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Mr. John Smith
Santa Barbara Ranger District
U.S. Forest Service
3505 Paradise Road
Santa Barbara, CA 93105
Comments-pacificsouthwest-los-padres-santabarbara@fs.fed.us

October 30, 2015

Re: Santa Barbara Mt. Communities Defense Zone Project

Dear Mr. Smith,

We appreciate the opportunity to comment on this Project and would like to offer a new vision for how the Los Padres National Forest addresses fire hazard.

The first priority in fire hazard reduction needs to be the protection of life and property through community retrofits, appropriate defensible space, and properly constructed strategic fuel modifications directly next to communities, all based on the best available science. This is a different priority than the one that currently drives wildland fuel treatments: attempting to stop the fire.

“How do we best protect life and property?” rather than “How do we stop a wildland fire?” are two completely different questions that result in two completely different solutions.

As a consequence, a Categorical Exclusion (CE) is not appropriate for this Project because it does not adequately address possible alternatives that can provide greater reductions in fire hazard with less environmental impact. In addition, a CE is not appropriate because this Project will likely have “significant effects on the environment,” and there is the presence of “unusual circumstances.” **Such variables cannot be properly addressed without conducting a thorough Environmental Assessment (EA).**

We have addressed the inapplicability of the wildlife exclusion under 36 CDF 220.6(e)(6) and other issues in our joint letter with Los Padres Forest Watch. In this letter, we will supplement those comments by expanding on three different issues: alternatives to increasing fire hazard due to spread of weeds, the misplacement of fuel breaks, and failure to account for sensitive species.

Alternatives to increasing fire hazard due to spread of weeds

We strongly support construction of 100 feet of defensible space because this has been clearly verified as the most effective way to protect communities and structures from wildland fire.

However, clearance beyond 100 foot defensible space zones can actually increase fire risk rather than reduce it.

For example, over the past decade, several large areas around the community of Painted Cave have been unnecessarily cleared in the name of fire protection by the Wildland Residents Association (see Figure 1 below). These projects are referenced in the Proposed Action document. What has actually been accomplished by the clearance activity is an increase in fire hazard due to the invasion of light, flashy fuels.

Recent research examining fire risk in California by studying vegetation growing within roughly half a mile of structures has found that **the exotic grasses that often sprout in areas cleared of native habitat like chaparral can 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," lead scientist Alexander Syphard said (Syphard et al. 2012).

Research has clearly shown that a better use of resources and tax-payer dollars would have been to help the residents of Painted Cave to retrofit their structures with fire safe roofing, attic vents, and other structural changes.

It is the houses themselves, their location, and the fuels within 100 feet of those houses (including litter in gutters, yard junk, cultivars like palms and acacia, wood piles, etc.), that determine whether the property is vulnerable to fire.

Dr. Jack Cohen (2000), a research scientist with the US Forest Service, has concluded after extensive investigations that home ignitions are not likely unless flames and firebrand ignitions occur within 120 feet of the structure. His findings have shown that,

...effective fuel modification for reducing potential WUI (wildland/urban interface) fire losses need only occur within a few tens of meters from a home, not hundreds of meters

or more from a home. This research indicates that home losses can be effectively reduced by focusing mitigation efforts on the structure and its immediate surroundings (Cohen 1999).

Cohen's work is consistent with the research on homes with nonflammable roofs conducted by other scientists. During WUI wildland fire events, Foote and Gilless (1996) at Berkeley found an 86 percent home survival rate for homes with a defensible space of 84 feet.

The removal of chaparral can indeed reduce flame lengths as described in the Proposed Action. However, the focus on flame lengths is embedded in the older paradigm of attempting to "stop fires" rather than emphasizing the protection of lives and property. In addition, the fine, flashy fuels that typically replace chaparral in poorly constructed fuel treatments are one of the common denominators on fatal and near-fatal fires (Mangan 2007). This issue must be part of the cost/benefit analysis within an EA when designing fuel treatment projects. A CE cannot adequately accomplish this calculation.

Although vegetation management is a critical component in reducing fire risk and hazard, excessive clearance beyond reasonable defensible space zones is unnecessary and can create a number of serious problems including increased flammability due to weeds, erosion, and loss of habitat.

Grassy fuels are also where most of California's wildland fires start, including many of the largest in the state.

- The 2007 Zaca Fire (SB County) was caused by sparks from a grinder igniting nearby grass.
- - The 1991 Oakland Hills Fire, the most devastating fire in California (lives lost/insurance costs), began as a small grass fire in the Berkeley Hills.
- The 2007 Witch Creek Fire (San Diego County) was started by sparks from power lines igniting grass below.
- The 2013 Springs Fire in the Santa Monica Mts. was started in grass along the side of Highway 101.



Figure 1: Painted Cave clearance operation. The foreground represents the impact of mastication of native chaparral 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. Additional pictorial examples of habitat clearance projects for the purpose of “treating fuels” near and within the Los Padres National Forest can be found in the following online album:

<https://plus.google.com/photos/111832478062101189732/albums/5512793492339288961>

Most wildfires also start along roadsides, such as East and West Camino Cielo, where grass is the predominant fuel type. Therefore, we strongly recommend the following to mitigate the spread of flammable, invasive weeds and to help restore previously damaged habitat:

1. Anticipate, monitor, and provide for perpetual treatment of weed infestations anywhere within the existing fuel break using hand tools, hand-held power tools, and hand-applied herbicides. We do not recommend goats as they are known to disrupt fragile soil ecology. Exotic invasive grasses in the fuel break along the edges of West Camino Cielo and other open public roads and congregating points should be mowed annually to reduce the risk of wildfire ignitions. Highly noxious invasive weeds should be treated annually to prevent colonization and spread into nearby native vegetation;

2. Instead of the massive clear cuts that have been created along West Camino Cielo in the past (Figure 2), the district should allow for the recolonization of native vegetation within existing and new fuelbreaks in order for habitat islands to form in the following manner:

Fuel breaks should be no wider than 150 feet, except for specific firefighter safety zones. For initial mastication and hand cut treatments, 50 to 70 percent of the vegetation would be treated, leaving untreated islands of shrubs generally no greater than 0.25 acre in size. These islands would have undulating edges to provide a natural appearance. If possible, the retained islands would consist of differing plant species to maintain plant species diversity.

3. Reduce fire risk by closing West and East Camino Cielo Roads during Red Flag Days.



Figure 2. Clearing of chaparral along West Camino Cielo. Leaving random, individual specimens during a mastication effort does not provide any significant value. Rather, islands of habitat of approximately .25 acres should be retained within fuelbreaks that are no wider than 150 feet, along with perpetual invasive weed control.

Embers

Discussing wildland fire ignitions caused by hot metal fragments, like the source of the Zaca Fire, Zak et al. 2015 concluded,

“Although these bits cool as they fall to the ground, they can ignite a flame that quickly spreads if they land on a prime fuel source like pine needles or dry grass.

At least 28,000 fires occur each year in the United States due to hot metal hazards, according to a 2013 U.S. Department of Agriculture report. For instance, in 2007, a spark from power lines traveled over the wind and landed in dry grass near Witch Creek Canyon in California. Days later, 1,100 homes and 200,000 acres had burned, with \$1.8 billion in losses.”

Another issue concerning over-clearing relates to how fire behaves once it encounters a bare fuel break without encountering objects (such as properly thinned vegetation) that can interfere with air flow. Large areas of clearance around homes can create a “bowling alley” effect whereby embers are directed straight to the home. Koo et al. 2012 discuss this issue in a recent paper.

“Simulations of HIGRAD/FIRETEC with fuel breaks (Pimont et al. 2009) demonstrated that the entrainment flow from the fuel break side was enhanced when the fireline hit the fuel break owing to a decrease in drag. The enhanced entrainment can loft more firebrands, which coincides with the field experiments and observations: *a fire that reaches a fuel break often releases a shower of firebrands* (Gould et al. 2009).”

Grants to Retrofit Unsafe Communities

We urge the US Forest Service and the local Santa Barbara area Fire Safe Councils to avail themselves to FEMA pre-disaster grants to retrofit communities like Painted Cave.

Last year, 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 has also assisted the towns of Idyllwild and Lake Tahoe to do the same. The grant includes the installation of non-ember intrusion attic vents.

Yegge’s first grant was for \$1.3 million in 2008. He identified 525 wooden-roofed homes in need of retrofits in the community of Big Bear Lake. Only 67 remain. Helping to push homeowners to take advantage of the program is a forward-thinking, “no-shake-roof” ordinance passed by the Big Bear City Council in 2008 requiring roofing retrofits of all homes by this year.

San Bernardino County passed a similar ordinance in 2009 for all mountain communities. Homeowners have until next year to comply. Such “future effect clause” ordinances can be models for Santa Barbara County as well.

In order to qualify for the 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.”

The state agency that manages the grants is the California Governor’s Office of Emergency Services (Cal OES), Hazard Mitigation Grants Division. Cal OES is the go between agency and they decide what grants get funded based upon priority established by the State Hazard Mitigation Plan. Without the help and assistance of Cal OES, it is not likely the FEMA grants would have been funded.

The Mountain Area Safety Taskforce re-roofing program:

<http://www.thisisin.org/shake/>

The Big Bear re-roofing ordinance:

http://www.thisisin.org/home/images/stories/downloads/Ord_2008-383.pdf

The San Bernardino County re-roofing ordinance:

http://www.thisisin.org/shake/images/DOWNLOADS/ORDINANCES/ord_4059.pdf

FEMA grant program:

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

A comprehensive approach to home protection:

<http://www.californiachaparral.org/bprotectingyourhome.html>

Misplacement of Fuelbreaks

We understand the rationale of tying into previously treated areas by creating new fuel breaks in order to create strategic points to conduct fire suppression activities. However, expanding a ridgeline fuel break up to 300 feet across (the length of a football field) has been demonstrated to

have questionable value especially when compared to treatments directly around threatened communities. We discuss the science behind this conclusion in our joint letter with Los Padres Forest Watch with references to relevant research such as Syphard et al. 2011.

Local experience confirms this research. For example, the Windy Gap fuelbreak was ineffective in stopping the spread of the 2008 Gap Fire according to testimony from residents in the community of Painted Cave.

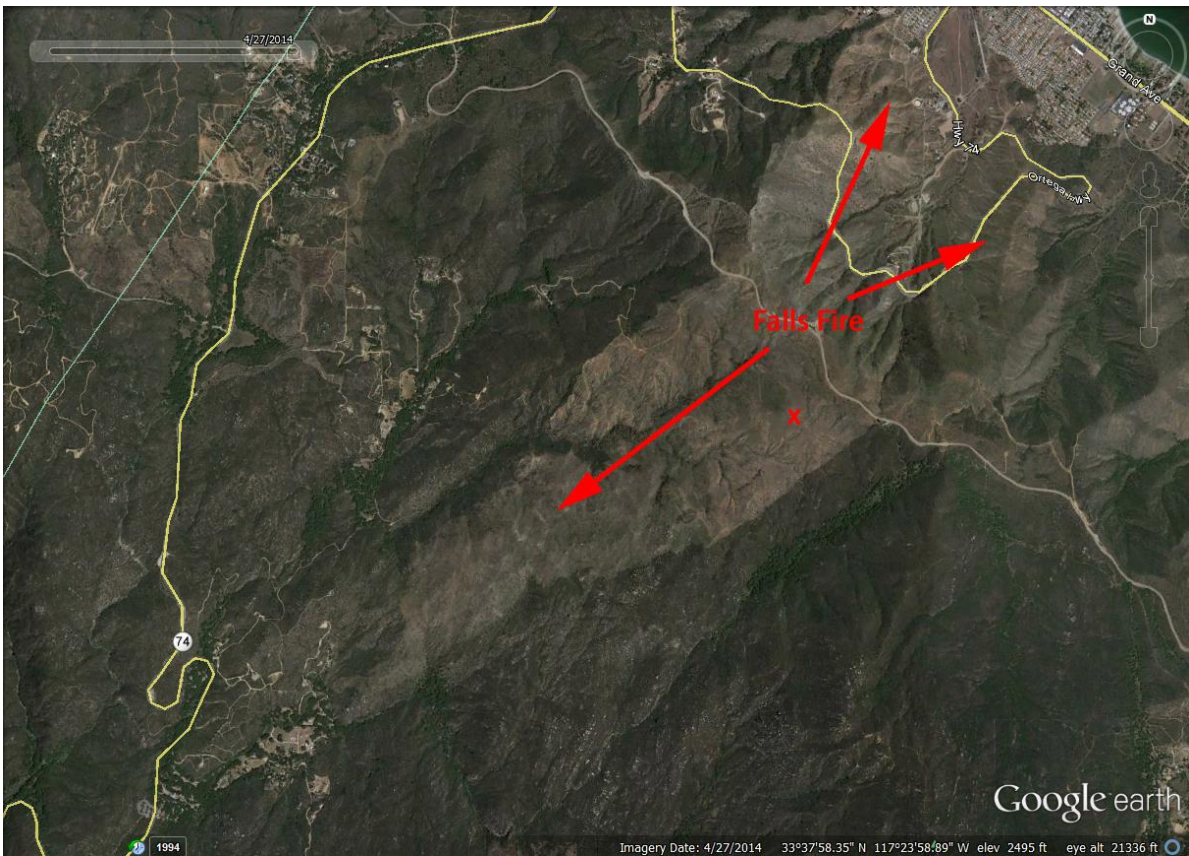
The proposed widening of the Gaviota Refugio Canyon fuelbreak to up 300 feet cannot be justified if a thorough cost/benefit analysis is completed. The fuelbreak is in a remote area that does not provide significant value to nearby communities. Although the 1955 Refugio Fire did burn over the ridge onto the northern side of the Santa Ynez Mountains, it was stopped by suppression efforts in the valley before causing serious loss of property. The 2004 Gaviota Fire did not burn over in part because the current ridgeline fuel break was adequate.

The 2013 Falls Fire on the Cleveland National Forest provides an example of the lack of efficacy of 300 foot wide, ridgeline fuelbreaks (Figures 3 and 4). Even in the presence of fire crews, the fire jumped the ridge and headed into valley communities.

The only treatments that we find justified for community protection in the Project are modified versions of the Painted Cave treatment and the North and South San Marco Trout Club treatments. The southern portion of the Haney Tract West treatment is right next to an already extensive, type-converted area. There is no need for additional damage that would be caused by another treatment. The Rosario Park treatment can be justified as a strategic project, but it needs to be modified to reflect the design explained above (Invasive weed mitigation #2).



Figures 3 above (pre-fire) and 4 below (post-fire). Failure of a 300 foot wide fuel break.



Failure to account for sensitive species

The excessive widths employed in the construction of the Gaviota Refugio fuelbreak will likely cause a significant loss for the sensitive species, Refugio manzanita (*Arctostaphylos refugioensis*). The fuelbreak is proposed to run down the center of the species only area of distribution. See distribution map in Figure 5.

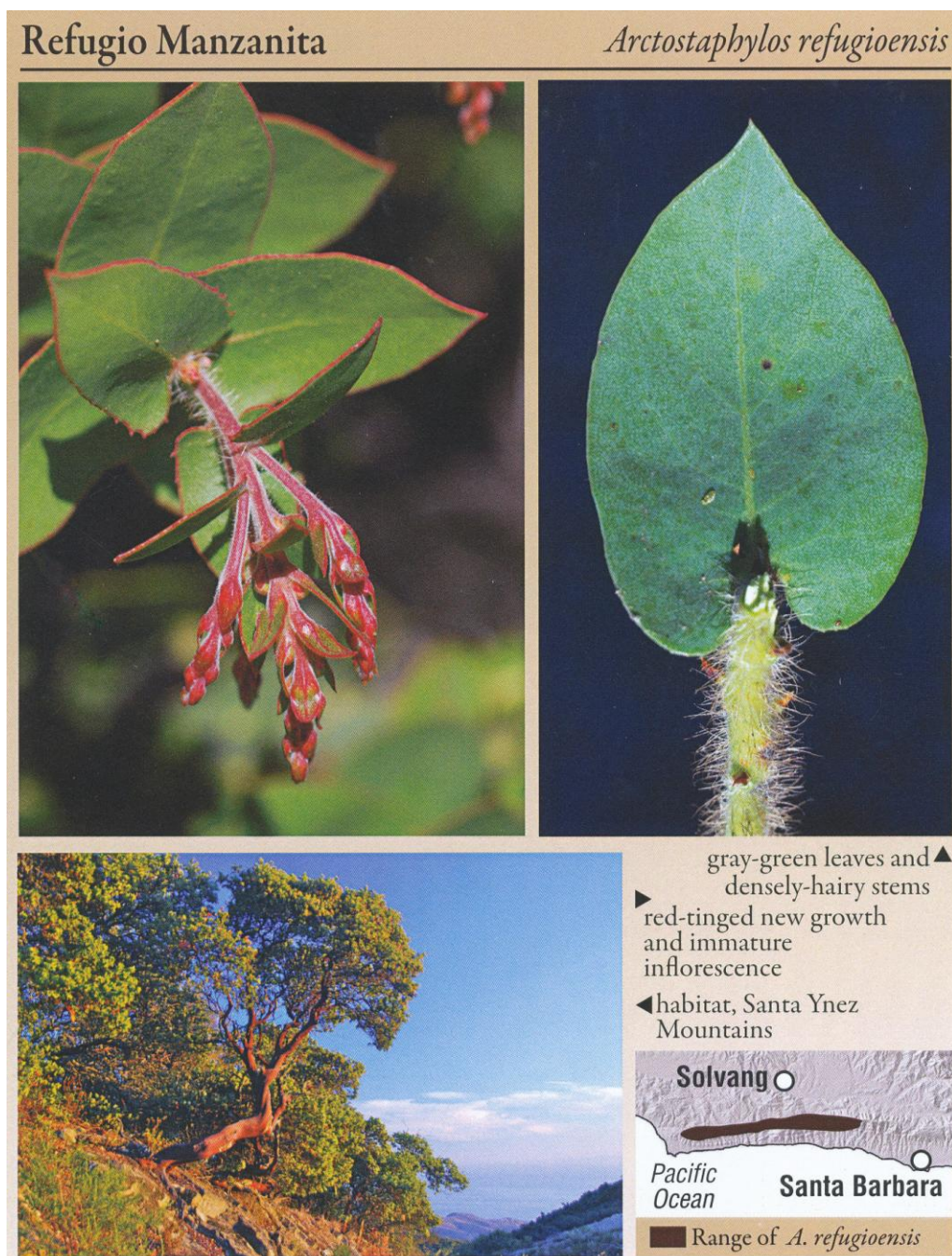


Figure 5. Characteristics and distribution of Refugio manzanita (*Arctostaphylos refugioensis*). From Kauffmann et al. 2015.

The Proposed Action does not specify any mitigation measures for the inevitable destruction of individual specimens by mastication. This is an obligate seeding species; therefore mastication will likely extirpate the species from the area of treatment. Leaving isolated shrubs with the surrounding canopy cover removed has typically failed to save individuals within treatment areas near the community of Painted Cave. This is likely due to changes in the microclimate and the disruption of soil flora and fauna (Figure 5). Considering the narrow distribution of this species, it is unlikely the loss can be mitigated. At the very minimum, there should be a ten foot buffer around each individual or cluster of individuals.



Figure 5. Dying mission manzanita (*Xylococcus bicolor*) after clearance activity near the Cleveland National Forest.

Beyond the potential extirpation of Refugio manzanita, the disruption of animal habitat is also significant. Attempts to spare big-eared woodrat (*Neotoma macrotis*) nests from the masticator ultimately fail due to their exposure to the elements and predators.

Past mitigation efforts to avoid both Refugio manzanita and big-eared wood rat nests are shown in Figure 6 within the fuel break recently constructed along West Camino Cielo. Such mitigation efforts are inadequate.



Figure 6. Isolated big-eared wood rat nest and Refugio manzanita within the West Camino Cielo fuelbreak.

Also of interest in Figure 6 is the careful avoidance of an artificially planted, non-native conifer plantation (left in photo). The protection of such disruptive elements within the chaparral ecosystem over native species is perplexing. Beyond the fact that the pines are not native and are becoming somewhat invasive at this location, they also provide an extremely flammable concentration of fuel. They should be removed to reduce flammability of the landscape and to restore the natural plant community.

Cumulative Effects

As you know, NEPA defines a “cumulative impact” as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

There have been significant impacts caused by vegetation modification projects on the Santa Barbara Ranger District in the past. All of these past projects and the current one should be

considered in planning. This is another reason why a CE is not an adequate approach in examining the Santa Barbara Mountain Communities Defense Zones Project.

We thank the Los Padres National Forest for considering our comments. We are hopeful Forest staff will recognize that the complexities involved in this Project require a thorough Environmental Analysis in order to better protect human communities, firefighters, and valuable natural resources.

Sincerely,



Richard W. Halsey, Director
California Chaparral Institute
email: rwh@californiachaparral.org
www.californiachaparral.org

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