Forests within LNU provide healthy forest ecosystems and rangelands found throughout the Unit. Maintaining the sustainability of the natural resources is the goal of the CAL FIRE Resource Management Program. The Department achieves this goal by demonstrating sound management practices on the State Forests, enforcing the California Forest Practice Act on all non-federal timberlands, providing research and educational outreach to the public on forest pests such as Sudden Oak Death, and coordinating efforts for fuel reduction to reduce the risk of fire and improve the quality of California ecosystems.