

Board of Forestry and Fire Protection
ATTN: Edith Hannigan, Board Analyst
1416 9th Street, Room 1506-14
Sacramento, CA 95814

August 9, 2019

Re: The California Vegetation Treatment Program Draft Program EIR

Dear Members of the Board, Executive Officer Matt Dias, Deputy Secretary of Forest Resources Management Jessica Morse, Senator Hannah-Beth Jackson, and Edith Hannigan,

We remain hopeful that, by working collaboratively, the State can create an effective Vegetation Management Program (VTP) that can prevent future catastrophic wildfires and protect fragile, native habitats threatened by climate change. We have had detailed discussions with a number of talented individuals within the State government who have shown the courage and insight to break free from bureaucratic constraints, constraints that have prevented this process from succeeding in the past. We urge the Board to reach out to those of us who have challenged the VTP process over the past 15 years to help create a quality document all would be willing to support.

The Fundamental Challenge

All of us want to develop a comprehensive program to protect lives, property, and California's priceless biodiversity. That goal has been frustrated, however, because the State has been asking resource entities to take on a job that involves suburban fire disasters. Hence, the focus remains on managing forests far from communities most at risk and clearing habitat in a manner that often increases the speed and frequency of wildfire. In a devastating example, the town of Paradise was incinerated primarily by a tsunami of embers created by ten-year-old fuels, similar to fuels created by vegetation treatments and logging operations.

The State needs to embrace the goal of eliminating wildfire catastrophes and reject the fatalistic approach that we cannot address the devastating power of wind-driven fire.

Unfortunately, the draft EIR remains crippled by fatalism. It pursues its preferred habitat clearance approach with fingers crossed, acknowledging that the vegetation treatments it proposes will likely be ineffective during the wind-driven wildfires that kill most of the people and burn most of the homes. The draft EIR attempts to justify its approach because “most fires that occur within the state are not highly wind driven...” and that vegetation treatments can work, “when weather conditions shift, wind subsides, and fire intensity decreases.”

People die and communities burn during wind-driven fire, not when the weather is cooperating.

What the draft VTP is saying is that the State will only deal with the wildfires that can be controlled, not the ones that cause nearly all the damage.

We can prevent the devastation by acknowledging the simple fact that large, fast, high-intensity wildfires are inevitable – no matter what stories we tell ourselves about past fire suppression, anecdotal experiences, and presumed historical conditions.

However, we can prevent the devastation of our communities.

Although it is often claimed that our recent wildfires are unprecedented and their fury is surprising, history suggests otherwise. Many of the lives lost and homes destroyed in the 2017 and 2018 wildfires could have been saved if a State level entity (with access to funds a mere fraction of what has been recently allocated to protecting public utilities from wildfire liability) had applied the lessons learned during the 2003 Cedar Fire:

1. Wildfire devastation (lost lives and homes) ceases **when the weather changes**, not when a fuel break is encountered or a fire crew is present.
2. Homes primarily ignite by **embers traveling a mile or more** ahead of the flame front, not from an imagined wall of flame.
3. Fine fuels (weeds and grasses) that typically grow within vegetation treatments or type-converted areas **increase the flammability of the landscape**.
4. **Evacuation plans typically fail** because they are designed for the same types of wildfires the draft EIR addresses – non-wind-driven fires that provide the time needed to evacuate people in an orderly fashion.
5. Defensible space is a misnomer for most homes because during a large fire, **there are never enough fire crews to defend** all the threatened homes as demonstrated in Coffey Park, Santa Rosa during the 2017 Tubbs Fire.

Yet, with each passing wildfire season, with each growing list of fatalities, the State continues to allocate increasing funds to continue doing the same thing over and over again.

After the 2007 wildfires in southern California, former San Diego Fire Chief Jeff Bowman and others formed the San Diego Regional Fire Safety Forum. Chief Bowman introduced the Forum during a press conference on February 19, 2008, by dropping a large stack of fire task force documents from previous decades on the podium, documents filled with unrealized recommendations.

Eight years later, during the May 25, 2016 meeting of the California Fire Service Task Force on Climate Impacts, Chief Bowman distributed the After Action Report for the 1993 Southern California Wildfire Siege. As he did after the 2007 fires, he pointed out that the report's ninety-five recommendations for improving future responses to major fire incidents were nearly identical to those recommended by the Governor's Blue Ribbon Fire Commission after the 2003 wildfires. Again, most of those recommendations remain unrealized.

World history is littered with examples of preventable disasters when leaders at the time were blinded by prevailing paradigms and group think – the Space Shuttle Challenger explosion, the Deepwater Horizon blowout in the Gulf of Mexico, and the millions of men slaughtered in WWI due generals' failure to understand the changing dynamics of warfare (machine guns vs. swords and cavalry). The loss of so many lives in Paradise during the 2018 Camp Fire and the devastating Montecito debris flow that followed the 2017 Thomas Fire represent similar events that could have been prevented if only we had adapted to the actual challenges that we knew faced us.

With climate change increasing fire risk and threatening to change the distribution of native plant communities across the State, we cannot afford to keep doing the same thing. **We have one last chance to get this right.**

We urge you to break with the conventions that have failed to resolve the wildfire crisis and focus fire risk reduction efforts where it matters most – **directly on our homes and around our communities, not on vegetation projects far from where most of us live or in a manner that will accelerate the loss of native habitat (Attachment 3).**

We provide the following six comments/suggestions for your consideration. Please also see our previous scoping comments for additional details and references.

Six Comments/Suggestions on the Draft EIR/VTP

1. The Program's Purpose and Need and Proposed Treatments do Not Address the Wind-Driven Wildfires that Cause Nearly all the Devastation

In examining the 20 most devastating wildfires as per Cal Fire's 2019 list, nearly all have been driven by strong winds (Fig. 1).

However, the draft EIR admits the proposed treatments will not likely protect lives and property during such fires. Instead, the Programs rests almost entirely on dealing with the fires that can be controlled. This is equivalent designing buildings to withstand only 95th percentile earthquake movements, or what you would feel as a result of a magnitude 2.5.

Such an approach would fail even the most basic cost/benefit analysis. We offer an alternative approach in Attachment 3.

Fire/Rank	Deaths	Structures burned	Primary vegetation consumed	Wind-driven	Date
1 Camp	85	18,804	forest/shrubland/grass	X	11/2018
2 Tubbs	22	5,636	woodland/forest/grass	X	10/2017
3 Tunnel	25	2,900	shrubland/grass	X	10/1991
4 Cedar	15	2,820	shrubland	X	10/2003
5 Valley	4	1,955	forest/shrub/grass	X	9/2015
6 Witch	2	1,650	shrubland	X	10/2007
7 Woolsey	3	1,653	grass/shrubland	X	11/2018
8 Carr	8	1,614	forest/shrubland	X	7/2018
9 Nuns	3	1,355	woodland/forest/grass	X	10/2017
10 Thomas	2	1,063	shrubland	X	12/2017
11 Old	6	1,003	shrubland/forest	X	10/2003
12 Jones	1	954	forest/grass	-	10/1999
13 Butte	2	921	forest/shrub/grass	-	9/2015
14 Atlas	6	738	woodland/forest/grass	X	10/2017
15 Paint	1	641	shrubland	X	6/1990
16 Fountain	0	636	forest	X	8/1992
17 Sayre	0	604	shrubland/grass	X	11/2008
18 Berkeley	0	584	shrubland/grass	X	9/1923
19 Harris	8	548	shrubland/grass	X	10/2007
20 Redwood	9	546	forest	X	10/2017

Fig. 1. California's 20 most destructive wildfires including role of wind (X = severe winds) and primary vegetation type involved. https://www.fire.ca.gov/media/5511/top20_destruction.pdf

2. Conform to State Law (PRC 4483 as per SB 1260)

[CA Pub Res Code § 4483 \(2018\)](#) states (*emphasis ours*),

(a) To the extent feasible, the board’s Vegetation Treatment Program Programmatic Environmental Impact Report, when certified, shall serve, in addition to any identified entities in the report, as the programmatic environmental document for prescribed fires initiated by a third party for a public purpose pursuant to Section 4491.

(b) (1) It is the intent of the Legislature that additional consideration be provided for *chaparral and coastal sage scrub plant communities that are being increasingly threatened by fire frequency* in excess of their natural fire return patterns due to climate change and human-caused fires.

(2) Prescribed burning, mastication, herbicide application, mechanical thinning, or other vegetative treatments of chaparral or sage scrub shall occur only if the department finds that the *activity will not cause “type conversion” away from the chaparral and coastal sage scrub currently on site.*

The draft EIR violates PRC 4483 in four significant ways.

Attempting to limit protections to the coast

First, SPR BIO-5 (3.6-121) attempts to reduce the extent of PRC 4483 by applying it to only “coastal” chaparral, leaving out inland and forest chaparral. The text reads,

“Develop a treatment design that avoids environmental effects of type conversion in coastal chaparral and coastal sage scrub vegetation alliances.”

The law applies to ALL chaparral and sage scrub statewide. It does not limit its protection to the coast. The draft EIR needs to reflect this.

Failure to define type conversion

Second, SPR BIO-5 improperly defines type conversion by limiting it to the terminal condition (shrubland to grassland), rather than considering the actual process that begins with reduced biodiversity.

Despite a large body of research on type conversion, as cited in our scoping comments, and the guidance we provided to the state legislature (Attachment 1), the draft EIR claims,

“It is beyond the legal scope of the PEIR to define SB 1260 type conversion...”

The contention that a programmatic EIR cannot establish a proper definition of type conversion is absurd and violates CEQA guidelines.

Avoiding responsibility

Third, the draft EIR passes on the responsibility of defining type conversion and determining to the “project proponent.” Passing off the determination of a key environmental impact of a project to a future, unknown entity not only violates the spirit of SB 1260, but is also a clear violation of CEQA.

Allowing type conversion anyway

Finally, the draft EIR opens the door to allow partial type conversion to occur if the “project proponent” shows that,

“...habitat function of chaparral and coastal sage scrub would be at least maintained within the identified spatial scale at which type conversion is evaluated for the specific treatment project.”

How exactly a project proponent is supposed to determine “habitat function” is not offered other than a reference to a paper that reviews a process to evaluate ecosystem goods and services that can be exploited by humans (Groot et al. 2002) (3.6-117). This approach is useless if one is interested in protecting native ecosystems for the actual plants and animals that live there, not the farming or hunting opportunities provided to people.

What “habitat function” actually means is that based on a project proponent’s opinion, a chaparral stand could be modified to promote a particular value that has little to do with natural processes. In other words, a rare, old-growth chaparral stand could be treated to create deer browse in order to support the hunting industry, making it more susceptible to type conversion. Such projects have been done in the past, causing significant damage to healthy, intact shrubland plant communities (Fig. 2).

Regardless, we do not have a clear enough understanding of the ecology for the wide variety of chaparral plant communities that exist in California to allow a “project proponent” to justify whatever species mix/shrub cover is being promoted to maintain or improve “habitat function.”



Fig. 2. A large, mixed chaparral stand on the Cleveland National Forest that was cleared to increase deer browse, leaving it susceptible to type conversion.

Yet despite our limited knowledge, somehow the authors of the draft EIR have come up with precise % of habitat clearances in chaparral that are acceptable to maintain “habitat function”:

“A minimum of 35 percent of existing shrubs and associated native vegetation will be retained at existing densities in patches distributed in a mosaic pattern within the treated area or the shrub canopy will be thinned by no more than 20 percent from baseline density...”

The draft EIR needs to establish a clear definition of chaparral type conversion as per example provided by Attachment 2 and provide adequate guidance in how to determine the possibility of its occurrence due to a proposed project.

3. Ecological Restoration Not Applicable to Chaparral

Despite a wealth of research demonstrating that chaparral is threatened by high fire frequency and does not need treatment for ecological restoration purposes (as cited in our scoping comments), the draft EIR indicates that ecological restoration treatments can be applied to chaparral and sage scrub when these plant communities are within their natural fire return interval or if a project proponent,

“...can demonstrate with substantial evidence that the habitat function of chaparral and coastal sage scrub would be improved.” SPR BIO-5.

Nowhere in the draft EIR is there any indication that chaparral needs ecological restoration or how its “habitat function” can be improved by treatment. There is a map of

modeled ecological treatment areas, but its gross scale makes it impossible to determine the precise location such treatments (2-17).

The draft EIR makes it very clear throughout the document that,

“...California chaparral shrublands have experienced such substantial human population growth and urban expansion that the increase in ignitions in these areas (Schroeder et al. 1964) have offset the effects of suppression to the point that fire frequency exceeds the historic range of variability (Keeley et al. 1999). Because anthropogenic ignitions tend to be concentrated near development, more fires now occur at the urban fringe than in the backcountry (Keeley et al. 2004). Profound impacts on land cover condition and ecological community dynamics are possible if a disturbance regime exceeds its natural range of variability, and these altered fire regimes can lead to cascading ecological effects (Dale et al. 2000)” (2-15).

In addition, the draft EIR explains that many chaparral plant communities are sensitive natural communities. For example,

“Maritime chaparral, characterized by manzanita and California lilac (*Ceanothus* spp.) species adapted to the foggy coastal climate, once dominated sandy hills along Monterey Bay, Nipomo Mesa, Burton Mesa, and Morro Bay. Maritime chaparral is now one of the region’s most threatened vegetation types, with its extent severely reduced by development” (3.6-28).

The draft EIR also warns that,

“While SPRs would minimize impacts, treatment activities could still result in a loss of acreage of sensitive natural communities and habitats, eliminate sensitive natural communities or habitats from a treatment area, or reduce the habitat value or function of sensitive natural communities and habitats” (3.6-180).

As the draft EIR states, California’s native shrublands are not like some of our State’s forests which have missed one more natural fire cycles due to past fire suppression. In fact, fire suppression has protected many chaparral stands from excessive fire which would likely lead to type conversion (as cited in our scoping comments).

The State’s own climate change assessment document shows that the potential loss of chaparral under a hot/dry scenario could be extensive (Fig. 3). Considering such a scenario, it makes no sense at all for the draft EIR to suggest that chaparral needs to be treated with more fire or otherwise modified when the plant community is already under threat from high fire frequency.

Treating chaparral for “ecological restoration” purposes needs to be eliminated from the EIR and the VTP.

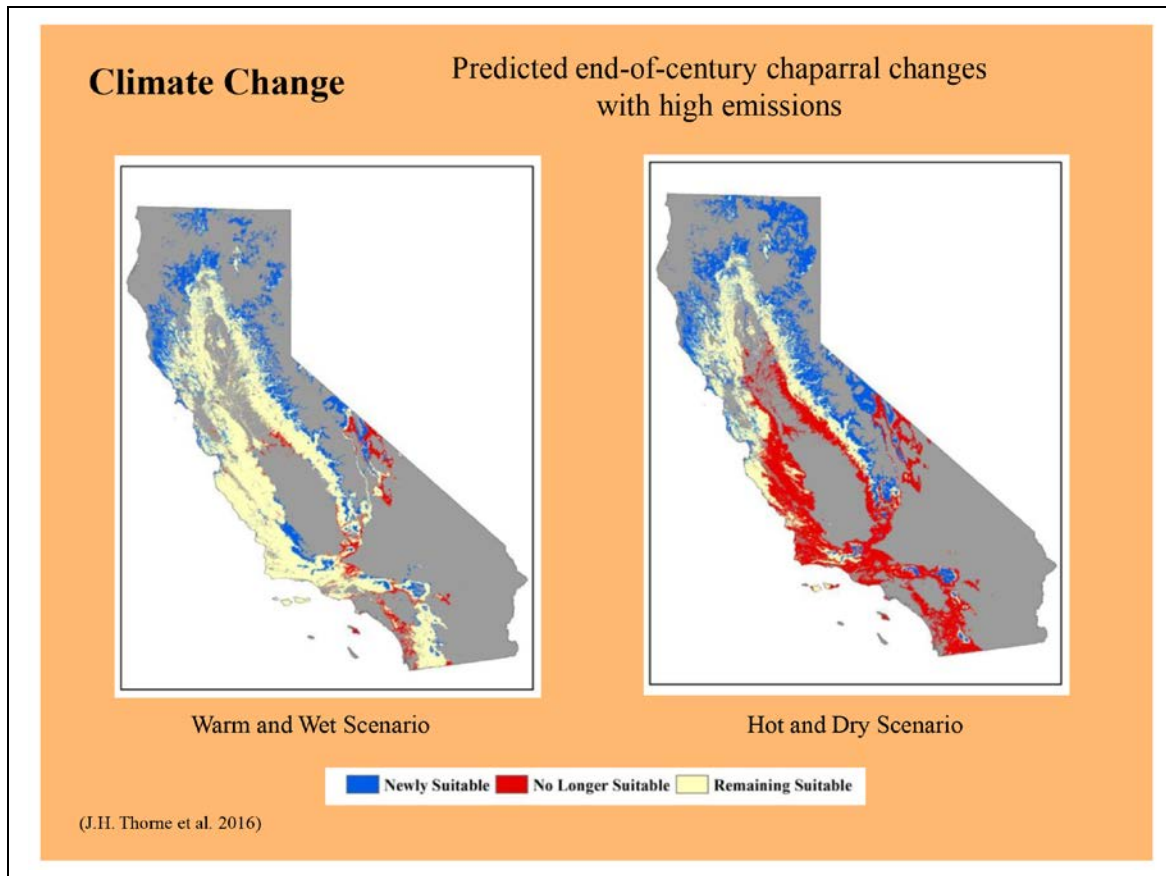


Fig. 3. Under a future high emissions/hot and dry climate scenario for the time period 2070 - 2099, much of the area currently occupied by chaparral will no longer be suitable for that plant community (shown in red). The likely replacement will be highly flammable, non-native weeds. From Thorne et al. 2016.

4. Fire Return Interval Periods Inaccurate

According to SPR BIO-5, a project proponent could burn/treat any chaparral stand in the State when it is above its "average" fire return interval as listed in Table 3.6-1. The table is copied from the California Native Plant Society's Manual of California Vegetation.

"Use prescribed burning as the primary treatment activity in sensitive natural communities that are fire dependent (e.g., closed-cone forest and woodland alliances, chaparral alliances characterized by fire-stimulated, obligate seeders), to the extent feasible and appropriate based on the fire regime attributes as described in *Fire in California's Ecosystems* (Van Wagtendonk et al. 2018) and the *Manual of California Vegetation* (Sawyer et al. 2009)" (3.6-147).

This is a serious problem in that most of the intervals listed in the table have no research to support them as they were determined by informal discussions, not data. The only solid

information we have on natural chaparral fire return intervals has been derived primarily from mixed chaparral (30 – 150 years or more) and *Ceanothus megacarpus* chaparral (fire return intervals less than 6 years causes localized extinctions). Please see our previous scoping comments for references.

For example, the low end of the fire return interval for a number of important chaparral types in the table is below 10 years (e.g. chamise, red shanks, cup leaf ceanothus). How one defines these different chaparral types is not clarified (for example, most chaparral has some chamise component). Such a short fire return interval would likely lead to type conversion as per the biodiversity definition reference above.

We are unaware of any literature that offers data that supports a ten-year lower limit for the listed chaparral types. The closest way to determine the lower limit of fire return intervals for a particular area (not a generalized plant community) is to examine local lightning frequencies, the natural ignition source for fire. In many locations where chaparral exists, lightning frequencies indicate natural fire return intervals to be on the order of a century or more, not ten years.

Therefore, the lower limit of a fire regime period listed in the table needs to be considered questionable in deference to preventing environmental damage. At the very minimum, the median year of each fire return interval needs to be considered the lower limit by Cal Fire, NOT the one listed in Table 3.6-1.

The important issue regarding fire return intervals for native shrublands in the draft EIR is to prevent type conversion within fuel treatments near communities, not as a metric to justify treatments for “ecological restoration.”

Fire return intervals for native shrublands in the EIR need to be reexamined and determined by actual data such as lightning frequency (van Wagtenonk and Cayan 2008, Keeley 1982).

5. Old-growth Chaparral is not Protected

The draft EIR allows for ecological restoration “treatment” of chaparral when a stand is older than the average time listed in the fire return interval in Table 3.6-1, OR if the “project proponent says it “needs” to burn for “habitat value.” This will accelerate the already rapid decrease of legacy, old-growth chaparral stands in the State.

“Ecological restoration” treatment for chaparral is an oxymoron. There is no scientific evidence to support the treatment of old-growth chaparral (older than 60 year since the last fire) and the outdated agricultural/ranching-centric policy the draft EIR is attempting to breathe new life into. Old-growth chaparral is becoming increasingly rare due to increasing fire frequencies, climate change. Chaparral is NOT a forest where prescribed burning *can* play an ecological role (Keely et al 2009).

The VTP needs to provide additional consideration for protecting old-growth chaparral communities (older than 60 years since last fire) that are being increasingly threatened by fire frequency in excess of their natural fire return patterns due to climate change and human-caused fires. Prescribed burning, mastication, herbicide application, mechanical thinning, or other vegetative treatments of old-growth chaparral shall not occur outside the 100-foot defensible space zone.

6. Cumulative Impacts Likely Considerable

Given the erroneous assumptions within SPR BIO-5, the draft EIR's conclusion that the implementation of this and other mitigation measures would prevent significant cumulative effects by the VTP is unsupportable (4-18).

In summary, the current draft EIR for the Vegetation Treatment Program:

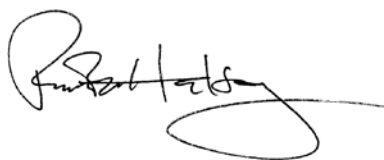
- **Fails to adequately explain and justify the purpose and need for the VTP.** Nearly all the devastating losses of life and property from wildfires are caused by wind-driven wildfires, yet the draft EIR acknowledges the Program's proposed treatments, "may not be able to slow or halt extreme wind-driven fires" (ES-2).
- **Violates state law.** Causing type conversion in chaparral through the proposed vegetation treatments and mitigations (SPR BIO-5) is not permitted as per SB 1260 – Jackson.
- **Contradicts its own statements of fact.** The Program recognizes the threat of increasing fire frequencies in chaparral. Yet the Program's proposed vegetation treatments establishes protocols to burn/treat more chaparral, further threatening the chaparral ecosystem.
- **Is based on an outdated paradigm that is contrary to the best available science – attempting to control/stop wildfires rather than focusing directly on saving lives and property.** Experience and the research have clearly shown that depending on vegetation treatments and waiting for "when weather conditions shift, wind subsides, and fire intensity decreases" to protect communities from wildfire is a failed approach.

We respectfully request the Board revise the draft EIR to accept the challenge to develop a plan that *can* address wind-driven fires and *can* protect communities from them by facilitating a comprehensive approach to wildfire risk reduction.

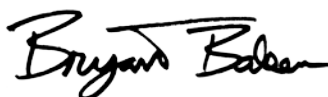
The draft EIR needs to comply with CEQA and the CEQA guidelines as described in our comments below and in our joint letter with Impett et al. 2019.

The draft EIR should recommend the formation of a Community Flammability working group/entity that is responsible for preventing wildfire catastrophes – not wildfire itself – that is composed of diverse talents (see Attachment #1).

Sincerely,



Richard W. Halsey
Director
California Chaparral Institute



Bryant Baker
Conservation Director
Los Padres ForestWatch



Ara Marderosian
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Cited References

Impett, L.I, D. Silver, B. Nowicki, S. Wolf, D. Barad, L. Packard, R. Halsey, and others. 2019. California Vegetation Treatment Program Draft Program Environmental Impact Report. August 9 comment letter to the Board of Forestry and Fire Protection.

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[Keeley, J.E. 1982. Distribution of lightning and man-caused wildfires in California, pp. 431-437. In C.E. Conrad and W.C. Oechel \(eds\), Proceedings of the International Symposium on the Dynamics and Management of Mediterranean Type Ecosystems. USDA Forest Service, General Technical Report PSW-58.](#)

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Van Wagendonk, J.W., and D.R. Cayan. 2008. Temporal and spatial distribution of lightning strikes in California in relation to large-scale weather patterns. *Fire Ecology* 4: 34-56.

Attachment 1: Suggested Composition of a Community Flammability Group

While large wildland fires are inevitable, the destruction of communities by those fires is not. Therefore, we propose the establishment of a state sponsored working group with the specific mission of dramatically reducing the loss of life and property within communities that face the potential of **being devastated by wind-driven wildfire storms**. The group would be composed of physicists, meteorologists, geographers, architects, educators, municipal fire experts, structural fire behavior analysts, catastrophic risk management (CRM) analysts, urban planners, psychologists, building engineers, native landscape architects, and environmental/community advocates who have an expertise in understanding the impact of fire on communities and the needs/challenges of diverse neighborhoods within those communities.

This group is a community flammability group, not a wildland fire group. As such, it will be addressing the impact of wildland fire in a manner that has not been addressed before. Therefore, the composition of the group must focus on a diverse mix of people who represent the state, provide expertise in the full range of fire disaster preparedness and mitigation research/practice, and eager to explore and develop innovative options that are not currently common practice – and see those options actualized within communities.

Attachment 2: Type Conversion provide to the California State Legislature for SB 1260

Type conversion as related to California chaparral and coastal sage scrub is the process by which the dominant plant species of a native chaparral and / or coastal sage scrub plant community (shrubs and/or forbs) are extirpated over time by a series of disturbance events (e.g. short fire return intervals, mastication, grazing) or after a single disturbance event (e.g. cool season fires), leading to the reduction of biodiversity and often to the invasion of non-native annual grasses and forbs. In chaparral plant communities, fire return intervals less than 30 years, depending on soil, aspect, and climatic conditions, can lead to type conversion by compromising the ability of chaparral shrub species, especially obligate seeding species (e.g. *Ceanothus spp.*, *Arctostaphylos spp.*, etc.), from properly regenerating. Resprouting species (e.g. *Adenostoma fasciculatum*) can also be negatively impacted by short fire return intervals since these plants need sufficient time to recharge their underground starch supplies to produce viable resprouts; short fire return intervals short-circuit this process. Native annuals that contribute to rich postfire species diversity are also negatively impacted by short fire return intervals as invasive non-native species out-compete them for nutrients and space. Coastal sage scrub communities are somewhat more resilient to fire return intervals less than 30 years because of a general lack of obligate seeding shrub species. Too-frequent fire disturbance in either chaparral or coastal sage scrub favors the establishment of rapidly reproducing non-native annual grasses and forbs that have a higher ignition probability and produce cooler fires than chaparral or coastal sage scrub communities. Establishment of grasses and forbs in place of shrubs can lead to an undesirable feedback loop called the grass-fire cycle.

Illustrations



Figure 1. Example of type conversion (chamise chaparral to non-native grassland) due to a single prescribed burn conducted during the cool season in the 1980's within Pinnacles National Park, California.



Figure 2. Type conversion of mixed chaparral to non-native grassland due to various vegetation treatments in the Cleveland National Forest, Trabuco Ranger District.



Figure 3. The type conversion of manzanita/mixed chaparral to non-native grassland due to mastication in the Los Padres National Forest, Santa Barbara Ranger District. An older treatment area is in the background, being invaded by non-native grasses. The most recent treatment is in the foreground. Note soil disturbance which facilitates the spread of non-native grasses.

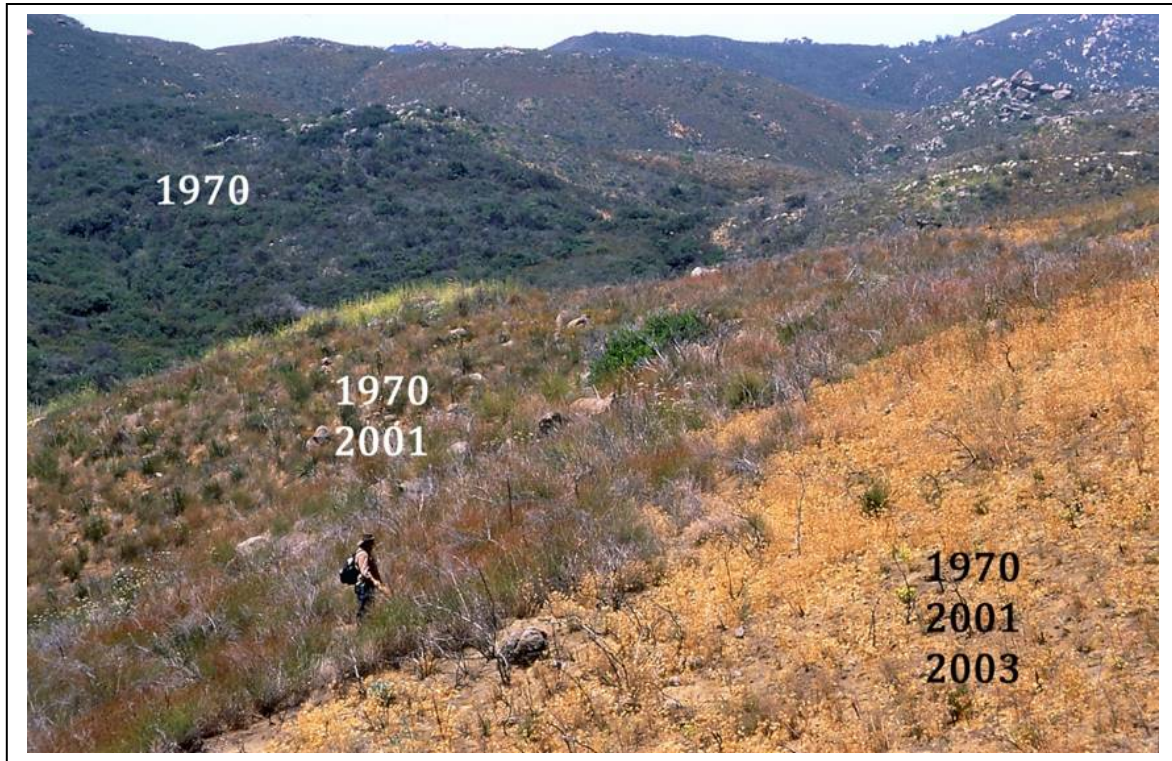


Figure 4. Type conversion of mixed chaparral resulting in reduced biodiversity. The far left shows an old-growth chaparral stand last burned during the 1970 Laguna Fire. The middle/left of the picture shows an area recovering from the 2001 Viejas Fire. It is composed primarily of chamise, deerweed, and several other shrub species. To the right is a portion of the Viejas Fire scar reburned in the 2003 Cedar Fire. The Cedar fire scar is now filled with non-native grasses. The majority of the resprouting shrubs have been killed and no obligate seeding species, such as *Ceanothus*, are present. The site was resurveyed in 2018. Results indicated a continued loss of obligate seeding species, a significant loss of resprouters, and large areas colonized by non-native grasses.

Attachment 3: Op-Ed: Wildfire is inevitable, but the destruction of our communities is not

Los Angeles Times

By Richard W. Halsey

Dec. 11, 2018

Our current approach to wildfire is killing us. Instead of making communities fire safe, we're mostly trying to manage habitat to suppress fire, and it's failing to protect our lives and our property. Bureaucratic inertia and hubris are preventing needed change. Until the public understands the true nature of wildfire and demands the same of government, the staggering losses will continue to mount.

The sad fact is that strategies capable of preventing much of the devastation in Paradise and Malibu have been known for nearly two decades. But instead of pursuing those strategies, our wildfire agencies stubbornly pursue fire control. A case in point: After the massive fires of 2017 in Santa Rosa and in Ventura County, the state Legislature stepped in with this response: More money to increase logging and prescribed burns in forests far from where the fires occurred and far from communities with substantial populations.

As Jack Cohen, a former lead fire scientist with the U.S. Forest Service, has demonstrated through decades of study, extreme, uncontrollable wildfires are inevitable, but wildland-urban wildfire disasters are not. To stop those disasters, we must accept some basic principles based on experience and research. First among them is that the wildfire problem is a home ignition problem, not a wildfire control problem.

*What does prevent house ignition is fairly simple,
and compared with the cost of destructive fires,
relatively inexpensive.*

Embers are the biggest threat. Most structures ignite from embers that can travel a mile or more from the fire front in high winds. Of the 1,650 structures destroyed in the 2007 Witch Creek fire in San Diego County, there were few, if any, reports of homes that burned as a result of direct contact with flames from wildland fuels. Although 100 feet of defensible space around structures is a worthwhile effort, the nearly exclusive focus by wildfire agencies on other kinds of habitat clearance — creating huge fire breaks and logging — isn't going to prevent wind-driven embers from setting communities on fire.

What does prevent house ignition is fairly simple, and compared with the cost of destructive fires, relatively inexpensive: Retrofitting houses or requiring that new houses be built with such measures as ember-resistant attic vents, nonflammable roofing (not Spanish-style tile roofs, which can trap embers in the spaces beneath the rounded tiles), and exterior sprinklers. The effectiveness of such sprinklers was proved during the 2007 wind-driven Ham Lake fire in Cook County, Minn., where they had been installed on 188 properties. Those properties survived; more than 100 neighboring properties didn't.

Federal Emergency Management Agency hazard mitigation grants had covered the majority of the cost of the sprinklers.

Unfortunately, most wildfire agencies have shown little interest in Cohen's research. Despite the fact that one of the main goals of U.S. Forest Service vegetation clearance is to protect homes from wildfires, the agency rejects addressing home flammability because it is beyond the "official scope" of the projects. Similarly, after nearly 18 years of scientific input showing that the California Department of Forestry and Fire Protection's Vegetation Treatment Program isn't protecting homes from wind-driven fires, the agency refuses to change direction. In a recent Community Wildfire Protection Plan in Santa Barbara County, the only attempt to address home ignition is the suggested production of an educational brochure.

Making homes fire safe acknowledges that we must coexist with fire. But coexistence doesn't preclude evacuation. Experience shows us that it too needs to be reconsidered. We have known since the 2003 Cedar fire in San Diego County that a large percentage of civilian fatalities occur when people are trying to evacuate during huge, wind-driven conflagrations. Such fires move too fast, warning systems often fail, people panic and the fire overtakes jammed roads.

Poor land planning makes the problem worse. Last summer, the San Diego County Board of Supervisors approved a new housing development in a known fire corridor, with only one way out. Paradise, with only a few roads in and out, had narrowed the main route through the town. These planning failures must be resolved with statewide standards.

Paradise also serves as an example of an alternative approach to evacuation. As the Los Angeles Times reported, heroic first responders "shepherded" evacuees from the gridlocked roadway to a concrete parking lot that was somewhat sheltered from the wind. They saved the lives of 150 people. Every housing development in a high-fire hazard area needs to have such a safety zone, a "fire park." The Eureka Springs development in Escondido provides a model, a purpose-built large, grassy area that's easy for everyone in the community to get to.

Every community should consider one more strategy that acknowledges our need to live with fire: forming Community Emergency Response Teams with a dedicated group of specially trained volunteers who stay behind expressly to help stranded people and to extinguish ember-ignited spot fires.

We must focus on why and how our communities burn. Protecting homes and families is not about controlling wildfire, but reducing the flammable condition of our communities and making sure new ones are not built in harm's way.

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