## Lenzi, Chelsea

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| **From:** | rwh@californiachaparral.org |
| **Sent:** | Saturday, September 29, 2018 12:12 PM |
| **To:** | sbcob |
| **Cc:** | Williams, Das; Wolf, Janet; Hartmann, Joan; Adam, Peter; Lavagnino, Steve |
| **Subject:** | Goleta |
| **Attachments:** | Goleta CWPP cover letter.pdf; Goleta CWPP 9_29_2018.pdf |

Dear Santa Barbara County Board of Supervisors,

Please find attached our one page comment letter and a supplemental analysis that we are submitting regarding the Goleta Valley CWPP that will be discussed during the October 2, 2018 Board meeting.

In addition, we believe it would be useful to have the Board sponsor a workshop/discussion between the fire, scientific, and environmental communities that examines the CWPP and recent fires (such as the Holiday and Thomas Fires). A collaborative effort remains the best way to develop a plan that can protect our community.

Sincerely,

Richard Halsey
Director

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CALIFORNIA CHAPARRAL INSTITUTE

...the voice of the chaparral

September 29, 2018

Santa Barbara County Board of Supervisors
105 East Anapamu Street
Santa Barbara, CA 93101

Re: Eastern Goleta Valley Mountainous Communities CWPP

Dear Members of the Board,

The July, 2018, 113-acre Holiday Fire in Goleta that burned more than a dozen homes and cost $1.5 million dollars to fight provides an excellent example why the Goleta Valley **CWPP is inadequate and needs to be revised.**

Fuel breaks, the document's nearly exclusive focus, would have failed to address the actual factors responsible for why so many homes burned. Although the document itself states that, "the most important factor in protecting a structure is with the structure itself," its action plan essentially ignores this fact.

The only recommendation in the CWPP action plan that directly addresses how to reduce community flammability is the production of an educational brochure (please see the attached, updated review of the CWPP by the scientific community).

Based on our analysis, the community burned in the Holiday Fire is within a well-known wind corridor. The fire was fueled by suburban vegetation, weedy grasses, and structures, *not wildland habitat*. A fuel break would not have been relevant in reducing the losses. Regardless, there is no suitable location to place one. As is the case with most devasting, wind-driven wildfires, embers were primarily responsible for igniting the homes.

Most of the burned homes did not have proper fire safety features, and those that still stand remain at risk as do those in other communities such as Painted Cave. **The CWPP fails to address such risks, including effective evacuation procedures.** Please consider these facts when evaluating the document.

Sincerely,

Richard W. Halsey
Director

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September 29, 2018

Santa Barbara County Board of Supervisors
105 East Anapamu Street
Santa Barbara, CA 93101

Re: Eastern Goleta Valley Mountainous Communities CWPP

Dear Members of the Board,

We have reviewed the final draft Eastern Goleta Valley Mountainous Communities Wildfire Protection Plan (CWPP) and believe we can offer the Board valuable input to assist in its goal of protecting lives, property, and the environment from devastating wildfires.

During our participation in helping to shape the CWPP's original draft we were initially impressed with the development team's interest in incorporating the latest science as it applies to both community protection and the county's local ecology. The first five sections of the draft include some of the best research available when it comes to why homes ignite, how fires behave, and how the region's chaparral ecosystems respond to fire. We have listed some of the CWPP's statements that reflect the best available science at the end of this letter.

Given the fact that the CWPP acknowledged these important issues, we anticipated that the draft would offer new, innovative strategies to reduce the flammability of communities.

Unfortunately, when it comes to the action plan portion of the CWPP, the document is almost exclusively focused on the older approach – clearance of vegetation. **Although vegetation treatments are an important part of the fire risk reduction equation, they have often failed to protect property and lives when the most dangerous fires have occurred.** We need to think and act differently.

Therefore, we urge the Board to request the development team revise the CWPP to emphasize what it already concludes: "... the most important factor in protecting a structure is with the structure itself" (pg. 119). We need to develop a plan that addresses structure and community vulnerability with as much detail and weight as the current draft CWPP does for large vegetation treatments. Anything less provides a false sense of security and fails to address the actual cause of home loss during wind-driven fires.

**Improper Focus/Questionable Assumptions**

Nearly one third of the document focuses on describing the types and placement of vegetation clearance projects. In addition, by using a poorly defined set of assumptions the document implies that up to 300-feet or more of clearance (football field length) is needed around the majority of parcels covered by the CWPP. This is tantamount to eliminating the natural environment near all communities within the planning area.

We recognize that the CWPP does not include such extreme clearance distances in its action plan and uses Mission Canyon as a proxy to help explain that under extreme weather conditions, defensible space is a misnomer. The problem is that the CWPP leaves the impression that 300 feet of clearance is required to protect lives throughout the planning area. Without any qualifier, the public is left with the notion that extreme clearance distances are necessary. The CWPP needs to make it clear that such clearance activities are counterproductive. This is especially true since the area covered by the CWPP is so different from the Mission Canyon area used for comparison.

Not only are excessive clearances distances incredibly destructive to vital ecosystem services provided by the natural environment, there is no scientific evidence to support such an approach. In fact, in one section the draft appears to dismiss the overwhelming body of scientific evidence showing that huge clearance distances are counterproductive (pg. 96).

**Not Focusing on the Cause**

Although the CWPP expends significant amounts of space acknowledging the importance of the design and arrangement of buildings to their vulnerability to fire, it offers only three mild recommendations to address these issues: developing an educational tool about retrofitting structures (e.g., a brochure), providing tax structures with incentives for structure hardening, and "consider" applying for a FEMA grant for a roof replacement program (pg. 174).

Meaningful tax relief can only come from the state or federal level. The FEMA grant application process is extremely complex, so providing assistance for navigating this process is essential. The CWPP ignored this issue. Therefore, the only recommendation in the CWPP action plan that directly addresses how to reduce community flammability during a wildfire is the production of an educational brochure.

Although the CWPP mentions that a survey of structures to identify their vulnerabilities to fire is pending, there are no details on how or when such a survey will be conducted. Although a simplistic "*Defensible Space Inspection Worksheet*" is included, it does not address many of the common vulnerabilities listed on CalFire's Homeowner's Checklist and, despite its title, does not have space for actually recording the condition of a home's *defensible space*.

Another significant shortcoming of the CWPP is its lack of detail about evacuation procedures. Compared to 50 plus pages on vegetation management, the document dedicates only about seven pages to arguably one of the most important aspects of natural hazard planning.

**Recommendations**

The often-stated rationale for focusing on vegetation treatments is that they help control 90% of the wildfires, but it is actually the other10% of fires that destroy communities.

**As a consequence, it is vital that the CWPP addresses the conditions that actually cause the greatest number of lost lives and homes, wind-driven wildfires and the embers they produce that ignite flammable structures.**

We implore the County and the development team to reconsider the approach taken by the current draft CWPP. It is critical to spend as much planning time and commit as much financial support to addressing the actual cause of home loss during wildfires (structure flammability) as devoted to vegetation management. Otherwise, we will continue to lose homes and lives during fires that do all the damage – wind-driven fires that cannot be controlled by vegetation treatments (Appendix 1).

We offer the following recommendations to improve the current draft CWPP so it can achieve its stated goal of protecting our communities from wildfire:

**1. Shift the focus to saving lives, property, and natural habitats rather than trying to control wildfires**. These are two different goals with two radically different solutions. This new focus can help existing communities withstand wind-driven wildfires, instead of continually pouring resources into modifying a natural environment that continually grows back and will always be subject to wildfire.

**2. Follow the draft CWPP's recommendation to "Start at the Structure First" when developing plans to protect homes (page 119).** Develop an action plan, similar in scope and detail as developed for vegetation treatments, that addresses the wildfire protection issue from the house out, rather than from the wildland in. As the draft CWPP states, "... the most important factor in protecting a structure is with the structure itself." Dr. Jack Cohen, as referenced in the draft CWPP, explains this approach in a recent National Fire Protection Association video (https://youtu.be/vL_syp1ZScM).

**3. Create a comprehensive checklist** that follows CalFire's Homeowner Checklist to allow for the complete evaluation of a home's vulnerability to wildfire. Beyond structure flammability, it is imperative that this list covers flammable conditions around the home, such as the presence of dangerous ornamental vegetation, under-eave wooden fences/yard debris, and flammable weeds.

**4. State an objective and develop an action plan to assist existing neighborhoods-at-risk to retrofit homes** with known safety features (e.g. *external* sprinklers, ember-resistant vents, etc.) (Appendix 2).

**5. State an objective and develop an action plan to assist community Fire Safe Councils in acquiring grants** to assist homeowners to retrofit their homes to reduce their flammability (Appendix 3).

**6. Develop clear evacuation/response plans** in the CWPP that communities can understand. Develop a program that will dedicate a regular time each year for communities to practice their evacuation plans.

**7. Use the state's fire hazard maps, post-fire debris flow maps, and the County's expertise to offer assistance in future planning/development/zoning decisions.** One of the primary objectives in land use planning should be to prevent developers from putting people in harm's way. Beyond restricting development in high fire/flood hazard areas, the County could also internalize the costs of fire protection so developers assume the responsibility for possible losses caused by future wildfires and post-fire debris flows.

Creating incentives to reduce or prevent development in high fire/flood hazard areas is an achievable goal. An example is requiring developers to purchase local Fire Development Bonds for any development approved in a Very High Fire Hazard zone. These bonds could be funded by a significant portion of the tax revenue generated by said development, the developer of the property, and the residents themselves. The bonds would be used to defray the costs of damage caused by a future wildfire.

The City of Monrovia implemented another creative process – creating a wider urban-wildland buffer by purchasing parcels in high fire hazard zones.

> Because the city's hillside acreage was both publicly and privately owned, the City Council decided to seek voter approval for two measures. The first designated city-owned foothill land as wilderness or recreational space and limited development on the private property. The other was a $10-million bond, the revenues from which would be used to purchase building sites from willing sellers. Both passed by a wide margin. In the end, Monrovia spent $24 million for 1,416 acres, paying off the bonds with parcel taxes and gaining an added benefit: a deeper urban-wildland buffer. (Miller 2018)

**8. Reevaluate defensible space guidelines** so treatment and distances are based on science. The guidelines in the draft CWPP are excessive and do not account for the physical impact of bare ground on ember movement, increased flammability due to the spread of invasive weeds, and increases in erosion and sediment movement in watersheds (Appendix 4).

**9. Establish an interdisciplinary fire preparedness task force versed in Catastrophic Risk Management (CRM) to review the CWPP each year to assess its success and the failures in dealing with wildfires.** Ensure that a majority of task force members can speak freely, enabling them to offer creative solutions. Airlines use CRM through Crew Resource Management programs that allow them to objectively analyze plane crashes, thereby creating safer planes. The success of CRM is owing to the penchant of managers in high-risk organizations to "normalize deviance," engendering a focus on positive data about operations while ignoring contrary data or small signs of trouble. Small deviations from standard operating procedures are tolerated until disasters, such as the Deepwater Horizon offshore oil platform blow out, the Challenger Space Shuttle explosion, and unprecedented losses caused by the 2017-18 wildfires, necessitate a change in thinking.

**10. Conduct a thorough analysis of the long-term impacts of fuel management projects on environmental resources, especially in light of climate change and population growth.** Although the CWPP addresses the local planning efforts (such as the Eastern Goleta Valley Community Plan), regulations, ordinances, and laws affecting their fuel management plans, it doesn't analyze the impacts of its proposals on environmental resources. Simply stating that all fire management activities will comply with applicable environmental laws is not adequate.

The question of whether or not plan impacts should be addressed within the CWPP, or if the CWPP itself should be subjected to the CEQA process, should be discussed. Examining the impacts of each specific action when proposed on a piece meal basis risks violating CEQA.

The flooding and debris flows after fires often have greater effects on people, their property, and native species than the fire itself. As a consequence, the CWPP should provide more information on how the fuel treatments would affect these hydrological and geomorphological processes. Over the longer term, if frequent fuel treatments result in type conversion, the potential for fire increases with many repercussions for watershed hydrology, geomorphology, biology, etc.

Additional clearance of native vegetation will likely destroy or degrade wildlife habitat. Although the CWPP lists applicable Eastern Goleta Valley Community Plan (EGVCP) policy, it doesn't address the degree to which the CWPP is in compliance with the plan. How will proposed vegetation clearances in the CWPP dovetail with Environmentally Sensitive Habitats (ESH) identified by the County, either under its old ESH map or under the recently-released draft ESH map? The County is currently holding informational meetings on the new draft ESH map, which is based primarily on the delineation of vegetation alliances derived by aerial imagery. However, the draft ESH map only considers one of the seven criteria for designating ESH, so it should be considered incomplete. The CWPP states that it will include the new ESH map and should compare its detailed vegetation clearance plan to the map. Consequently, the CWPP should not be deemed complete until the new ESH map is approved and the CWPP has addressed congruence between their plans and the EGVCP and ESH map.

Sincerely,

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Director
California Chaparral Institute

Dr. Carla D'Antonio
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Dr. Scott D. Cooper
Research Professor
Dept. of Eco., Evo., M. Bio.
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Statements in the draft CWPP that reflect the best available science:

1. "Wildfires are inevitable; however, the loss of human life is preventable and the loss and damage to human development and natural and cultural resources can significantly

be reduced through thoughtful planning and careful implementation of hazard mitigation actions."

2. "... in the Planning Area, there is no evidence whatsoever to support the concept of too much fire suppression leading to "fuels build-up" such that fire should be re-introduced. ... fire management and protection of human development must be based on this place-based science, rather than trying to apply science from other regions in California and the western US where ecosystems and fire regimes are considerably different."

3. "WUI fire disasters are most commonly associated with extreme fire behavior conditions that account for the one to three percent of the wildfires that escape control by initial attack resources."

4. "Intensive vegetation treatment in localized critical areas that are regularly maintained and highly accessible (especially during a wildfire event) coupled with focused efforts to mitigate home construction materials with fire-resistant materials, will likely be the most effective strategy for reducing both impacts to life safety and structure loss."

5. "Research has shown repeatedly that the main reason for structure loss during a wildfire is the ignitability of a structure itself with burning embers acting as the primary source of structure ignitions in the WUI."

# Appendix 1

**Fuel treatments are often ineffective in stopping wind-driven fires**

There are dozens of anecdotal stories about fires stopping at previous fire scars. There is no doubt that happens. However, when assessing the use of scarce resources, government agencies must consider the cost/benefit of every action to ensure they are not spending money on efforts that are less effective than others.

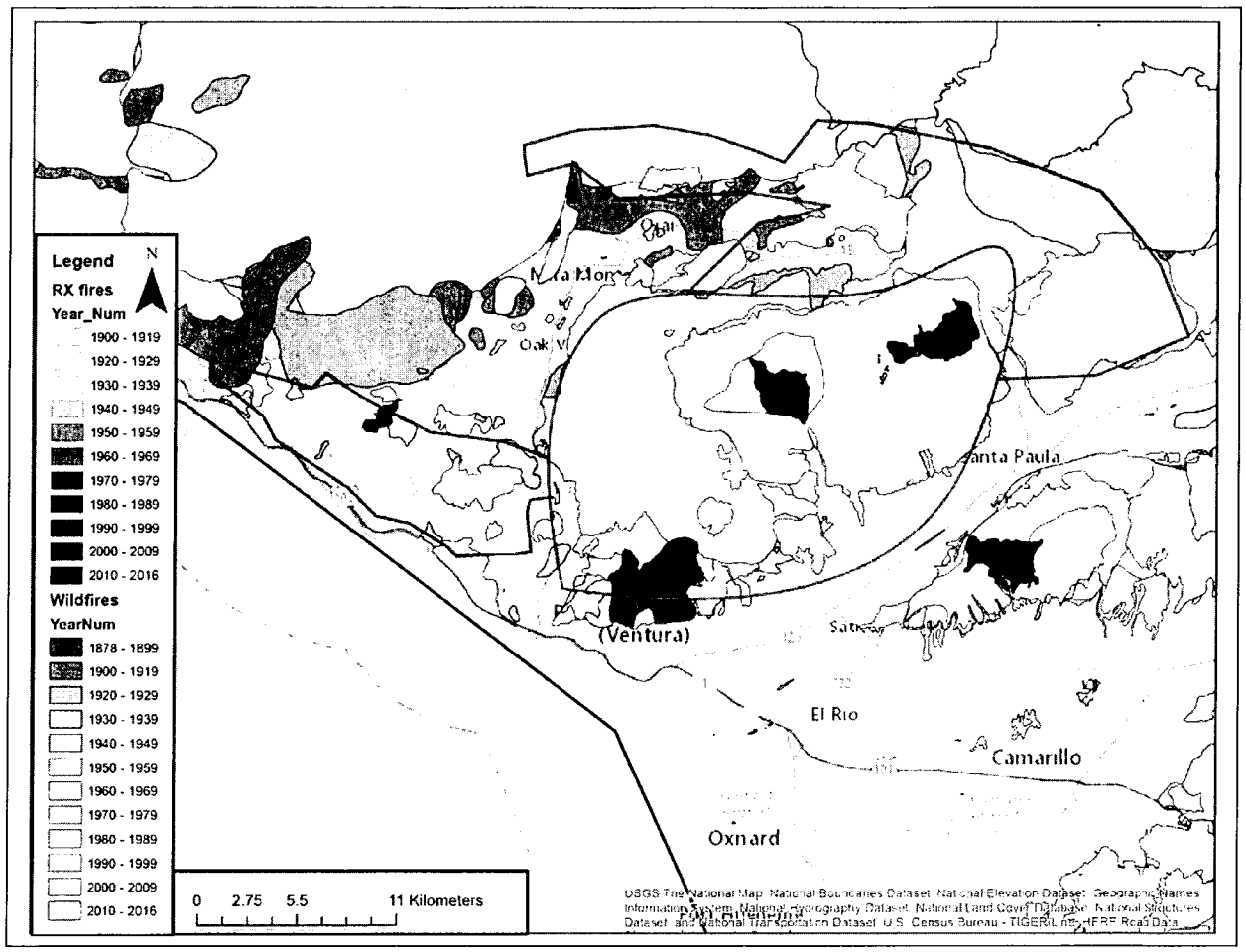



**Figure 1. Prescribed burns within the Thomas Fire.** The blue polygons show recent prescribed burns conducted by the Ventura County Fire Department. The red outline shows the rough perimeter of the Thomas Fire during its first hours. Source: USGS.

As evidenced in Fig. 1, recent prescribed burn treatments (shown in blue) were not helpful in preventing the spread of the 2017 Thomas Fire (while Ventura County wind patterns differ from those in Santa Barbara, this example remains applicable to wind-driven events like sundowners).

The easternmost prescribed burn in Fig. 1 is off Salt Marsh Road, downwind of the probable origin of the Thomas Fire. The middle burn is in Aliso Canyon. Neither of these appear to have provided anchor points for fire suppression activities.

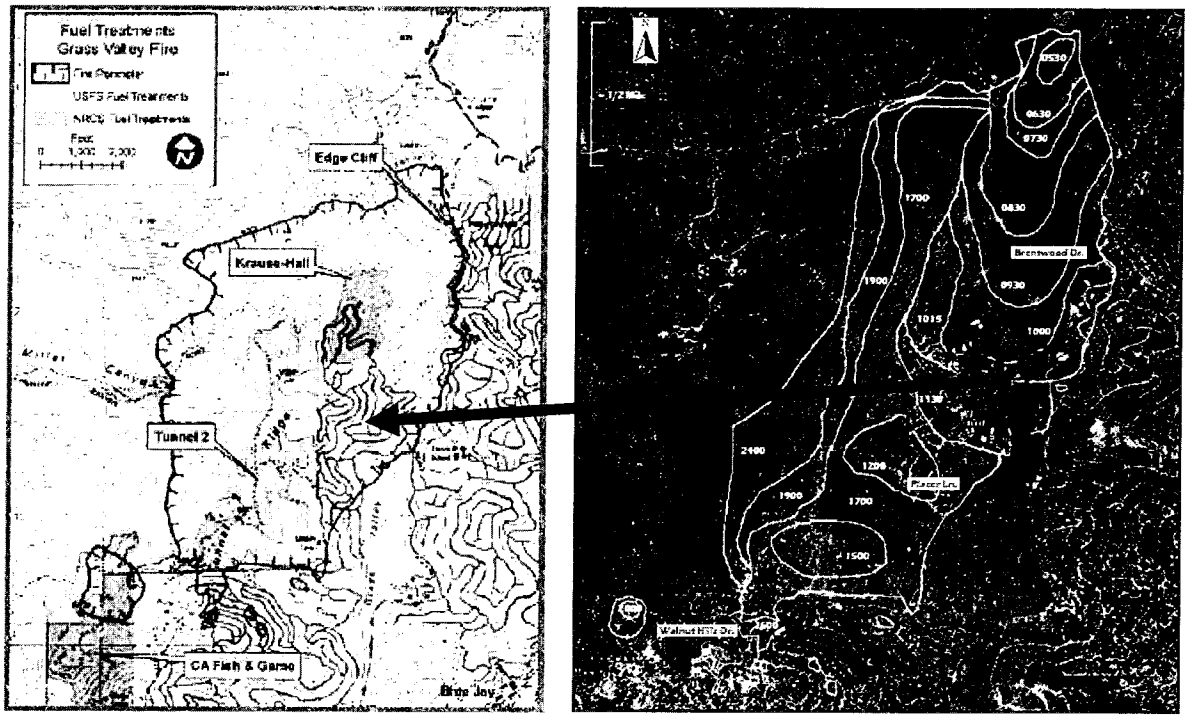
Wind-driven fire generally spreads faster through grassy fuels than shrub fuels. Consequently, it is reasonable to assume that the fire may have spread faster through these fuel treatments than it might have through the native shrubs that were present prior to treatment. Of course, the high winds and low humidity during this fire insured fire spread regardless of fuel conditions.

The burns near the southern edge of the fire, in Hall, Barlow, and Sexton Canyons, have existed for many years and were intended to create opportunities for controlling a fire, however they did little to stem fire spread.

Initially, the head fire spread 14 miles from its origin outside of Santa Paula to downtown Ventura in about five hours, with spot fires ignited by embers along the entire way. This kind of fire behavior would likely defeat any fuel break.

Obviously, further research is needed to determine all the factors involved in the Thomas Fire's spread, especially in Santa Barbara County, but the consequences are clear from the damage assessment shown in Fig. 2 below. The prescribed burns did little to protect the community. This is especially the case for the southernmost prescribed burn just above the northern edge of Ventura.


**Figure 2. Home losses from the Thomas Fire on the edge of Ventura.** Burned homes are indicated by orange dots. A prescribed burn was conducted just above the burned homes in the center middle of the image. Based on visual confirmation as of 12/8/2017: https://www.google.com/maps/d/viewer?mid=10S-m7mBzbjvG1rjiJ8wFAIbeG-F5VoKS&ll=34.2989948363656%2C-119.20525410881879




**Figures 3 and 4. The 2007 Grass Valley Fire, Lake Arrowhead, California.** Map on the left show fuel treatments as orange and green polygons (Rogers et al. 2008). Map on the right shows location of 174 homes burned in the fire (Cohen and Stratton 2008).

In the 2007 Grass Valley Fire, the US Forest Service and the Natural Resource Conservation Service had created several fuel treatments around the community of Lake Arrowhead (Fig. 3). Reportedly, the fuel treatments performed as expected by allowing firefighters to engage the fire directly and reducing the rate of spread and intensity (Rogers et al. 2008). However, the end result for the community was much less positive: one hundred and seventy-four homes were lost (Fig. 4).

The comprehensive analysis of the Grass Valley Fire by US Forest Service scientists (Cohen and Stratton 2008) concluded that,

> Our post-burn examination revealed that most of the destroyed homes had green or unconsumed vegetation bordering the area of destruction. Often the area of home destruction involved more than one house. This indicates that home ignitions did not result from high intensity fire spread through vegetation that engulfed homes. The home ignitions primarily occurred within the HIZ due to surface fire contacting the home, firebrands accumulating on the home, or an adjacent burning structure.
>
> Home ignitions due to the wildfire were primarily from firebrands igniting homes directly and producing spot fires across roads in vegetation that could subsequently spread to homes.

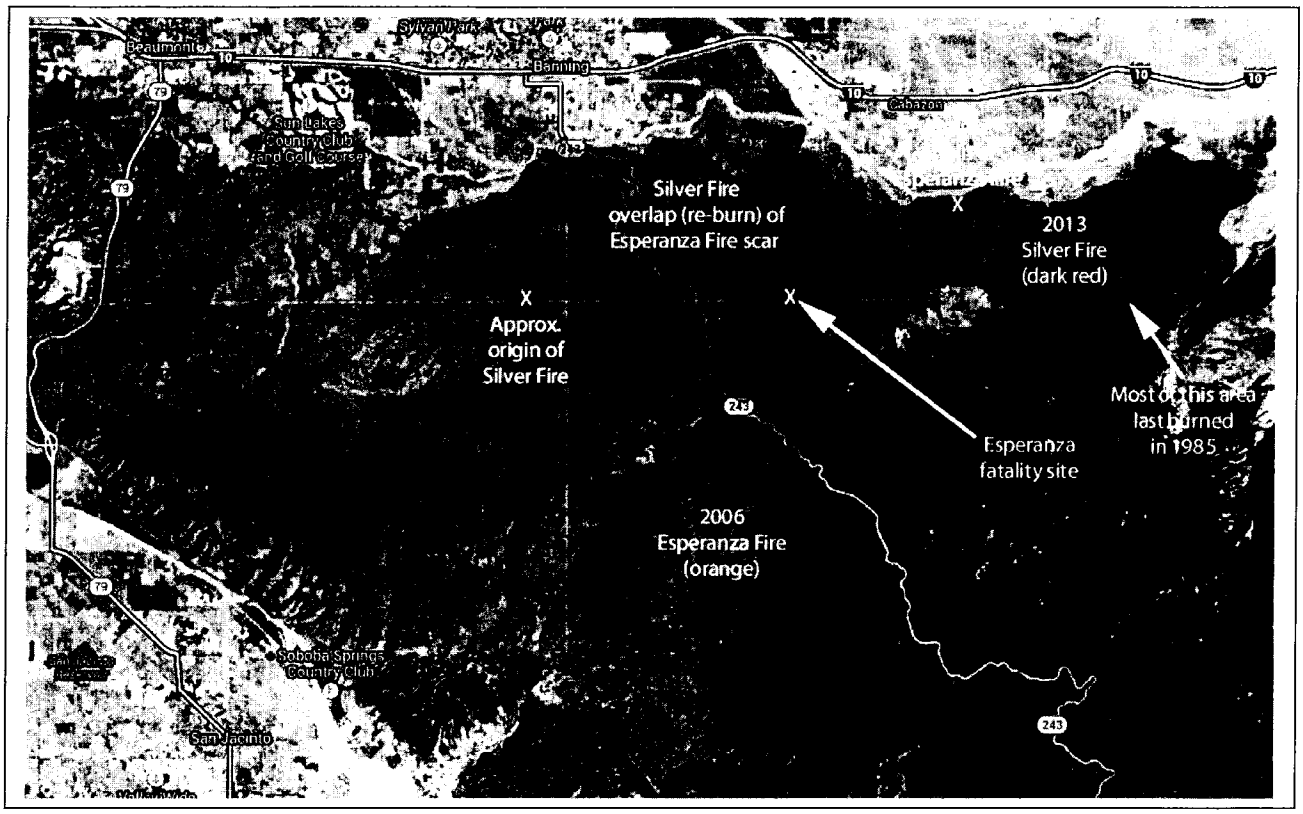



**Figure 5. Reburned after seven years.** The 2013 Silver Fire reburned almost entirely within the deadly 2006 Esperanza Fire scar near Banning, California.

The 2013 Silver Fire near Banning, California (Fig. 5) challenged the fundamental assumption of that treating older vegetation is an effective way to prevent devastating wildfires. Most of the fire burned through invasive weeds and young, desert chaparral that was recovering from the deadly 2006 Esperanza Fire. **Twenty-six homes were lost in a fire that was fueled by seven-year-old vegetation.**

There are numerous other examples and a number of solid research papers explaining why and how homes burn. Cohen and Stratton (2008) summarized information from these fires:

> These incidents remind us to focus attention on the principal factors that contribute to a wildland-urban fire disaster—the home ignition zone.

We also know of numerous examples where fire suppression has been facilitated when flames meet previous fire perimeters. Suppression of the 2017 Thomas Fire in Santa Barbara County was reportedly aided when its western edge reached the 2008 Tea and 2009 Jesusita Fire perimeters. However, the weather changed at the same time as well.

**We are not arguing that fuel modification can be a tool that helps control non-wind driven wildfires.** However, the nearly exclusive financial and time focus on fuel modification has failed

us. How else can we account for the loss of 45 lives and nearly 10,000 structures in wildfires from October to December, 2017?

# Appendix 2

## External Sprinklers

A retrofit that is not typically used in California, but has been used effectively in Australia and Canada, is external sprinklers (Mitchell 2005). Although internal fire sprinklers certainly help save lives within homes, additional external sprinklers can save both lives and homes (Fig. 6 below).

External sprinklers, coupled with an independent water supply (swimming pool or water tank), should be required for all homes within very high fire hazard zones. Clusters of homes could be served by a community water tank and should be required for every planned development.

Many residents have retrofitted their homes with external sprinkler systems to protective effect. For example, under-eave misters on the Conniry/Beasley home played a critical role in allowing the structure to survive the 2003 Cedar Fire in San Diego County. The home was located in a canyon where many homes and lives were lost (Conniry 2008).

**Figure 6. External sprinklers.** As a wildfire approaches, external sprinklers wet the structure at risk, the surrounding environment, and increase the local humidity to prevent ignition. Photo: A conference center in New South Wales, Australia.

# Appendix 3

**FEMA Pre-disaster Grants**

**Mountain communities can use federal grants to install ember-resistant vents and eliminate wood roofs, vital to reducing home loss during wildfires**

In 2013, David Yegge, a fire official with the Big Bear Fire Department, submitted his fourth grant proposal to the FEMA pre-disaster mitigation grant program to pay up to 70% of the cost of re-roofing homes with fire-safe materials in the Big Bear area of San Bernardino County. Yegge also has assisted Idyllwild and Lake Tahoe in applying for grants, including the costs of installing non-ember intrusion attic vents.

Yegge's first $1.3 million grant in 2008 retrofitted all but 67 of 525 wooden-roofed homes needing retrofits in Big Bear Lake. A forward-thinking, "no-shake-roof" ordinance passed by the Big Bear City Council in 2008 required roofing retrofits for all homes by this year. San Bernardino County passed a similar ordinance in 2009 for all mountain communities, with compliance required by next year. Such "future effect clause" ordinances can be models for other local governments that have jurisdiction over high fire hazard areas.

To qualify for a FEMA grant, a cost/benefit analysis must be completed. "Our analysis indicated that $9.68 million would be saved in property loss for every $1 million awarded in grant funds," Yegge said. "FEMA couldn't believe the numbers until they saw the research conducted by then Cal Fire Assistant Chief Ethan Foote in the 1990s. There's a 51% reduction in risk by removing wooden roofs."

"The FEMA application process is challenging, but well worth it," said Edwina Scott, Executive Director of the Idyllwild Mountain Communities Fire Safe Council. "More than 120 Idyllwild homes are now safer because of the re-roofing program."

**Additional Information**

In California, the state agency that manages the grants is the Governor's Office of Emergency Services (Cal OES), Hazard Mitigation Grants Division. Cal OES is the administrative agency and decides what grant proposals are funded based on priorities established by the State Hazard Mitigation Plan.

The Mountain Area Safety Taskforce re-roofing program:
http://www.thinisin.org/shake/

The San Bernardino County re-roofing ordinance:
http://www.thinisin.org/shake/images/DOWNLOADS/ORDINANCES/ord_4059.pdf

FEMA grant program:
http://www.fema.gov/pre-disaster-mitigation-grant-program

# Appendix 4

## The Impact of Improper Vegetation Treatments/Clearance Activities

After investigating why homes burn in wildfires, research scientists Syphard et al. (2012) concluded, "We're finding that geography is most important - where is the house located and where are houses placed on the landscape."

Syphard and her coauthors gathered data on 700,000 addresses in the Santa Monica Mountains and part of San Diego County. They then mapped the structures that had burned in those areas between 2001 and 2010, a time of devastating wildfires in the region.

Buildings on steep slopes, in Santa Ana/sundowner wind corridors and in low-density developments intermingled with wild lands had the highest probability of burning. **Nearby vegetation was not an important factor in home destruction.**

The authors also concluded that **the exotic grasses that often sprout in areas cleared of native habitat like chaparral could be more of a fire hazard than the shrubs.** "We ironically found that homes that were surrounded mostly by grass actually ended up burning more than homes with higher fuel volumes like shrubs," Syphard said.

The suggestion in the CWPP that 300 feet or more of clearance is needed around the majority of structures within the planning area is not supported by the science. Creating large areas of clearance with little or no vegetation creates a **"bowling alley" for embers.** Without the interference of thinned, lightly irrigated vegetation, the house becomes the perfect ember catcher.

To make matters worse, when a fire front hits a bare fuel break or clearance area, a shower of embers is often released (Koo et al. 2012).

**Figure 7.** Three-hundred feet of clearance as suggested by the draft CWPP.

**Figure 8.** The invasion of non-native weeds resulting from significant soil disturbance caused by an improper vegetation treatment project above the community of Painted Cave.

As shown in Fig. 8 above, a rich, old-growth stand of chaparral has been systematically compromised by clearance activities funded by a local Fire Safe chapter in the community of Painted Cave. The foreground represents the impact of mastication, showing significant soil disturbance. In the background, the longer-term impact of earlier treatments shows the invasion and spread of highly flammable, non-native weeds and grasses. This process has increased the ignitability of this area with the addition of flashy fuels.

# Citations

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Miller, C. 2018. A way to break the terrifying pattern of fire and flood. Los Angeles Times. January 11, 2018.

Mitchell, J.W. 2005. Wind-enabled ember dousing. Fire Safety Journal 41: 444-458.

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