

**DEPARTMENT OF FORESTRY AND FIRE PROTECTION**

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Little Hoover Commission
925 L Street, Suite 805
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RE: California Forest Management Hearing on January 26, 2017

Commissioners:

Thank you for the invitation to participate in this hearing to discuss not only California's response to the tree mortality crisis, but also the State's overall goals and initiatives to engage in more active forest management and improve forest health. California's forests are a complex system that provide a variety of resources and benefits which the State relies upon, but is also threatened by epidemic levels of insect and disease infestation, as well as large catastrophic fire.

As requested in your letter, I provide the following testimony:

Overview of the Tree Mortality Task Force (TMTF)-The State's Coordination and Collaboration in Responding to the Tree Mortality Crisis

Overview of the Tree Mortality Task Force

On October 30, 2015, Governor Edmond G. Brown Jr. proclaimed a State of Emergency due to unprecedented levels of dead and dying trees in California. Immediately following the Proclamation, the Statewide TMTF was formed to assist local jurisdictions and to implement the Proclamation's 19 directives. Consisting of more than 80 entities, the TMTF represents federal, State, local governments, tribal, and other stakeholders working together to address epidemic levels of tree mortality driven by five years of drought. The goals of the TMTF are as follows:

- Provide coordination among agencies/entities
- Establish and focus efforts on High Hazard Zones
- Identify funding sources
- Reduce regulatory impediments
- Provide public education

- Expand the use of bioenergy
- Identify potential storage/utilization sites
- Distribute equipment across counties
- Work to identify and promote wood markets
- Encourage counties to gather and share information, resources, address regulatory oversight, and discuss facilitation of the tree removal plan

The TMTF meets every month in Sacramento, and the first TMTF meeting was held on November 16, 2015. Seven working groups have been established within the TMTF to address the objectives identified by the Governor's State of Emergency Proclamation and the TMTF:

- Forest Health and Resilience
- Mapping and Monitoring
- Public Outreach
- Regulations
- Resource Allocation
- Utilization- Bioenergy
- Utilization- Market Development

CAL FIRE leads the TMTF along with the Governor's Office and the Office of Emergency Services. The Department is represented on every level of the TMTF, ranging from the chairs to working group leads and members, and is also active at the local level in each County Tree Mortality Task Force, as well as visiting additional counties that are struggling with growing tree mortality. To date, CAL FIRE has committed numerous resources, including fire engines and hand crews, dedicated over 80,000 hours of staff time and directed \$43.6 million to this emergency.

TMTF Progress

Since its inception, the TMTF has made significant progress on the 19 directives set forth in the Governor's Proclamation. To date, some of the achievements of the TMTF include:

- Purchased \$6 million dollars of specialized equipment for utilization in the impacted communities;
- Provided Guidelines through the Office of the State Fire Marshal for Log Storage Facilities;
- The US Forest Service and CAL FIRE have led monitoring efforts and developed a Statewide High Hazard Zone Map and web based viewer showing areas where tree mortality intersect with critical infrastructure and pose a threat due to wildfire and falling trees;
- Developed outreach programs to utilize the CAL FIRE California Forest Improvement Program and other federal grant programs to assist small, non-industrial timberland owners with cost-share assistance in long term forest management;
- Removed over 423,000 trees from High Hazard Zones.

- 51,607 miles of roads and powerlines have been inspected and cleared of dead trees.
- Awarded over \$15 million in grants from the General Fund and the SRA Fire Prevention Fund for local projects to help combat tree mortality;
- Supported the work of the Board of Forestry and Fire Protection (BOF) in extending emergency regulations that include the cutting and removal of trees that are dead or dying as a result of the drought conditions through the use of the 1038(k) exemption; and
- Developed a robust Public Education campaign (prepareforbarkbeetle.org) to provide information to California's residents on bark beetles, dead tree removal, tree health, defensible space, and wildfire risk.

Causes of the Tree Mortality Epidemic, How it Intersects With Catastrophic Wildfire, Greenhouse Gas Emissions, and Water Degradation, and the Impact of High-Intensity Wildfire on the Ecosystem and Human Populations

The Causes

The tree mortality crisis is the result of both ecological and human impacts. Historically, California forests experienced frequent fires from lightning strikes and fire use by the indigenous population. These frequent fires would regularly consume fuels such as dead wood, branches and foliage, and prevent fuels from accumulating over time. Due to the lack of fuel build-up, forests typically had an open structure with widely spaced, large trees capable of withstanding low intensity fires.

Increased population throughout the West over the last 100 years and aggressive fire suppression have resulted in increased fuel loading, including large increases in the number of trees on the landscape. In these conditions, trees are under additional stress as they must compete for water and other resources. Recent research in California has shown that water deficit combined with increased density may have contributed to drought mortality, with areas that have been both dry and dense experiencing disproportionately large increases in mortality.

In a normal, healthy forest, bark beetles exist at natural, or endemic levels, acting as Mother Nature's housekeepers. However, five years of drought has robbed trees – primarily conifers – of their natural defenses. Typically, when bark beetles target a tree, a healthy tree literally pushes the beetles out through 'pitch tubes'. Drought stressed trees are robbed of sufficient water needed to produce the pitch to repel the insects. As a result, the natural level of bark beetles in the forested ecosystem has ballooned into epidemic proportions in an outbreak that is unprecedented in modern history.

Impact of Tree Mortality on Wildfire

The impact of tree mortality on wildfires is complex and dynamic. The dramatic increase in the number of dead trees has resulted in large areas of the Sierra Nevada susceptible to intense wildfire due to low moisture content and higher flammability. Over time, the arrangement of this dead material will change. As the trees decay, the material will fall

from the canopy to the forest floor, where it will accumulate. No different than firewood in a campfire, the arrangement, density, and dryness of this dead material produces hotter, more intense fires. This is documented in a variety of studies, and validated by seasoned fire professionals.

Post-mortality regrowth will likely emphasize brush-type surface fuels commingled with the high dead and downed woody material, creating a very ignitable and combustible surface fuel system for many years, and thus may result in a loss of forests on currently forested lands. This overall arrangement of fuel also has an impact on normal fire containment activities. Not only are fires burning hotter and more intensely, they are also more challenging to suppress. Traditional firefighting methods are hampered, with resources having to work through the thick heavy downed material to create fire lines and suppress the fire. There is also a significant risk to firefighters due to falling trees.

Impact of Tree Mortality on Greenhouse Gas Emissions

Healthy forests can store significant amounts of greenhouse gasses (GHGs) in the biomass of living trees. The significant drought mortality has shifted much of the forests of the southern Sierra Nevada from a condition that is actively absorbing GHGs, to one that is releasing them as dead biomass decomposes over time. Significant uncertainty exists with respect to vegetation dynamics (e.g. forest and species distributions, growth rates, etc.) under climate change.

The impact of one catastrophic wildland fire contributes to an exponential loss of carbon under the current conditions of the States forestlands. For example, the 2013 Rim Fire burned 257,000 acres, and released the amount of carbon equivalent to 2.3 million vehicles driven for one year.

Impact of Tree Mortality on Watersheds

Forested watersheds and headwater areas are the origin of much of California's water supply and are a critical part of the natural infrastructure. Healthy forests play an important role in the hydrologic cycle as they help maintain the delivery of high quality water to streams and downstream uses. The warming climate and ongoing drought has placed the forested watersheds at risk from more intense wildfire and increased insect and disease vulnerability. High severity wildfire and loss of canopy cover is exposing forest soils to increased erosion, and negatively impacting water quality, temperature, storage, and critical water infrastructure.

CAL FIRE's Role in Creating Resilient Forests to Prevent Future Crises and the Challenges the Department Faces in Preventing These Crises

California is made up of 32 million acres of forestland. Over half of this land is under federal ownership, such as the National Forest system. The remainder is privately owned land, made up of both large commercial ownerships as well as numerous small nonindustrial private lands. In order to effectively engage in active forest management and forest health, our efforts must cross these jurisdictional boundaries and individual ownerships and engage in activities at the landscape or watershed scale.

CAL FIRE has a regulatory responsibility for commercial forest activities on private timberland and a responsibility to provide technical assistance to private forest landowners. Private forest landowners have numerous objectives for their lands, making it considerably more challenging to coordinate forest restoration efforts. In addition, the small nonindustrial landowner does not always have the capacity or expertise to engage in managing their forests, whereas commercial forest landowners tend to have the capacity and technical expertise, and actively engage in forest management.

CAL FIRE works through a variety of mechanisms to make contact and engage with private forest landowners for technical assistance and availability of assistance programs. This includes social media, one on one contact with staff in the field and through cooperators, such as the University of California Cooperative Extension staff.

CAL FIRE is using existing forest improvement programs and various other actions to restore healthy resilient forests for nonindustrial landowners. These efforts include the California Forest Improvement Program (CFIP) that helps fund the removal of dead trees and replanting conifer seedlings. CAL FIRE uses various funding sources for CFIP including the Greenhouse Gas Reduction Fund, the Timber Regulation and Forest Restoration Fund, and USDA Forest Service Forest Stewardship Funds.

CAL FIRE manages a seed bank to ensure the appropriate seed stock is available for various geographic locations throughout the State. This is critical in ensuring forest landowners have access to the appropriate species of trees for reforestation within their zone in the State. The importance of the seed bank is highlighted as climate change is changing the species viability in various locations by latitude and elevation.

CAL FIRE's regulatory responsibility engages landowners whose objectives focus on commercial timber harvest and are utilizing numerous emergency notices and Timber Harvesting Plans (THPs) to remove dead trees caused by drought and beetle infestations, which is the first step in creating new, resilient forests in the Sierra Nevada Range. CAL FIRE ensures that timber operations conducted under the California Forest Practice Act and Rules contribute to the achievement of healthy and resilient forests that are net sinks of carbon. Reforestation efforts are also being coordinated by large landowners without State assistance.

While CAL FIRE is responsible to work with private forest landowners in California, our engagement with federal forest landowners is critical. Federal authorizations, such as the Good Neighbor Authority within the Farm Bill, allow the State to engage in agreements with the US Forest Service to perform work and activities across jurisdictional boundaries. In addition, CAL FIRE advocates on behalf of the US Forest Service for resources and funding to engage in forest management, fuels treatment and fire suppression on their lands.

How California is Planning For Recovery and Whether it is Proactively Positioning Itself to Prevent or Better Manage Future Tree Mortality Crises.

Managing working forests involves a long-term strategy and commitment. While we are addressing the short-term life safety and resource impact of this tree mortality crisis, we must use this as an opportunity to focus on the recovery and long-term investment in broader forest health. We aim to achieve this through the following initiatives:

- Utilization of the Governor's Tree Mortality Task Force and its seven working groups:
 - See the products produced to date from the TMTF and its working groups: <http://www.fire.ca.gov/treetaskforce/>
- New funding sources and partnerships: Identifying and developing new sources of public funding, as well as public-private partnerships, to support the forest restoration activities on nonfederal lands and increase the annual area reforested by 25% over the current level by 2030. To achieve this goal, CAL FIRE will continue to work cooperatively with the Natural Resource Conservation Service, USDA Forest Service, Forest Landowners of California, reforestation seedling growers, and other partners to increase funding for reforestation assistance on non-industrial private forest lands and the availability of appropriate seedlings for planting.
- Increased knowledge and understanding of forest management activities, grant funding constraints, and carbon permanence: CAL FIRE supports increased forest management activities such as thinning, reforestation, and fuel reduction intended to increase forest health, increase carbon storage in forests, reduce wildfire emissions, and protect upper watersheds, where much of the State's water supply originates.
- Increased public knowledge and understanding of prescribed fire use: CAL FIRE supports the combination of thinning and prescribed fire to restore more open and resilient forest conditions. The use of prescribed fire mimics natural processes, restores fire to its natural role in wildland ecosystems, and provides significant fire hazard reduction benefits that enhance public and firefighter safety. Increased use of prescribed fire and improving public understanding of prescribed fire will help prevent further mortality.
- Increased pace and scale of fuels treatment activities: Increase fuel treatments on private and non-federal public lands, including mechanical thinning and prescribed burning, from the current rate of approximately 17,500 acres per year to 60,000 acres per year by 2030. This target is based on CAL FIRE's determination of an operationally feasible increase in activity, as described in the draft Vegetation Treatment Program EIR (VTP EIR).

- Increased coordination and cooperative project development: CAL FIRE encourages the implementation of cooperative projects with a multitude of partners including large and small private landowners, federal and State agencies, conservation groups, forest products industry, and other stakeholders. CAL FIRE also encourages the utilization of newly developed agreements such as the Good Neighbor Authority to support cooperative project development. Better interagency coordination of funding, project development, and local implementation will improve forest health and help prevent future mortality.
- Biomass Utilization: Develop new wood products markets to better utilize biomass and encourage the development of smaller, transportable cogeneration facilities to supporting increased fuels reduction and thinning operations. The southern Sierra has had minimal infrastructure for timber and biomass for many years. New wood products markets should be developed to better facilitate biomass removal and use.
- Utilization of existing forest health collaborations, including:
 - Sierra Nevada Watershed Improvement Program (WIP) (Sierra Nevada Conservancy and USFS, with other State and local agencies and non-profit organizations);
 - Collaborative Forest Landscape Restoration Act Projects (USFS and other partners, on a landscape/regional basis);
 - Memorandum of Understanding for the Purpose of Increasing the Use of Fire to Meet Ecological and Other Management Objectives (many signatory agencies and nongovernmental organizations);
 - Cohesive Strategy Projects and Landscape Management Demonstration Areas (i.e., Fire-Adapted 50 Project, led by the USFS with partners);
 - California Headwaters Partnership (USFS with State partners);
 - Community wildfire protection plans (local collaborative groups);
 - Tuolumne Community and Watershed Resilience Program (implementing the Natural Disaster Resiliency Competition program); and
 - Yosemite-Stanislaus Solutions (USFS, Bureau of Land Management, National Park Service, state and local agencies, and many nongovernmental organizations).
- Funding of restoration treatments for forest areas that are overstocked and/or have high fuel loads, including funding the Watershed Improvement Program (WIP):
 - See: <http://www.sierranevadaconservancy.ca.gov/our-work/sierra-nevada-wip>

- By encouraging and enabling nonindustrial private forest landowners to better manage their forest land through:
 - Cost share programs and grants that aim to increase forestland diversity
 - Active management
 - Identification of landowner objectives

Conclusion

Large, intense wildfires and epidemic tree mortality will likely continue to increase as climate change effects progress by releasing large amounts of uncontrolled GHG emissions into the atmosphere. Utilization of all available funding sources is needed to solve this problem in order to help meet the Governor's 2030 and 2050 climate goals. Preference will be given to projects that fulfill the broader goals of the California Strategic Fire Plan, the Forest Carbon Plan, the 2030 Scoping Plan update, the State Wildlife Action Plan, and the Department of Water Resources Water Plan.

Achieving healthy forests will be costly due to the significantly overgrown conditions which currently exist. It is critical to work with our partners to leverage and coordinate different funding sources to invest in the highest risk areas and where the greatest benefits can be achieved.

No single activity is going to solve the wide range of threats to California's forests. It is going to take a balanced approach of all the management options available. Ultimately, to counter these trends, forest managers need to significantly increase the pace and scale of the region's forest restoration work if we are to succeed in restoring resiliency to California's forests.

I appreciate the opportunity to highlight the combined effort over 80 local, State, federal, tribal, and non-governmental entities that comprise the Governor's Tree Mortality Task Force have cooperatively directed towards combating California's unprecedented tree mortality epidemic. I also look forward to answering any questions that you may have at the January 26, 2017 hearing.

Sincerely,

Chief Ken Pimlott
Director