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To: Interested Parties

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Subject: FOFA and the Environment

Addendum: The Pacific Northwest

This memo complements our “FOFA and the Environment” memo by providing additional examples of the effectiveness of wildfire mitigation activities in the Pacific Northwest (PNW) states of Oregon and Washington.

At a high level, the Pacific Northwest states of Oregon and Washington are home to two fundamentally distinct forested regions that necessitate different approaches to managing wildfire. The region west of the Cascades in Washington and northern Oregon is dominated by lush temperate rainforests that naturally burn rarely in stand-replacing, high-severity wildfires every few centuries. Here, the potential effectiveness of proactive treatments in achieving management goals is unclear and researchers are actively working to improve our knowledge of how to best manage wildfire risk in the wetter regions of the Pacific Northwest.¹

The region east of the Cascades in both states and throughout southern Oregon is dominated by dry conifer forests that typically burn frequently at low- to moderate-severity once a decade. In this drier region of the Pacific Northwest, wildfires regularly burn into the footprints of past treatments and numerous scientific studies have collectively found that treatments with a fire component (prescribed fire, thinning+prescribed fire, or prior wildfire) are the most reliable and most effective at reducing the severity of subsequent wildfires. In contrast, thinning-only treatments are generally found to have little to no effect at modifying wildfire outcomes in dry conifer forests.

The emerging consensus for the drier regions of the Pacific Northwest is that fuels treatments do work in dry conifer forests but that thinning alone is probably not enough to make a meaningful difference. While thinning can be a critical first entry of a management plan, the ultimate goal of wildfire mitigation strategies in the drier regions of the Pacific Northwest should be to restore ecologically appropriate

¹ Halofsky et al. 2018. “The Nature of the Beast: Examining Climate Adaptation Options in Forests with Stand-replacing Fire Regimes.” *Ecosphere* 9 (3). <https://doi.org/10.1002/ecs2.2140>.



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prescribed fire treatments, cultural fire, and wildfire to as much of the forested lands as soon as is safely possible.

There are several provisions in FOFA that establish a framework for managing wildfire risk and for expanding the use and application of beneficial fire where appropriate. Sec. 101 of FOFA establishes landscape-scale Fireshed Management Areas (FMA) for firesheds in the top 20% of wildfire risk creating the foundation to get more wildfire resilience projects on the ground. Sec. 102 creates the Wildland Fire Intelligence Center to provide decision support for all levels of government during all stages of wildfire mitigation, preparation, response, and recovery. This center will make it easier to assess windows of opportunity to apply more beneficial fire and safely monitor them. Sec. 105 establishes the Fireshed Assessment process in which federal agencies in collaboration with state, Tribal, and local entities, and informed by public input, create landscape-level strategies for managing wildfires, natural resources, ecosystem services, and other environmental and cultural values of interest. Sec 106 of FOFA then provides permitting relief to projects that will help realize the goals identified by the Fireshed Assessments. The entirety of subtitle D focuses on increasing the application of prescribed fire. The intent of FOFA is to reduce the risk of destructive wildfires while maintaining the integrity of wildfire-dependent ecosystems.

Below we review the available datasets and scientific evidence from the Pacific Northwest in support of expanding beneficial fire and other proactive management activities as envisioned in FOFA to promote safe and healthy wildfire-dependent ecosystems.

Wildfires regularly burn into treatment footprints in the PNW

Wildfires burning into the footprints of past treatments have become a common occurrence in the PNW, providing many opportunities for scientists to study the real-world effectiveness of proactive wildfire mitigation.

- Washington State has recently launched its [Wildfire Interactions with Treatments and Suppression \(WTIS\)](#) dashboard to provide ongoing tracking of instances of wildfires encountering treatment footprints and to record observations from firefighters on how the treatments did or did not impact the wildfire. Since 2023, 58 wildfires in Washington have burned into 231



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treatments with more than 64% of the treatments reporting positive outcomes.²

- The [Region 6 FY21 Fuel Treatment Effectiveness Monitoring \(FTEM\) Dashboard](#) tracks instances of wildfires burning into the footprints of past treatments in Oregon and Washington with more than 500 treatments reported as having changed wildfire behavior in the span of one year.³

Treatments work in the drier regions of the PNW, the most effective treatments include fire

In recent years, scientists have been able to assess the effectiveness of fuels management treatments by studying the outcomes of many different wildfires burning into the footprints of previously completed treatments across the drier regions of the Pacific Northwest. Collectively, these studies provide overwhelming evidence that treatments do work in dry conifer forests and that treatments that include prescribed fire to be the most reliable and most effective at reducing wildfire severity to more ecologically appropriate levels. In contrast, studies on the effectiveness of thin-only treatments have found mixed results. In some cases thin-only treatments worked but were less effective than prescribed fire treatments or were only effective under less extreme fire weather conditions. In other cases thin-only treatments did not appear to work and responded no differently than untreated forest when burned in a wildfire.

Summary of scientific papers and reports on the effectiveness of wildfire mitigation treatments that were burned in Pacific Northwest wildfires:

Oregon

- **2021 Bootleg Fire:** The Bootleg Fire burned a total of 167,445 ha in July-August of 2021 in the Fremont-Winema National Forest in south-central Oregon.

² Washington State Wildfire Interactions with Treatments and Suppression (WTIS) dashboard.
<https://wadnr.maps.arcgis.com/apps/dashboards/d8cc37e4909f405fa4015f310de00fb1>

³ Region 6 FY21 Fuel Treatment Effectiveness Monitoring (FTEM) Dashboard.
<https://www.arcgis.com/apps/dashboards/ffc4df6747d14e09a57f5d9b813f4cc6>



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- [Sanna et al. \(2025\)](#) studied 41 of the many treatment units that burned in the 2021 Bootleg Fire and found that treatments that included a prescribed fire component predominately burned at low severity in the Bootleg Fire, whereas thinning-only treatments and untreated forests predominately burned at moderate and high severity.
- [Chamberlain et al. 2024](#) studied 300 of the treatment units that burned in the 2021 Bootleg Fire and found that treatments that included prescribed burning (broadcast burning or thinning + broadcast burning) were the most effective at reducing burn severity relative to untreated forests. In contrast, thinning-only treatments were similar to untreated forests.
- **2007 Monument, GW, and Egley Complex Fires:** The Monument Fire burned 53,556 acres in July, 2007 in the Umatilla National Forest, Prineville District BLM, and surrounding private lands. The GW Fire burned more than 7,000 acres of Deschutes National Forest and surrounding private lands in August 2007. The Egley Complex Fire burned 140,360 acres of BLM and private lands in July 2007.
 - [Harbert et al. \(2007\)](#) studied treatments that had burned in the 2007 Monument, GW, and Egley Complex Fires and found that sites previously treated with prescribed fire and or thinning had significantly lower severity fire than untreated forest.
- **2002 Biscuit Fire:** The Biscuit Fire burned 202,000 hectares from July-November 2002 in primarily the Siskiyou National Forest and Kalmiopsis Wilderness Area in Oregon. At the time it was the largest wildfire in Oregon on record and one of the largest ever on US nation forest land.
 - [Raymond and Peterson \(2005\)](#) studied 4 treatment plots across two locations that were burned in the 2002 Biscuit fire and found that tree fire damage and mortality was significantly lower in thin+burn units compared to unburned forest. In contrast, results for thin-only treatments were mixed. At one location tree damage and mortality was significantly lower, and at the second location there was no difference between the thin-only treatment and the untreated forest.



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Washington

- **2024 Retreat, Swawilla I, and Cougar Creek Fires:** The Retreat Fire burned 45,594 acres in Yakima County, the Swawilla I Fire burned 53,817 acres on the Colville Reservation, and the Cougar Creek Fire burned 24,089 acres in the Blue Mountains. These fires represent three of the six largest Washington fires of 2024.
 - [Washington State's 2024 Work of Wildfire Assessment](#) reports initial findings that treatments with prescribed fire burned at lower severity compared to untreated forest in the Retreat, Swawilla I, and Cougar Creek Fires. Note, these represent preliminary results and a full peer-reviewed analysis is underway.
- **2021 Schneider Springs Fire:** The Schneider Springs Fire burned August 4–October 8, 2021, covering approximately 43,438 ha in Central Washington.
 - [Chamberlain et al. \(2024\)](#) studied 118 treatment units that burned in the 2021 Schneider Springs Fire and found that prescribed burn treatments and past wildfires were the most effective at reducing burn severity relative to untreated forests. In contrast, thin-only treatments were less effective and only under moderate fire weather conditions.
- **2001-2019 Northeastern Washington Wildfires:**
 - [Cansler et al. \(2022\)](#) studied 150 wildfires that burned between 2001 to 2019 in conifer forests in the Northern Cascades and Okanogan Highlands region of northeastern Washington. They found that prescribed burning treatments were more effective at reducing wildfire severity than thinning-only treatments. They also found that harvest treatments were generally not effective and burned at high severity than untreated forests.
- **2014 Carlton Complex Fire:** The 2014 Carlton Complex Fire burned 103,000 hectares of semiarid grasslands and forest in north-central Washington. At the time it was the largest wildfire event in state history.
 - [Prichard et al. \(2020\)](#) studied treatments that burned in the 2014 Carlton Complex Fire and found that treatments that included fire (prescribed fire, thinning+prescribed fire, or past wildfire) were the



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most effective at reducing burn severity, even during extreme fire weather conditions. In contrast, thinning-only and harvest treatments had little to no effect on wildfire severity.

- **2006 Tripod Complex Fires:** The 2006 Tripod Complex Fire burned 70,894 hectares on the Okanogan-Wenatchee National Forest in north-central Washington. At the time, it was the largest fire event in the state.
 - [Stevens-Rumann et al. \(2016\)](#) found that areas that had previously burned by wildfire in the last three decades subsequently burned at significantly lower severity during the 2016 Tripod Complex Fires.
 - [Prichard and Kennedy \(2014\)](#) studied 387 past harvest and fuel treatments that burned in the 2006 Tripod Complex Fires and found that treatments that included prescribed fire (prescribed burning, thinning+burning, or clearcut+burning) were most effective at reducing burn severity during the Tripod Complex Fires. In contrast, thin-only treatments were less effective at mitigating burn severity.
 - [Prichard and Kennedy \(2012\)](#) studied 16 treatments that burned in the 2006 Tripod Complex Fires and found that tree mortality in the three years following the fires was much lower in thinning+burning treatments (44% of trees died) compared to thin-only treatments (64%) and untreated units (78%).
 - [Prichard et al. \(2010\)](#) studied 16 treatments that burned in the 2006 Tripod Complex Fires and found that tree survival was significantly higher in thin+prescribed burn treatment units compared to untreated forest. In contrast, tree survival in thin-only units was not significantly different from untreated forest.
- **1994 Tyee Fire:** The 1994 Tyee Fire burned 56,780 hectares on the Wenatchee National Forest in north-central Washington.
 - [Pollet and Omi \(2002\)](#) studied 9 treated ponderosa pine stands that burned in the 1994 Tyee Fire and found that thinning+burning treatments had lower fire severity ratings and less crown scorch than untreated plots.



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Bibliography of scientific articles and reports on treatment effectiveness in the Pacific Northwest

Note that many scientific papers are behind a paywall, contact Megafire Action for help with accessing any of these papers.

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