Written Statement of

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"Out of Control: The Impact of Wildfires on our Power Sector and the Environment"

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Chairman Rush and Chairman Tonko, and Ranking Member Upton and Ranking Member Shimkus, thank you for the opportunity to testify today on the issue of wildfire in our western landscapes and the impacts on our environment and communities. I would also like to thank Representatives Schrader and Walden from Oregon and acknowledge their attention to the complex challenge of western wildland fire.

I am Anthony S. Davis, interim dean and professor in the College of Forestry at Oregon State University (OSU). Wildfire is an everyday focus of our integrated teaching, research, and extension programs, with broad recognition that protecting communities and sustaining forest values are among our primary forest management objectives of this century.

In 2018 and 2019, the College of Forestry convened two Fire Summits to address these very issues. The OSU College of Forestry partnered with the leaders of forestry programs at Universities of Idaho, Montana, and Washington, colleagues from federal and state agencies, and partners from NGOs and industries to discuss and highlight what current science and practice tell us about the emerging reality of wildfire across our Northwest USA forest landscapes. Through these sessions, scientists and practitioners focused on wildfire in the Northwest and its impacts on water, forests, and communities; the realistic role for fuel treatments to protect communities and sustain forest values; and the emerging reality of wildfire smoke and human impacts (Figure 1). Much of my testimony today has been informed by those collaborative and consultative discussions.

INTRODUCTION

The economic impact of the new Northwest fire reality is staggering. National post-fire costs move quickly beyond forests and rangelands and associated damage to the natural resource base including plants, animals, and landscapes, expanding into costs associated with health care, tourism, loss of business revenue, property loss, and too often, loss of human life. Perhaps the highest economic risk comes in the form of the drinking water of the west. Globally, many cities benefit from the water filtration forest systems provide every day. In that, wildfire places

a risk on providing water storage and filtration globally valued at more than $4 trillion per year (From Bladon et al. 2014).

Our **society invests more time, energy, and resources fighting fires than we do taking proactive steps to reduce wildfire severity** and foster the resiliency of our forests. We find ourselves continuously responding to the next emergency rather than acting on a broader, more strategic view of how to live with wildfires. It is particularly concerning when considering how the many negative effects of wildfire disproportionately impact lower income and at-risk populations. Existing science and experience with land management tell us there is a better path forward than the one our collective policies are pursuing today.

In my testimony, I will focus on addressing the following core points:

- Western wildfire matters for society broadly, not just for those directly affected by fire
- The current wildfire challenge is perpetuated by complex factors; improved understanding of the forest and fire ecosystem is essential to better focus resources on strategies to prevent or control fire
- Serious concerns for broad impacts from fire smoke necessitates adaptation
- We must better leverage science and history to inform policy and priorities for strategic actions to more effectively mitigate fire risk

NEED FOR ENHANCED PUBLIC UNDERSTANDING FOR MORE EFFECTIVE ENGAGEMENT

While we are in the off-season of wildland fire risk in the Northwest United States, Americans are currently watching closely the fires burning in Australia. Last fall, attention was on fires in the Brazilian Amazon. Whether public focus of concern is on the American west, the Amazon, or the koalas, the public often views wildfire as an annual cycle. Those living in fire-prone systems don't have that luxury. They face a new fire reality. For them, fire is now a constant concern. The broad public perspective highlights a critical disconnect between society's vantage point and the reality of our forested landscapes.

The new fire reality is that wildfire impacts are broad, lasting, and anything but annual in their cycles. While the short-term impacts are acute, they compound to chronic negative conditions. The effects are cascading and cumulative, and do not reset to "zero" each year. Furthermore, costs and impacts of fire are not limited to the fire itself. For instance, the long term and broad reach of smoke impacts nearly every home in the Northwestern U.S., and the threat of catastrophic fire exists for almost every urban water supply system across the region.

As we seek to find a path forward, those of us engaged with western fire from science to policy to practice must work to demystify public perceptions of some of the elements around fire in western systems.

FIRE CONTROL: FIRE MANAGEMENT PRACTICE IMPACTS WESTERN FIRE RISK

A first thing to consider in any discussion about wildfires in the Northwest is **wildfires are not new and that they are necessary**. Ecologically, they renew numerous critical processes. By doing so, they also self-regulate the total amount of fuel available for burning, as after a fire there is less material available to burn again. Millenia of fires across the western USA sculpted the landscape we see today. Understanding this fire history, from how Indigenous peoples used fire as a management tool to the frequency and intensity of burning, are critical sources of information in determining how we can be effective in understanding and addressing future fire behavior.

A second point is that the almost 100 years of fire suppression, during a period of cooler wetter climate, was successful in part because of the conditions in which fires were occurring. The landscape upon which wildfire suppression activities were initially launched was formed by the aforementioned millennia of regular fires and the industrialization of the western USA. Those prior fires had created vast fuel breaks which resulted in a horizontally disconnected forest landscape resulting in areas that were less susceptible to the spread of fire. Meanwhile, forest management introduced a network of roads and trails into forests and a need to respond in terms of resource protection. With that backdrop, our fire managers were highly successful in suppression.

Year after year of **effective control of fire, without a corresponding non-fire reduction in fuel load, has led to an increase in continuous biomass available to burn** across the forest landscape. Where periodic burns would create natural fire breaks, those are now filled with trees. A success by nearly any measure outside of the potential for burning. While the combination of harvesting, thinning, and extensive road building practices and a cooler wetter climate during the 20th century reduced wildfire impacts and largely gave society a respite from fire, wildfire occurrence today has increased dramatically.

Ultimately, this means that the use of managed fire and effective treatments on our landscapes will be critical in addressing wildfire and the cascading negative and direct influence on forest health, climate, air and water quality, and human well-being, but we also cannot look at the scale of the problem and cut our way out of fire adapted ecosystems.

CLIMATE IMPACTS RISKS & SEVERITY OF WESTERN WILDLAND FIRE

In understanding wildfire today, we must recognize **climate is a primary driver.** The changing climate drives us towards novel conditions that require research and corresponding adaptive responses. Fire severity (impact that fire actually has on the ecosystem) and total area burned is largely determined by a combination of climate, weather, topography, and fuels. The new Northwest fire reality is the fire season is now 30 days longer than it was in the 1980s (Westerling et al. 2006, Westerling 2016). Understanding the impact of climate is vital as the relationship between climate and fuels is a place where we may be best able to influence fire behavior.

CONCERNS FOR FIRE SMOKE NECESSITATES ADAPTATION

Smoke is the way most people interact with fire. Looking at wildfire and smoke issues, education, communication, and outreach are critical. We must not be ambiguous: Communities must adapt to fire-even those occurring 100s of miles away. Wildfire is going to happen, and it *will* impact urban, suburban, and rural communities. Fire and smoke will be a part of life in the Northwest – even with an aggressive treatment strategy at a scale which dwarfs what has been implemented to date. In adapting, communities must engage in a full suite of actions, taking steps to mitigate impacts from smoke associated with prescribed and uncontrolled wildfires.

Speaking directly to the issue of smoke, communities need to be prepared for this component of wildfires in the Pacific Northwest. Recent levels of wildfire smoke in the Pacific Northwest are unprecedented. They represent a health threat affecting broad swaths of the western U.S. population, having an indelible impact on communities. In 2017 and 2018, monitors recorded more than 3,500 instances where the current 24-hour health standard was exceeded. To put this in perspective, if those instances were evaluated under Clean Air Act standards, much of the West would be classified as "non-attainment" under the Act. It should be noted that of the 3,500 Clean Air Act health standard exceedances, only two were the result of prescribed fire.

Wildfire smoke differentially affects vulnerable groups, such as those with pre-existing respiratory and cardiac conditions, the elderly, the young, and pregnant women. Smoke impacts may be greater among poor populations due to exposure and a lack of access to indoor environments with air filtration systems. Beyond individual impacts, wildfire smoke significantly affects all segments of the outdoor economy, threatening small businesses that already operate on thin margins. Agricultural producers across the Northwest -- ranging from apple orchards to vineyards and canola farmers -- are repeatedly facing quality control issues arising from smoke exposure. Smoke threatens the commercial viability of crops across successive seasons and years. Collectively, the above groups are further at risk because existing public information systems lack consistent messaging regarding indices for smoke impacts and strategies to mitigate those impacts.

Further, there is an increasing convergence of people living in or near the wildlands, which has put new pressures on responsible agencies and funding to manage fire risk and suppression. More people live in the wildland-urban interface (WUI) than ever before, and growth rates for houses and people are higher in the WUI than national averages (Radeloff 2018). Over this time, the average number of structures lost to wildfire each year has tripled. One of the most telling numbers that highlights a disconnect between how people want to use the outdoors and how they actually do is that in Oregon, where sixty-eight percent of fires started in 2018 were human caused. While those fires may start in areas that are more readily controlled, they also divert resources and highlight a fundamental lack of understanding of the latent fire risk on the landscape.

BETTER LEVERAGE SCIENCE TO INFORM & PRIORITIZE ACTIONS TO MITIGATE FIRE RISK

The far reaching and cascading impacts of fire show us we need to prioritize and address those areas where we can make a needed difference – not in the annual cycle, but in adapting this new multi-year reality as it unfolds. Past management, current climate, and shifts in land use (including where people live), have left us with a landscape that has more trees, and more contiguous forest occupied by people, than ever before. Therefore, we must enlist our emerging knowledge of fire behavior, active management, and fire adaptation and education under a new fire reality. What we learned in the past may not fully inform our future actions.

With recognition that fire suppression success in the past century was a product of the landscape, climate, and deployment of the tools we had, we must realize we might not have the tools needed to achieve that same impact on wildfire and smoke hazards. The new reality requires us to prioritize locations and conditions for action. We must create a process that, through long-term effective deployment of a suite of physical and social tools – will seek to achieve the desired impact on securing lives, livelihoods, and landscapes.

Collectively, the impact and array of fuels treatments on the landscape can be tailored toward those community protection and forest values most at risk. But going-to-scale requires a vision of the landscape unconstrained by ownership boundaries. Effective treatments that protect communities from wildfire requires coordinated actions across international borders, federal lands, state lands, industrial, private non-industrial, and tribal lands.

Experience and emerging science can inform where on the landscape treatments should happen. I believe we are capable of overlaying this with our understanding of how fire responds in different circumstances, and in relation to important human values that are most at risk. We can use this knowledge to coordinate and position prescribed fires, managed fires, timber harvesting and other mechanical treatments across ownerships. Through research and education we aspire to offset the future cost of fire suppression, the loss of timber and recreational values, the loss of water quality, and most importantly the loss of lives and property. There is no single approach to all conditions. Treatments must include activities that are appropriately matched to the ecological and social landscape and unprecedented conditions. The type and configuration of those treatments will vary by forest type.

A critical point to note is treatments are interdependent and unending. Across the landscape and over time, there is no single intervention that will allow us to be done and move on. A reduction in fuel load is ephemeral, as trees grow back. So the use of thinning, for example, to reduce tree density may need to be followed at regular intervals by allowing unplanned fires or initiating planned fires should they not occur via natural start under extreme weather conditions. Near urban centers, this continued-engagement approach has shown the potential to allow for effective suppression in some ecosystems.

CLOSING

In closing, it is essential that policy solutions acknowledge what science and history tells us. Fire will never be eliminated from western forests; it is part of our future, and is an important part of the ecology of our forests. To achieve positive change, we must address issues such as the inherent conflict between clean air objectives and land management objectives.

The scale of the new Northwest fire reality is dramatic and there needs to be a coordinated effort to address it. The cost will be measured in billions of dollars and time in decades to begin to see a landscape level change. Failing to act now will increase the cost and lengthen the time before we see a meaningful change.

Thank you again for the opportunity to offer this testimony. I look forward to answering any questions you may have.

2018 FIRE SUMMIT: SUMMARY

In March 2018, the College of Forestry convened a Fire Summit bringing regional, national, and international experts together to identify science-based actions.

GOAL

To identify viable forest management practices that could help mitigate the risks and impacts of high-severity fire events in the West

RECOMMENDATIONS FROM SUMMIT PANELS

Expand strategic use of commercial thinning, prescribed forests and managed wildfire as forest management tools

- Create smoke emission regulations to support prescribed burning in spring and fall.
- Develop "fire-shed" plans that map where to strategically implement fuel treatments.

Improve Coordination across jurisdictions and ownership boundaries

- Enhanced coordination of private land owners and public land managers to accelerate strategic pre-fire planning (including fuel treatments).

Develop and implement cross-boundary "pre-fire response" plans

- To reduce future severity, fire suppression must be strategic and designed to support sustainable conditions into the future. This requires local response plans that coordinate and align suppression strategy beyond traditional preparedness planning.

Address inequities associated with liability for cross-boundary fires

- Current framework for imposing financial liability for fires that cross boundaries is a flash point that impedes progress in discussions regarding fire prevention and suppression efforts.

Invest in data mapping and risk assessment to support cross-boundary management and suppression

- A variety of information and mapping tools are available to facilitate mores strategic pre-fire response planning that is tailored to address local conditions and land management needs.

KEY TAKEAWAYS – WHAT CAN WE DO?

Nationally

- Address significant management challenges on federal lands

In Oregon

- Support active and strategic fuel reduction
- Implement cross-boundary collaborations to reduce fuel loading and emphasize pre-fire planning
- Increase efforts to reduce home ignition in Wildlife/Urban Interface (WUI) areas

At the Oregon State College of Forestry

- Address key issues using credible science
- Utilize timely and relevant information to support public and private land managers
- Act as a convener to bring together scientists, land managers and policy leaders

Oregon State University

Figure 1. 2018 Fire Summit Summary.

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