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Mr. Michael Degnan, Acting Associate Director for Land and Water Ecosystems
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January 22, 2016

RE: The Fire Challenge: Increasing Fire Use for Natural Resource Benefits, Carbon Stability and Protection of Public Health

Dear Mr. Bonnie, Ms. McCabe, Ms. Sarri, and Mr. Degnan,

For the past century fire has been misunderstood, demonized, and suppressed to an unprecedented degree throughout much of the West. Now we are paying the price for thinking that a critical natural process should and can be eliminated. In many areas, forest fuels and forest density, absent a century of frequent fire, are now producing fire intensities and scales that defy historical record. Fires are getting larger, more destructive, more costly and difficult to control.

As scientists and practitioners in fire adapted ecosystems we offer a warning regarding pending changes in the forested landscapes of the West that will be unprecedented and very challenging for society to cope with and rectify. The issues associated with the larger, uncharacteristic wildfires that are now occurring are complicated by both ecological factors and regulatory policy constraints that have begun to “feedback” on the landscape we live and work within. We are at the point now where knowledgeable scientists throughout the U.S. are sounding the alarm regarding the potential for ecosystem conversion and the unraveling of what we understand to be resilient, fully functioning forests.

We also offer a call to the larger society to engage and pay attention to what is happening in the fire adapted forests of the West and elsewhere, and to understand the current policy framework that places severe limits on our ability to use fire to advance ecosystem resilience and to limit impacts to public health. It is complicated and there really are no “bad guys” to point at. It will take all of us, scientists, policy makers, fire practitioners, and the general public to get back on track to work with ecologically appropriate fire at a scale that matters for forest ecosystems, climate, and public health.

How do we make the needed policy changes to turn this damaging fire trend around? The answer will surprise you: significant increases in fire use as a key part of natural resource management, coupled with mechanical treatments where possible can lead to increased forest resilience. Thinking that we can suppress all fires or fully regulate fire as a natural process is flawed reasoning. Here we offer several remedies to correct this damaging and costly situation.

1) Reform the Clean Air Act “natural” and “anthropogenic” ignition definitions and accounting.

The Clean Air Act (CAA) is a powerful and very important statute that is driven by a primary purpose to protect public health. That is a good thing. Unfortunately, there is a major disconnect in the CAA when it comes to regulating smoke from wildfires managed for multiple objectives including natural resource benefits. Currently, Federal EPA Guidelines (2013) grant authority to state air quality regulators to exempt air pollution measurements from unplanned wildfires during their annual air quality compliance calculations. Federal EPA regularly grants requests from states to exclude such “natural” wildfire events from compliance with National Ambient Air Quality Standards (NAAQS). At the same time states vigorously regulate so-called “human-caused” or anthropogenic events such as smoke from prescribed burns. This action significantly undercuts the land manager’s ability to use prescribed or managed fire to reduce forest fuels and thus limit the extent and intensity of unplanned wildfires—and the significant emissions associated with increasingly large, high severity wildfire events.

Instead of exempting wildfire smoke from regulatory compliance standards, it is our position that the exact opposite action should be taken. Absent state and federal efforts to aggressively develop and implement an active prescribed fire program to reduce uncharacteristic wildfire events and their emissions, the state air regulatory agencies should **count** wildfire emissions when determining compliance with air quality standards. Including wildfires in the air quality accounting would become a driver for ecologically appropriate prescribed fire and managed wildfire use. Prescribed fire is one of the most viable mitigation options for reducing wildfire smoke impacts.

The air regulatory agencies should abandon the outdated and mistaken regulatory distinction between “natural” and “anthropogenic” ignitions in large part because limiting the use of prescribed fire and natural ignitions used for resource benefits is, on its face, an anthropogenic act. This distinction places a major regulatory impediment in front of using prescribed fire as a tool that could significantly reduce wildfire resource damage and smoke emissions harmful to public health.

2) Go Beyond “Exceptional Events Rule” Revisions--Craft New Fire Policy

California historically has been a fire-driven landscape with approximately 4.44 million acres burning annually prior to the fire suppression era (Stephens et al. 2007). While much of the state has been converted to farm land and urban development, the majority of our forest lands are still forested and still strongly fire-adapted. Many California forests, as in many other parts of the western US, remain in critical need of frequent fire to maintain resilience and avoid large, high severity fire events that have the potential to permanently convert forests to shrublands or grasslands under a warming climate.

Budgets and limitations on operations also hinder appropriate fire use. Federal fire suppression response expenditures alone in 2005 to 2012 exceeded on average \$1.5 billion dollars per year (2014 Cohesive Strategy, p.47). While suppression costs soar, so does the amount of wildfire acres burned (The Rising Costs of Wildfire Operations-Forest Service 2015). What is more alarming, the type and extent of fires we are seeing in the West do not represent what we understand to be the fire behavior and effects of the past. These effects are largely driven by a lack of appropriate fire in heavily fuel-loaded forests, exacerbated by changing climate and longer fire seasons.

Natural resource managers must be able to plan and implement prescribed fire and use natural ignitions at a frequency, scale and duration that is ecologically appropriate to approximate the natural fire regime in today's forests if we are to foster resilience during future fires. Postponing fire weakens forest resilience and defers the increased emissions outputs to future years and future generations. The proposed revision of EPA's "Exceptional Events" Rule (November 2015) appears to provide the pathway for needed revision, allowing land managers to apply fire at ecologically meaningful scales guided by the best available science considering fire regimes, climate change effects, and best practices for smoke management.

EPA's determination that air agencies can exclude wildfire smoke from annual emissions accounting under the current exceptional events policy (EPA Interim Guidance Letter 2013) is not statutorily required or authorized. Nothing in the legislative history of the statutory source for the exceptional events rule, the amendment to the Clean Air Act by section 6013 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005, requires that the EPA provide a regulatory exclusion of air quality pollution measurements influenced by wildfire. Nor did Congress provide a definition of a "natural event" or identify wildfires as natural events (Engel 2013). We believe only areas with active, ecologically significant fire programs should be allowed wildfire exceptions during annual emissions accounting.

3) Climate Science and Air Quality Monitoring Should Drive Policy Change.

Emissions from large, often uncharacteristic wildfire, especially "mega-fires", are producing "mega-emissions" that have a major impact on public health. In a recent paper (Hurteau et al. 2014) looking at projected effects of climate change and development on California wildfire emissions through 2100, the scientists found end-of-century wildfire projected emissions to increase by 19% to 101% (median increase 56%) above the baseline period (1961-1990). This climate research suggests large emissions increases in northern California forests and moreover,

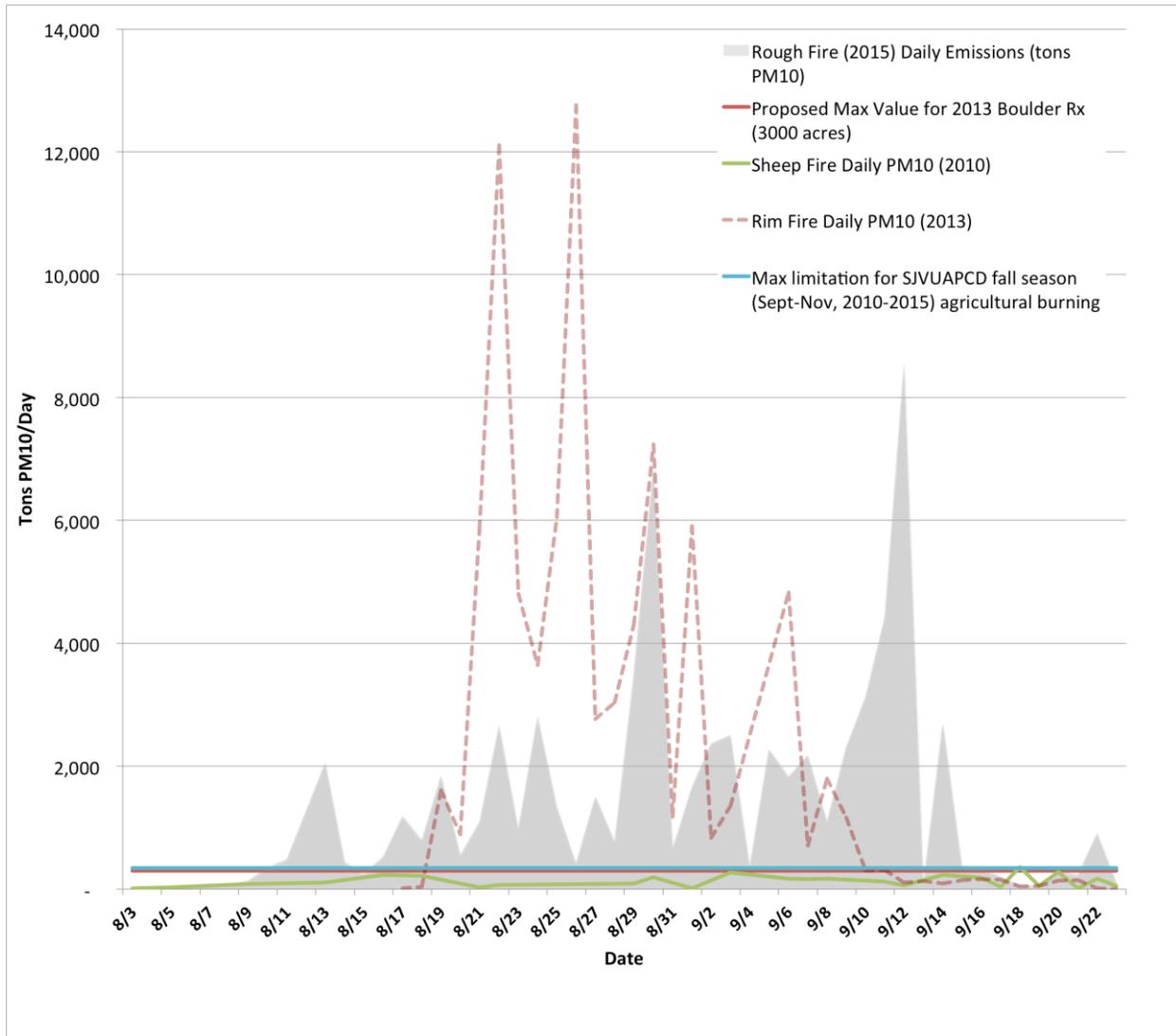
“Efforts to adapt to changing climate and projected increases in large fire frequency are likely going to require the restoration of fire as natural process in these systems.”

Use of prescribed fire and wildfire used for multiple objectives can be managed effectively to limit unwanted emissions from uncharacteristic wildfire and to reduce short-term impacts on air quality. Prescribed fire (Rx) and managed wildfire for multiple objectives (WFMO) are timed to occur in cooler, wetter conditions, under appropriate conditions that maximize ecological benefit, limit damage to forest structure, and also limit daily spread so that the dispersive capacity of the airsheds are not overwhelmed by smoke emissions. This prevents substantial or long-lasting air quality impacts.

Unlike Rx and WFMO, megafires can begin at any time with little regard for air quality. The Rim Fire started on August 17, 2013 and burned approximately 257,000 acres in the Stanislaus National Forest and Yosemite National Park in California. The Rough Fire started July 31, 2015 and burned 151,623 acres in the Sierra National Forest in Fresno County. In the figure below (Figure 1), the average daily PM₁₀ emissions from the two megafires are juxtaposed with projected daily emissions data from an authorized prescribed burn (Rx, Boulder Creek) and the actual daily emissions from the Sheep fire (2010), a managed wildfire for multiple objectives (WFMO). The table also includes the maximum total agricultural burning allocation of the entire San Joaquin Valley airshed (345 tons PM₁₀) for the 2010-2015 fall season (Sept-Nov, though some days with exceptional dispersion are considered “unlimited”)

The data illustrate the 10-100 times difference between emissions from these proactive and appropriately managed fires (Rx and WFMO) vs. the emissions from the unwanted and destructive, watershed-spanning megafires. The daily megafire emissions simply dwarf other sources by a factor of 10 to 100. There is little doubt that Rx and WFMO fire options offer a favorable alternative that could reduce and even minimize emissions from forest landscapes if applied at appropriate scales on the land. More on the enormous air quality impacts of the Rough fire, and the staff recommendations for what to do about these kinds of fires, can be found at: http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2015/November/final/09.pdf

Figure 1. Relative magnitude of daily PM₁₀ emissions (tons/day) from recent fires affecting the San Joaquin Valley Air Pollution Control District airshed. Typical daily emissions from Agricultural allocations, Rx fire, and managed wildfire ignitions in this air district are 100 times lower than the daily emissions from the two megafires



Source: Boulder Creek Rx Fire smoke management planning documents, Sheep, Rough, and Rim Fire progression data combined with tools built by California Air Resources Board to estimate emissions, San Joaquin Valley Unified APCD emissions allocation databases, and the 2015 staff report to the Board, found at: http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2015/November/final/09.pdf

4) Initiate a New Multi-Agency Partnership to Accelerate the Use of Fire as a Management Tool.

A collaborative multi-agency partnership is needed to develop a comprehensive approach to increasing fire management for resource benefits. That approach needs to integrate air regulators, public health officials, land managers, scientists and other key stakeholders as partners.

We will never be able to eliminate fire from our forested ecosystems, nor should we. The question is, can we create a broader opportunity to work with fire for mutual public benefits?

One novel approach is to utilize a suite of Best Management Practices to better inform those with health concerns about pending prescribed burns through a Health Alert Notification System that connects medical professionals, public health departments, and school nurses with land managers and air regulators planning burns, to those most at risk of smoke impacts. The Forest Service in partnership with NGOs has successfully implemented this strategy in the southern Sierra Nevada. We believe this approach should be integrated into national smoke management policy.

We, the undersigned, actively seek further dialogue with you, in your role as agency leaders involved in natural resource management and the implementation of air quality regulation, to improve fire use and air quality concerns for maximum benefit to fire-adapted ecosystems and for the health concerns of at-risk citizens.

Sincerely,



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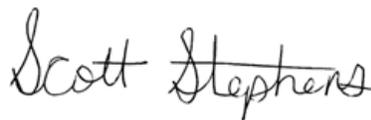
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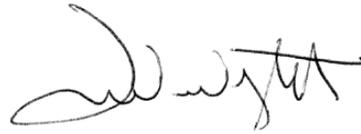


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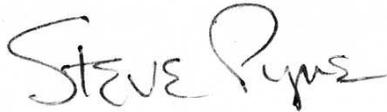
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