

Testimony of

Dr. John D. Bailey

Professor of Silviculture and Fire Management

Oregon State University, College of Forestry

Before the Subcommittee on Environment

“Air Quality Impacts of Wildfires: Perspectives of Key Stakeholders”

October 4, 2017

Thank you for the opportunity to give testimony on the linkages between air quality, wildland fire and active forest management. Wildland fire is one of the most pressing challenges affecting federal land management in the western United States. While complex, there are straightforward science-based forest management approaches that can be taken to address this challenge taking human impacts, like air quality, into consideration. My name is John Bailey, and I’m a professor at Oregon State University, currently as the Maybelle Clark MacDonald endowed chair in the College of Forestry. My career in research and teaching includes the southwestern U.S. and, most recently, Oregon. My work has focused on silviculture, or tree growing, forest restoration and management, and fire as wildland fire and prescribed burning. I am a 35-year member of the Society of American Foresters, since I was a student and firefighter at Virginia Tech. Beyond being a professor and a scientist heavily engaged in these topics, I am a long time forester, a father, and a concerned resident of Oregon who cares about public land management and air quality. My testimony today represent my opinion based on my knowledge and experiences. It will underscore the recognition that wildfire is inevitable, but available science can inform sustainable forest management practices that reflect broad land-management objectives and help us regain some control over when and how our forests burn.

The year 2017 has been another impressive year for wildland fire in Oregon and the West. The region is experiencing a recent trend for large acreages of large fires that alter our landscapes in ways we often do not like and that cost us billions of dollars in attempted fire suppression and subsequent fire management. While there is significant annual variability in fire seasons (meaning where and when forests are dry and fires are actually ignited) that makes it difficult to describe this trend, our average acreages and expenses for the last 15 years is now greater than the maximums seen in the previous decades. More than half of the last 15 years have been record years for wildland fire, costs of suppression, and smoke emissions. Local and regional air quality data supports this trend, particularly for communities like Sisters, Bend, Medford and Ashland in Oregon. And while air quality is a regular concern for many, this year's heavy smoke into the Portland metro area from the Eagle Creek fire has catalyzed many Oregonians into action on this issue.

This issue is about climate patterns and accumulated fuels.

Weather and fuels form two sides of the fire behavior triangle – topography is the third but is only the “surface” for weather and fuels. Weather has to be understood and regularly monitored from the perspective of fire managers; fuels have to not only be understood and monitored, but can be actively managed! Recent patterns in atmospheric and oceanographic warming, snow pack depths and longevity, and drought have all combined to increase the length of fire seasons – and these burning conditions and chances for ignition have now combined with an unprecedented amount of fuel on the landscape, particularly federal lands, to now stretch our fire management services beyond their capabilities. Most climate modeling projects continued lengthening and deepening of fire seasons based primarily on higher temperatures and resultant drier fuels in the forests, which strongly suggests that wildland fire will continue to be major issue at least in Oregon and the West. Combined with increasing amounts of fuel on the landscape, both in terms of the total quantity on many acres and the

connectivity between those acres, the stage is set for continued increases in **large** wildfires that burn increasing large areas at high severity.

This increase in large wildfires will have significant impacts on the ecology of many forest types across the West, but they are impacts from which forests can recover particularly if we can moderate the fire behavior with our management practices. Further, there are potentially crippling effects on economies and human communities, including fatalities in the workforce and general public. For example, the Douglas Complex fire in southern Oregon and Canyon Creek Complex fire near John Day are two examples of tens of thousands of acres of forest uncharacteristically burned, having impacts on wood volume availability and forest sector activity, millions of dollars spent on relatively ineffective suppression activities, community evacuations based on the advancing fire and smoke (with associated human health costs), hundreds of homes and other buildings/property destroyed, local and regional economies reworked, and lingering impacts to communities as they recover and rebuild. And both fires had human casualties. The Eagle Creek fire this year, still burning, has altered the Columbia Gorge landscape, required evacuations, closed down the tourism economic engine for that area for most of a month, threatened historic landmarks, cost us millions of dollars in attempted fire suppression and fire management, and will likely cost more millions in rehabilitation and restoration. At least everyone went home from that fire, and Portland has healthy air once again.

But holding to our current course, steadfast in our inattention and inaction on this issue, will only mean that there are many more large and negative wildfires to come. We as a society don't have to just let it happen. My research along with others nationally and internationally attempts to advance our understanding of fire ecology, fire science and management, prescribed fire and thereby change the wildland fire management system and the landscape. This work goes well beyond grants and publications and students; I believe we are approaching a crisis that will propel us into a whole new way

of managing our lands sustainably and adaptively in the face of changing climate. I want to prepare the next generation to deal with that, and I need your help to do it.

More active land management with an eye to fuels management.

Our wonderful forest landscapes are more than trees and logs. We cannot reduce this issue to logging – we cannot log our way to success. Our forests are scenery, wild areas, recreational opportunities, watersheds for our fish and ourselves, wildlife habitat, wood for timber and fiber, carbon, biomass, ecosystems, and FUEL. Forests are all these things, and most all of our forests is fuel. Most western ecosystems evolved with fire as an integral process, which limited the accumulation of fuel. Our ancestors on these lands used fire as a tool, managed their lands and considered the fuels. We can and should manage our lands sustainably as fuel.

More prescribed fire before wildland fires and during wildland fires.

The solution to unwanted wildfire behavior is *NOT* to pressure young men and women to take more risks by using more aggressive tactics on the fireline and more expensive technology attempting to suppress fire. The solution is to harness the expertise and dedication of federal, state, tribal, NGO, and private sector fire managers to use active and sustainable forest management today, including fire as one of the tools, to help mitigate the effects of future fires. There are opportunities every year to remove and alter the fuels on the landscape and to use prescribed fire and natural ignitions to burn more than a century's worth of accumulated fuels. Using fire under milder weather conditions is not without risk because it is impossible to predict fire behavior with precision. But increasing the tempo and scale of active management and burning under more favorable weather will help reduce the inherent and ever-present risk of wildfire more than relying entirely on a failed suppression model as the first, last, and only line of defense against conflagrations.

Events like the Douglas and Canyon Creek Complex fires have many causes, but the most critical mistake was the Forest Service's inability to treat (i.e. burn) surface fuels years before these fires. The Eagle Creek fire burned like it did last month because of decades of choices to not alter the fuels, including choices to suppress fire even on good days for burning. This was not a failure by the Forest Service personnel - it was a failure of regulation that gave greater weight to mild smoke impacts in the near term over massive smoke impacts in the long term. It was a failure of Congress in not funding fuel reduction at the same level they fund suppression. It was a failure of media outlets in perpetuating the myth that all wildfires can and should be extinguished. And it was a failure of society to pay attention to the emerging problems.

More uncharacteristic wildland fire is inevitable until these problems are addressed.

Wildland fire is as inevitable the weather, and hurricanes, and floods, and disease. So we, as a society, have preventative measures we can take: preparations and vaccinations of sorts. Like vaccinations and building our resistance to diseases, we build resistance to wildland fire **with fire**. Active land management including prescribed fire treatments will be essential to our ability to provide the wonderful range ecological and socioeconomic benefits of our forests; however, we are falling further and further behind in the implementation of treatments. This is particularly true in and around human communities, receptor areas where air quality is strictly regulated, and other highly valued areas of our forested landscapes. There are many groups working on revisions to smoke management rules that will allow "vaccination" – a little smoke when we can influence the amount and location in exchange for unregulated wildfire smoke. But there is regulatory resistance.

In conclusion, we are saddled with a legacy of outdated thinking in addition to accumulated fuels – and we are moving quickly into an uncertain climatic future. Wildfire is inevitable. Our forests will continue to burn regardless of what we say or do today. But we can better choose when and how it

burns, and how it can be consistent with broad land management objectives. There are abundant win-win-win situations at hand if we choose to act proactively and wisely. Thank you again for the opportunity to speak with you today.

One-page summary for Bailey testimony, October 4, 2017

Wildfire is inevitable; available science can inform sustainable forest management practices that reflect broad land-management objectives and help us regain some control over when and how our forests burn, with resultant impacts on the land, human communities and air quality.

The year 2017 has been another impressive year for wildland fire in Oregon and the West. Climate change combined with increasing amounts of fuel on the landscape, both in terms of the total quantity on many acres and the connectivity between those acres, and set the stage for continued increases in large wildfires that burn increasing large areas at high severity.

Holding to our current course, steadfast in our inattention and inaction, will only mean that there are many more large and negative wildfires to come. We as a society don't have to just let it happen.

Our wonderful forest landscapes are more than trees and logs. We cannot simplify this issue to "logging" – we cannot log our way to success. Our forests are scenery, wild areas, recreational opportunities, watersheds for our fish and ourselves, wildlife habitat, wood for timber and fiber, carbon, biomass, ecosystems, and FUEL.

We need more prescribed fire before wildland fires and during wildland fires. Active land management including prescribed fire treatments and fire use will be essential to our ability to provide the wonderful range ecological and socioeconomic benefits of our forests; however, we are falling further and further behind in the implementation of treatments.

We are saddled with a legacy of outdated thinking in addition to accumulated fuels – and we are moving quickly into an uncertain climatic future. But we can choose when and how the forests burn, and how it impacts future generations. There are abundant win-win-win situations at hand if we choose to act proactively and wisely.