



November 22, 2021

California Natural Resources Agency
 715 P Street
 Sacramento, CA 95814
 Email: CaliforniaNature@resources.ca.gov



Re: Natural and Working Lands Climate Smart Strategy Draft

Dear Natural Resources Agency and Secretary Crowfoot,

It is critical for the state of California to step back and consider the contradictions in state policy regarding native shrublands, especially the chaparral – the most extensive plant community in California and a major source of the state’s biodiversity.

1. Contradiction Concerning Fire in Shrublands

Despite acknowledging that chaparral and other native shrublands are threatened by too much fire, the Natural and Working Lands Climate Smart Strategy Draft promotes adding *even more fire* through “**prescribed and cultural burning practices**” to chaparral as a way to address climate change (pg. 31).

If the state does indeed care about protecting native shrublands and the carbon they sequester, it must prevent management practices that will be artificially adding more fire to these habitats.

Affirming what the Draft has acknowledged about the fragility of chaparral, the scientific consensus is overwhelming — **California native chaparral shrublands are being threatened by climate change and increased fire frequency** (Park and Jenerette 2019).

State and federal policies and recommendations also concur on this point:

- California’s Climate Change Vulnerability Assessment of the state’s terrestrial vegetation predicts **chaparral will likely disappear** throughout much of southern California within the next century if current trends continue (Thorne et al. 2016).
- The United States Forest Service established a new Leadership Intent initiative to protect chaparral in California because human-caused fires have increased fire frequency to the extent that **chaparral can no longer survive and is being replaced with highly-flammable, non-native annual grasses** at an alarming rate (USFS 2011).
- The California Board of Forestry’s Vegetation Treatment Program (VTP) states that, “coastal sage scrub and chaparral, **are experiencing fires too frequently**, resulting in changes to their ecology.”
- The California State Legislature amended the Public Resource Code (PRC 4483) to mandate additional consideration for chaparral and coastal sage scrub plant communities that **are being increasingly threatened by fire frequency**.

To ensure that the state does not facilitate the loss of chaparral through its actions, PRC 4483 also states that Cal Fire may not conduct **prescribed burning** if such action will cause “type conversion” away from the chaparral and coastal sage scrub currently on site.

Especially relevant to the Draft’s recommendation to conduct prescribed/cultural burning in chaparral is the fact that **chaparral is especially susceptible to type conversion when fires occur during the cool season when nearly all prescribed fires are conducted** (Parker 1990 – Attachment 1).

We have provided a more detailed explanation of chaparral type conversion in Attachment 2.

Adding more fire to chaparral plant communities through “prescribed and cultural burning” is contradictory to the Draft itself and is inconsistent with the state’s efforts to increase carbon sequestration, protect biodiversity, protect chaparral, and reduce fire risk that increases with type conversion (Photos 1 and 2).

Therefore, the state needs to remove the recommendation from the Draft that shrublands be subjected to prescribed and cultural burning (pg. 31) and replace it with the following:

D Reduce the frequency of shrubland fires by reducing ignition sources and prohibit land management practices (e.g., prescribed burning) that would facilitate type conversion of native shrublands or the disturbance of old-growth chaparral (60 years since last fire)

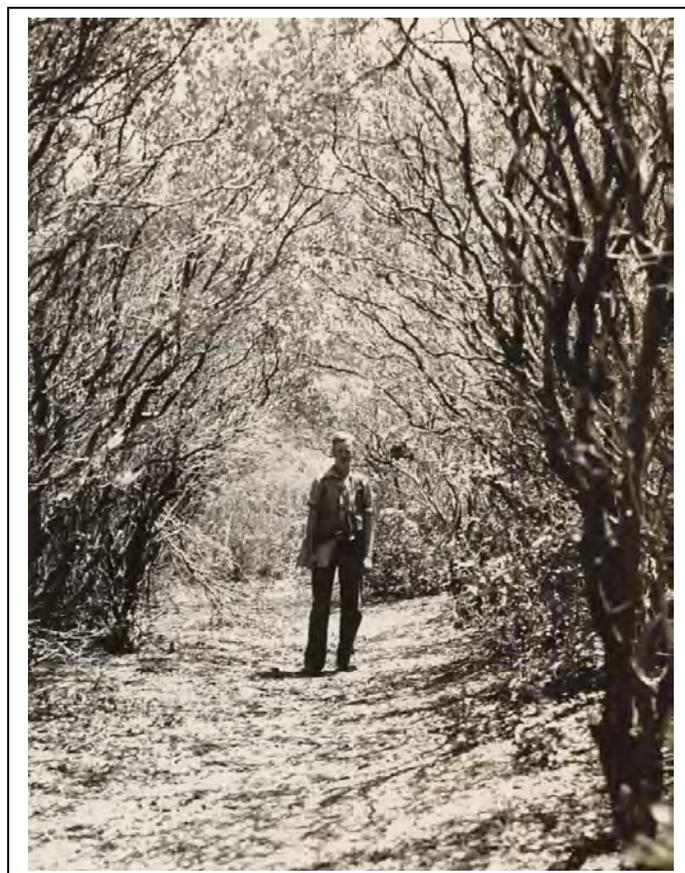


Photo 1 (above). 2016. An old-growth mission manzanita (*Xylococcus bicolor*) in old-growth chaparral within the Santa Ana Mountains, California.

Photo 2 (left). 1933. Old-growth manzanita chaparral on Sugar Pine Mountain (Sacramento topographical quadrant). Photo taken during the Wieslander Vegetation Type Mapping survey.

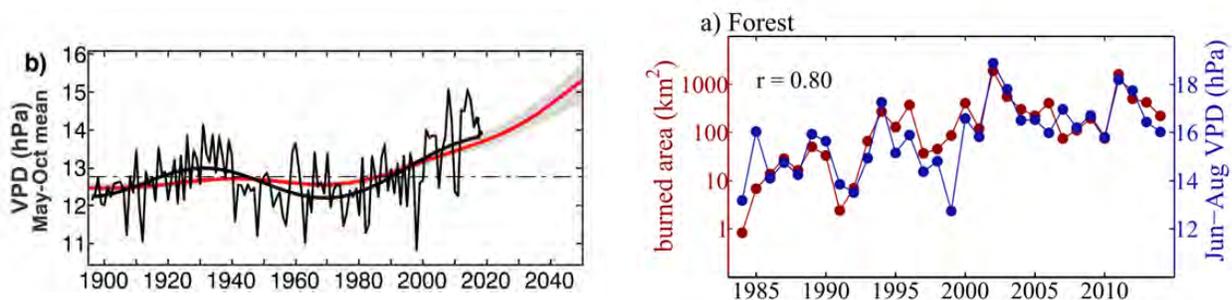
2. Climate Drives Wildfires

As the Draft suggests, climate change continues to dry the landscape. As a consequence, fires will become more frequent across the entire state, causing increasingly serious ecological damage – *in both southern and northern California.*

Recent studies have demonstrated that there has been a significant increase in the warm season vapor pressure deficit (VPD) across the western U.S. over the past couple of decades, and **this change is driving fire activity** (Zhuang et al 2021, Chiodi et al. 2021, Chen et al. 2021, Williams et al. 2019, Fickin and Novick 2017).

Zhuang et al. 2021 goes a step further and specifically looks how VPD affected major fire events such as the August Complex Fire and the Creek Fire in California last year. They state,

“During two specific extreme events—the August Complex fire and the California Creek fire in 2020—VPD values exceeded the highest values observed previously for similar atmospheric circulation patterns.”



Vapor Pressure Deficit Graphs. Left graph shows the observed mean (black line) of how the VPD has changed over the past century. The red line is based on climate model predictions (Williams et al. 2019). The right graph shows the correlation between the VPD and acres burned in southwestern forests in the US (Seager et al. 2015).

These observations challenge the common view that recent (and future) wildfires are the consequence of “overgrown” vegetation. As a consequence, it is illogical to continue the current approach to wildfire risk reduction – mastication/prescribed burning/logging/pile burning/herbicide. Instead, the **emphasis needs to be placed on reducing carbon emissions and the preservation of what wild, native habitat still exists in the state**, *not* on adding even more disturbance through land management activities.

Additional research on the dominant influence of climate on wildfire occurrence and spread can be found on the California Chaparral Institute’s webpage here:

<https://www.californiachaparral.org/threats/climate-change/>

Therefore, the following points regarding climate and wildfire should be incorporated into and/or be more fully addressed by the state's **Natural and Working Lands Climate Smart Strategy**:

1. *It's About the Climate.* Climate change-driven increases in metrics such as the **vapor pressure deficit have been directly tied to the incidence of recent large wildfires** such as the August Complex and Creek Fire in California. In fact, summer forest fire size has increased by up to 500% in recent years due to these climate change factors.
2. *Climate, not Habitat, Drives Wildfires.* Climatic trends indicate that fire activity will continue to increase in the western U.S. and fires will increasingly occur **under weather conditions that typically render habitat ("fuel") treatment projects useless.**
3. *Preserve Habitat.* In light of the dominating influence of climate change on wildfire occurrence and size, the current approach to reducing wildfire risk through the **clearance or modification of habitat ("fuel" treatments) needs to be subjected to a thorough cost/benefit analysis**, with the emphasis placed on preserving wild, native habitat.
4. *Large, Mixed-Severity Wildfires Create Biodiversity.* While climate change is increasing wildfire activity, it is important to understand that fire still plays an important ecological role in many ecosystems, and **even large wildfires create biodiverse habitat** while contributing to long-term ecosystem resilience to natural disturbances.
5. *Clearance of Habitat is Damaging.* Mechanical reduction (e.g., logging, masticating) of native vegetation not only makes western U.S. ecosystems drier due to changes in microclimatic conditions and therefore more conducive to burning, but it also emits much more carbon than is naturally emitted when those same ecosystems burn during a wildfire (Campbell et al. 2012, Harris et al. 2016). Prescribed fire in some forested ecosystems (not native shrublands) may be useful under limited circumstances, but overall, **its use will not change the climatic factors that primarily control the occurrence of large wildfires and will cause ecological damage in some ecosystems such as chaparral.**
6. *Non-native Plants Reduce Biodiversity.* Forest/habitat **management activities can increase the spread of non-native plants** that reduce biodiversity and ecosystem resilience, ecological qualities that will be crucial over the next several decades as the climate continues to change.
7. *From the House Outward.* Resources should be directed to **helping human communities prepare for these changes** directly through increasing home fire resistance from the house outward, alert and evacuation systems, development of community fire and smoke shelters, and policies that discourage ill-advised developments in locations that are prone to high-intensity wildfire.

3. Chaparral is not Forest

The Draft misapplies forest fire terminology to chaparral, namely that we need to stop “high severity fire” in shrublands.

Chaparral is adapted to infrequent, high-*intensity* fire, where the post-fire chaparral landscape typically has little to no living biomass. High-*severity* is not a relevant measurement in chaparral as it typically relates to the loss of trees to fire.

The Draft needs to reflect this distinction and not conflate forest management issues with chaparral. In addition, the Draft needs to recognize that **episodic chaparral, the natural successional response after many forest fires in the Sierra Nevada**, plays an important role in facilitating the eventual return of the pre-fire conifer forest community. *Ceanothus species* in particular, a characteristic member of episodic chaparral, are nitrogen fixers that enrich the post-fire soil with essential nitrogen-based nutrients (Photos 3 and 4). The current focus on “trees” rather than the entire “ecosystem” encourages short-sighted management practices such as the destruction of post-fire, episodic chaparral in the Stanislaus National Forest and Cuyamaca Rancho State Park.



Photo 3. 1937. Dense “episodic” chaparral, a natural, successional response to a forest fire. The growing shrubs, especially *Ceanothus species*, enrich the soil with nitrogen and provide nursing shade for growing conifers. Photo: 12 years after fire in 1937, Sierra Nevada. CalPhotos, UC Berkeley.



Photo 4. 2019. Episodic chaparral in 2019, six years after the Rim Fire, Stanislaus National Forest, Sierra Nevada.

4. Appropriation of Indigenous Fire Use

Indigenous Peoples have historically used cultural burning practices near their population centers for food- and fiber-related purposes, and this likely affected a portion of the chaparral-dominated landscape, particularly at low elevations. These fires were purposeful and localized, creating and sustaining vegetation mosaics consisting of shrublands, woodlands, and grasslands near villages. Localized conversion of chaparral by Indigenous Peoples in these areas would have resulted in a shift from native shrubs to a different assemblage of native herbaceous plants (Baker and Halsey 2020).

However, since the arrival of European settlement, the landscape has been radically altered by non-native invasive grasses and other weeds, climate change, a rapidly expanding human population, and consequent increases in fire frequency. In addition, most of the landscape where Indigenous Peoples historically used fire is now under the footprint of development.

Irrespective of whether or not burning practices were useful at some historic time, using Indigenous People to promote unsustainable practices today is inconsistent with our need to both respect Native cultures and preserve native habitat.

Therefore, when suggesting the application of fire on the landscape in the final document, no matter the reason, the state must avoid such burning in plant communities that are already threatened by too much fire, such as chaparral.

Justifying *landscape-scale* prescribed burning and habitat clearance in the name of Native Californians is a thinly disguised form of cultural appropriation. The massive manipulation of nature that typically occurs during such projects is in no way comparable to Indigenous practices.

A final point that should be incorporated into the final document has to do with language.

Whenever the management of native plant communities is involved, it is essential that we recognize that habitat is filled with life. Referring to habitat as “fuel” marginalizes that life, allowing us to dismiss or rationalize the loss of living communities of plants and animals we cause through mastication, logging, herbicide, and the artificial use of fire.

Seeing *life* rather than “fuel” helps us better comprehend the consequences of our actions, leading to policies that support biodiversity rather than reduce it.

Sincerely,

Richard W. Halsey
Director
California Chaparral Institute

Dan Silver, Ph.D.
Executive Director
Endangered Habitats League

Chad Hanson, Ph.D.
Director
John Muir Project

Nancy Macy
Chair, Environmental Comm.
Valley Women’s Club

Michael Warburton
Executive Director
Public Trust Alliance

Alasdair Coyne
Conservation Director
Keep Sespe Wild

Alan Levin
Director
Coast Action Group

Angela Benson
Landscape Designer

Leigh Adams
Landscape Designer

Paul Faulstich
Professor of Env. Analysis
Pitzer College

C. Robin Smith, Chair
Diamond Bar-Pomona Valley
Sierra Club Task Force

Dan McCarter
President
Urban Creeks Council
Santa Barbara

Patt Healy
Coalition for Slow Growth
Malibu

Bruce Schoppe
Conservation VP
Ventura Audubon Society

Georgia Goldfarb
Malibu Monarch Project

Sandy DeSimone, Ph.D.
Plant Ecologist
Audubon Starr Ranch

Daniel Gluesenkamp, Ph.D.
Executive Director
CA Institute for Biodiversity

Gillian Martin
Cavity Conservation

Marily Woodhouse
Battle Creek Alliance

Bryant Baker
Conservation Director
Los Padres ForestWatch

Ara Marderosian
Executive Director
Sequoia ForestKeeper

Jack Eidt
Co-Founder
SoCal 350 Climate Action

Janet Cobb
Executive Officer
California Wildlife Foundation

Shawn Maestretti
Studio Petrichor

Dominick A. DellaSala, Ph.D.
Chief Scientist
Wild Heritage

Michael Wellborn
President
Friends of Harbors, Beaches, Parks

Claire Schotterbeck
Executive Director
Hills for Everyone

Attachment 1: Parker, V.T. 1990. Problems encountered while mimicking nature in vegetation management: an example from a fire-prone vegetation. *Ecosystem Management: Rare Species and Significant Habitats*. New York State Museum Bulletin 471: 231-234.

Attachment 2: Type Conversion definition

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