January 31, 2024

Re: Comments on NWFP Amendment #64745

Please accept these comments on behalf of 350PDX, a climate justice organization based in Portland Oregon, and its Forest Defense Team that works to works to fight climate change by advocating for forest management practices that increase carbon sequestration and storage, decrease forestry sector carbon emissions, and improve community and ecosystem resilience in the face of the changing climate.

I. INTRODUCTION

Amendments to the Northwest Forest Plan will alter the underlying individual national Forest Land & Resource Management Plans. Since most of these plans have not been significantly changed since the NWFP was initially adopted, this is a great opportunity to address the key need to shift the Forest Plan standards and guidelines for wildland fire management still rooted in the Forest Service's historic policy of total fire suppression. Beginning in the 1920's, this policy had two goals: 1) preventing fires from starting, and 2) if a fire began, suppressing it as quickly as possible. Early Forest Service leaders had little to no understanding of the ecological role of fire and simply argued that any and all[1] Educating the public about the need for fire prevention became an important part of their goal[2] and Smokey's propaganda campaign has been incredibly successful and entrenched the culture of fire exclusion in the public's mind.

The Forest Service's second goal led to development of a systematic approach to fire suppression. In 1935, the Forest Service established the so-called 10 a.m. policy, which decreed that every fire should be suppressed by 10 a.m. the day following its initial report. By offering financial incentives to states to fight fires, the Forest Service came to dominate and direct what amounted to a national fire suppression policy.[3] Despite its revocation 40 years ago, the 10 a.m. policy still informs the widespread suppression mentality that overlays the agency's current fire management efforts.[4]

These comments will use 350PDX's local National Forest - Mt. Hood National Forest (MHNF)- as an example to highlight the need to add comprehensive wildfire management into the suite of amendments proposed for the NWFP. MHNF's approach to wildland fire in the 1990 Forest Plan is based on the historic commitment to fire suppression, stating "all wildfires shall receive an appropriate suppression response."[5] There is a very narrow exception for natural ignitions in Wilderness Areas, which "will be treated as prescribed fires until declared wildfires."[6] However, MHNF's current Fire Management Action Plan does not include a prescribed burning plan for

[1] http://www.foresthistory.org/ASPNET/Policy/Fire/Suppression/Suppression.aspx
[2] http://www.foresthistory.org/ASPNET/Policy/Fire/Suppression/Suppression.aspx
[3] http://www.foresthistory.org/ASPNET/Policy/Fire/Suppression/Suppression.aspx
[4] Omi, P, B. Collins & S. Stephens, Forestry and US Forest Service Fire Management: Moving beyond Conventional Practices, 193 Million Acres: Toward a healthier and more resilient U.S. Forest Service, Society of American Foresters, 2018, p 108.

[5] MHLRMP, FW-265. *Fire suppression* is a reduction in heat output from the fire and control of the fire to restrict its spread from its seat and reduce the flame area. http://www.iadclexicon.org/fire-suppression/
[6] MHLRMP, 4-25.

Wilderness, rather it requires the "[i]nitial action on all wildfires will be to suppress the fire."[7] The Forest Plan's Standards & Guidelines regarding fire use and management are focused on fire prevention, fire "attack", fire area rehabilitation, and fuels treatment.[8]

The 1990 MHNF Forest Plan is essentially silent about the important ecological role of fire in maintaining forest health and the role of indigenous burning in the Mt. Hood area. This is not surprising, as for most of the twentieth century, federal land management emphasized wildfire suppression, domestic livestock grazing, and wood production, and wildfires were viewed as threatening to people, infrastructure, and the timber supply.[9] As explained in *Indians, Fire & the Land in the Pacific Northwest*, "Development of the field of fire ecology was stymied for many years by what has been called the 'Smokey the Bear syndrome': a pervasive belief, peculiar to Western cultures, that fire was a destructive force, particularly in forests, that had to be contained or eliminated."

However, since the 1990 Forest Plan was written, the field of fire ecology has grown significantly and has informed a changing perspective on the value of fire on the forest landscape.[10] With the growth of the field of fire ecology, and the integration of traditional ecological knowledge into land management, we are re-learning fire's ecological benefits including cleansing, fertilizing, altering succession patterns and creating mosaics high in species diversity.[11] Forest and range managers are beginning to appreciate what this area's original inhabitants knew all along: fire is an integral part of an interrelated system of plants, animals, and the land.[12]

At the same time that fire's ecologically beneficial role is better understood, social and ecological changes are making fire management ever more difficult. A century of fire suppression, coupled with aggressive logging of old growth and rapid expansion of residential development in the Wildland Urban Interface (WUI), significantly altered the ecosystem, making forests much more susceptible to uncharacteristic wildland fire.[13] A rapidly changing climate is exacerbating these adverse impacts. Repurposing past approaches to fire management will not address the socio-political and ecological challenges that lie ahead.[14]

While the MHNF's Forest Plan and Fire Management Plan still require full suppression, the policy direction of the U.S. Forest Service has responded to these changing conditions in encouraging ways. In 2002, the Forest Service amended its Handbook to provide direction for restoring fire-adapted ecosystems and preparing updated fire management plans:

[7] MHNF Fire Management Action Plan, 2012.

[8] *See* Forest Plan at 4-76, 77.

[9] Hessberg, et. al, 2015, Restoring fire-prone Inland Pacific landscapes: seven core principles, Landscape Ecology, 30:1805–1835

[10] Boyd, R. et. al, 1999, Indians, Fire & the Land in the Pacific Northwest, Oregon State University press, p 19.

[11] Id., at 20.

[12] Boyd, R. et. al, 1999, Indians, Fire & the Land in the Pacific Northwest, Oregon State University press, p 20.

[13] Rains, M. and T. Harbour, Restoring Fire as a Landscape Conservation Tool: Nontraditional Thoughts for a Traditional Organization, 193 Million Acres: Toward a healthier and more resilient U.S. Forest Service, Society of American Foresters, 2018, p 130.

[14] Hessberg, et. al, 2015, Restoring fire-prone Inland Pacific landscapes: seven core principles, Landscape Ecology, 30:1805–1835

> "Fire management plans should address as extensive as possible a range of potential wildland fire occurrences and should include the full range of fire management actions in a manner consistent with Forest land and resource management plans…Where the land and resource management plan does not support a full range of fire programs options, **amending the Forest land and resource management plan may be considered by the Forest Supervisor to reflect a broader wildland fire management program**."

What could such a Forest Plan amendment entail? The Forest Service's 2014 National Cohesive Wildland Fire Management Strategy provides a well-researched approach to updating vegetation and fuels management policies in National Forests, including the following general strategy:

- Where wildfires are unwanted or threaten communities and homes, design and prioritize fuel treatments (prescribed fire, and mechanical, biological and chemical treatments) to reduce fire intensity, structure ignition, and wildfire extent.

- Where feasible, implement strategically placed fuel treatments to interrupt fire spread across landscapes.

- Continue and expand the use of prescribed fire to meet landscape objectives, improve ecological conditions, and reduce the potential for high-intensity wildfires.

- Where allowed and feasible, manage wildfire for resource objectives and ecological purposes to restore and maintain fire-adapted ecosystems and achieve fire-resilient landscapes.

The path forward is clear: it's time to amend the Northwest Forest Plan to allow the Forest Service more choices and tools to manage fire on the landscape and to bring it in line with modern Forest Service policy.

As laid out below, there is a wealth of new information, along with important changed conditions and changed circumstances, that makes a compelling case for the need to amend the NWFP.

II. NEW INFORMATION, CHANGED CONDITIONS & CHANGED CIRCUMSTANCES REQUIRES AMENDING THE NW FOREST PLAN.

A. Why Has Working with Wildfire Become Such a Challenge?

Three primary factors have produced gradual but significant change across western North American landscapes in recent decades: the warming and drying climate, the build-up of fuels, and the expansion of the wildland–urban interface.[15] Together, these gradually changing variables interact with rapid combustion to increase wildfire risks and costs to society and some ecosystems.

[15] Schoennagel, L., et. al. Adapt to more wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

1. Climate Change Affecting Fire Behavior

Ecologists predict that climate change is altering the fire season to begin earlier and last longer. In terms of climate, wildfire activity is closely tied to temperature and drought over time scales of years to millennia. Globally, the length of the fire season increased by 19% from 1979 to 2013, with significantly longer seasons in the western United States. Since 1985, more than 50% of the increase in the area burned by wildfire in the forests of the western United States has been attributed to anthropogenic climate change. Increases in the number of wildfires and area burned in most forested ecoregions of the West are a result of rising temperatures, increased drought, longer fire seasons, and earlier snowmelt.[16]

The combination of rising temperatures and changes in seasonal and annual precipitation affects the size, severity, and occurrence of fires around the world. Because climate will increasingly dominate fire behavior in the future, it is important to draw on as broad a base of knowledge as possible to understand fire-climate interactions and identify appropriate management strategies.[17]

Natural climate variability will continue to alternate between modulating and compounding anthropogenic increases in fuel aridity, but anthropogenic climate change has emerged as a driver of increased forest fire activity.[18] Climate influences wildfire potential primarily by modulating fuel aridity in flammability-limited environments. Fuel aridity has been a dominant driver of regional and subregional interannual variability in forest fire area across the western US in recent decades. Since the 1970s, human-caused increases in temperature and vapor pressure deficit have enhanced fuel aridity across western continental US forests, accounting for approximately over half of the observed increases in fuel aridity during this period. These anthropogenic increases in fuel aridity approximately doubled the western US forest fire area beyond that expected from natural climate variability alone during 1984–2015.

2. Fire Suppression – a failed policy with unintended consequences

"[T]reating wildland fire as an avoidable natural disaster only reinforces the suppression focus, strengthening the presumption that fire can be excluded from ecosystems without deleterious consequences."[19]

Fire suppression, in addition to past logging and grazing and invasive species, has led to a build-up of fuels in some ecosystems, increasing their vulnerability to wildfire. For example, drier, historically open coniferous forests in the West ("dry forests") have experienced gradual fuels build-up in response to decades of fire suppression and other land-use practices.[20] Historically,

[16] Schoennagel, L., et. al. Adapt to more wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

[17] *Nature's Phoenix*, chapter 9, p265.

[18] Abatzoglou, JT, AP Williams, 2016. Impact of anthropogenic climate change on wildfire across western US Forests. Proc Natl Acad Sci U S A.Oct 18; 113(42): 11770–11775

[19] Omi, P, B. Collins & S. Stephens, Forestry and US Forest Service Fire Management: Moving beyond Conventional Practices, 2018

[20] Schoennagel, L., et. al. Adapt to more wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

in these dry ecosystems, frequent, low-severity fires killed smaller, less fire-resistant trees and maintained low-density dry forests of larger, fire-resistant trees. While there is not a direct statistical correlation between fuels build-up and fire intensity, some forests are outside of their historic fire regime, which may affect both ecosystem functionality and future fire behavior.

Higher elevation & moist forest types with an infrequent fire regime are less affected by suppression-caused fire exclusion, and in these systems it is more widely understood that high fuel load and high-intensity wildfires are natural processes.[21]

3. Expansion of Wildland Urban Interface

Alongside these increases in warming and fuels, population deconcentration in the U.S. is resulting in rapid development in the outlying fringe of metropolitan areas and in rural areas with attractive recreational and aesthetic amenities, especially forests. This demographic change is increasing the size of the wildland-urban interface (WUI), defined as the area where structures and other human development meet or intermingle with undeveloped wildland. The WUI has expanded tremendously in the past few decades, augmenting wildfire threats to people, homes, and infrastructure. Between 1990 and 2010, almost 2 million homes were added in the 11 states of the western United States, increasing the WUI area by 24%. As of 2015, 36% of the residential homes in Oregon are located in the WUI and the numbers keep rising.[22] When people move into these areas, the number of wildfires escalated dramatically.[23]

Because of the people and property values at risk, WUI fires fundamentally change the tactics and cost of fire suppression as compared with fighting remote fires and account for as much as 95% of suppression costs.[24]

Increased exposure of communities to wildfire is also expected with additional warming. More than 3.6 million ha, or almost 40% of the current WUI in the western United States, is predicted to experience moderate to large increases in the probability of wildfire in the next 20 years.[25] This increase is in addition to the growing wildfire risk to developed nonurban areas (e.g., energy production) and infrastructure (e.g., power lines, pipelines) that define a broader wildland–development interface. Continued WUI growth will further increase human exposure to wildfires and anthropogenic ignitions. By midcentury, 82 million people in the western United States are likely to experience more and longer “smoke waves,” defined as consecutive days of high, unhealthy particulate levels from wildfires. Climate change and increasing exposure of existing and future development to wildfire and smoke present a dangerous and vexing problem for residents, local officials, fire fighters, and managers. There often is a lack of political will to

[21] Ingalsbee, T. & Raja, U. 2015, The Rising Costs of Wildfire Suppression and the Case for Ecological Fire Use., Nature's Phoenix, Cpt. 12, p348.

[22] Martinuzzi S, et al. (2015) The 2010 Wildland-Urban Interface of the Conterminous United States.(US Department of Agriculture, Forest Service, Northern Research Station, Newtown Square, PA.)

[23] State of Oregon Emergency Management Plan, 2012, Natural Hazards mitigation Plan, Fire Chapter, p 3-F-2.

[24] Schoennagel, L., et. al. Adapt to m re wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

[25] State of Oregon Emergency Management Plan, 2012, Natural Hazards mitigation Plan, Fire Chapter, p 3-F-2.

implement policies that incur short-term costs despite their long-term value or to change long-standing policies that are ineffective.[26] Wildfire problems will not abate if recent housing growth trends continue.[27]

4. Growing costs of wildland firefighting

Expenditures for fighting wildland forest on federal public land have clearly been rising. According to the National Interagency Fire Center, suppression costs since 1985 have totaled more than $25.4 billion dollars, to suppress the 2.1 million fires that have affected 83,324,774 hectares.[28] The 10-year average for annual federal suppression expenditures increased from $620 million in the 1990s to 1.6 billion in the 2000s. From 2010 to 2013 these expenditures increased further to nearly $2 billion per year.[29] The agency now spends nearly half of its total appropriated budget on firefighting and was forced to transfer billions of dollars away from several non-fire land management programs to pay for suppression.

Large fires account for less than 2% of all wildfires but consume 94% of total suppression costs. The huge increases in money, resources, and personnel being devoted to fire suppression, have not decreased the number of acres burned. Suppression costs are increasing due to several reasons that can be categorized according to socio-environmental, institutional, and operational factors. The most popularly cited reasons for rising suppression costs are the socio-environmental factors discussed above. Of these three, climate change is the dominant factor affecting increased wildfire activity and fire size due to its effect on weather, vegetation and length of wildfire season.

Among the institutional drivers of rising suppression costs are the budgetary structure for the Forest Service that authorizes deficit spending for suppression operations. Another driver of rising suppression costs is the growing use of private contractors to provide firefighting crews, aircraft, vehicles, supplies and services. Private contractors typically account for over half of total expenditures on large wildfire suppression incidents, with some suppression resources costing several thousands of dollars per hour to use. Another institutional factor is the inequity structured into cost-share agreements between the federal and state governments. The federal government usually pays the bulk of suppression expenses on multi-jurisdictional wildfires, even if the major reason a wildfire is being suppressed is to protect private or state lands. Total suppression costs paid by the USFS are increasing at an annual rate of 12-15% - which is larger than the rate of inflation.

B. New Developments in Understanding Fire Ecology

1. Growing Recognition of Ecological Importance of Mixed Severity Fire

In the 19th and much of the 20th century, fire – especially patches of high severity fire – was generally considered to be a destructive force by federal land managers.[30] Recent ecological

[26] Shoennagel, et. al.

[27] Radeloff, Volker, et. Al., 2018, Rapid growth of the US wildland-urban interface raises wildfire risk, PNAS.

[28] Ingalsbee, Nature's Phoenix, Chpt. 12.

[29] Ingalsbee, Tim, 2010 Getting Burned: A Taxpayer's Guide to Wildfire Suppression Costs, www.fusee.org

[30] Hanson, c. et.al, 2105, Setting the Stage for mixed-and High-Severity Fires, Nature's Phoenix, p3.

research has shown that fire is an integral component to the function and biodiversity of many plant and animal communities, and that the organisms within those communities have adapted to withstand, and even benefit from, both low and high severity fire.[31] On the other hand, decades of fire suppression, in combination with other human-caused environmental changes, has resulted in unforeseen negative changes to ecosystem dynamics and species composition. Land managers are faced with tough questions about where it is appropriate to restore a fire regime and how to do it. These questions are crucial today as we see the consequences of years of fire suppression and the continued expansion of people into fire-adapted ecosystems.

Recent fire research has confirmed that fire behavior often varied significantly, even in a specific general fire regime. At landscape scales most fires occur as a mix of low, moderate and high severity. At that scale, fires differ in terms of the relative amounts of severity types, and amount and sizes of mortality patches. The patch sizes of the different severity classes affect many ecological processes, including succession and wildlife habitat.[32] New scientific evidence indicates that moderate frequency, mixed severity fire regimes are relatively common within the larger "moist forest" area.[33] That high severity fires occurred historically, albeit at a wide variety of spatial and temporal scales, in most of all fire-dependent vegetation types of western North America is becoming increasingly clear.[34]

Contrary to the historical assumption that higher severity fire is inherently unnatural and ecologically damaging, ecologists now conclude that fire-mediated age-class diversity is essential to the full complement of native biodiversity and fosters ecological resilience and integrity.[35] Ecologists have now learned what indigenous ecological knowledge has held all along: in conifer forests of North America, higher-severity fire patches create complex early seral forest that supports levels of native biodiversity, species richness, and wildlife abundance that are comparable to, or even greater than, those in unburned old forest.[36]

Historically, fires would have burned on MHNF every 35 to 400 years, depending on specific are and associated fire regime.[37] It is important that the discussion of the frequency of fire in the Mt. Hood area not be limited to naturally ignited fires, as anthropogenic fire is essential to maintaining the ecological and fire regimes of the forest, especially on the east side of the mountain. For thousands of years, indigenous people used controlled fires to clear out brush and encourage the right amount of sun and shade for optimal growth of huckleberries and other culturally important plants. Under the Forest Service's fire suppression policies, huckleberries languished while young trees and thick underbrush became fuel for hot fires of the future.[38]

[31] Bond, et. al, 2012, A New Forest Fire Paradigm: The need for high severity fires, The Wildlife Professional, Winter.

[32] Science synthesis, cht. 3, p12

[33] Id., p14.

[34] Hanson, c. et.al, 2105, Setting the Stage for mixed-and High-Severity Fires, Nature's Phoenix, p4.

[35] Id., p12.

[36] Id., p13.

[37] Environmental Assessment for Polallie Cooper Timber Sale (MHNF) at 80.

[38] Long, J. W., and F. K. Lake. 2018. Escaping social-ecological traps through tribal stewardship on national forest lands in the Pacific Northwest, United States of America. *Ecology and Society* 23(2):10.

2. Recognition of Ecological Degradation from Post-fire Logging

Another significant change is that scientific consensus has almost universally shifted away from regarding post-fire logging as an activity with any ecological benefit.[39] The euphemism "salvage" has often been used for post-fire logging, coupled with a narrative that such logging was necessary to both recoup as much of the economic value of burned trees as possible, while also helping restore the forest by clearing the way for new trees to be planted.[40] This approach to post-fire land management is changing, as a more thorough understanding of the ecological importance of post-fire landscapes is emerging.

As expressed by ornithologist Dr. Richard Hutto: "The ecological cost of salvage logging speaks for itself, and the message is powerful. I am hard pressed to find any other example in wildlife biology where the effect of a particular land-use activity is as close to 100% negative as the typical postfire salvage-logging operation tends to be."[41] Fire ecologists, wildlife biologists and ornithologists have all learned that burned forests are not dead zones, but rather teem with life. The reflex reaction to log after forest fires directly contradicts scientific research showing both the immense ecological importance of post-fire landscapes and the significant harm that can occur when such areas are logged.[42]

Post-fire logging most often removes biological legacies (e.g., snags and native shrubs), replaces them with commercially valuable seedlings, and involves road building and road maintenance, non-native species for erosion abatement, herbicides that kill beneficial plants, and other management disturbances (e.g., livestock). Taken individually or in combination, such cumulative impacts disrupt post-fire successional processes and inhibit development and longevity of complex early seral forests.[43], [44]

III. AMEND THE NWFP TO ALLOW FORESTS TO IMPLEMENT THE NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY

To address these challenges, many of the National Forests who have revised their Forest Plans

https://doi.org/10.5751/ES-10041-230210.

[39] See, e.g. Donato, D.C. et al. 2006. Post-wildfire logging hinders regeneration and increases fire risk. Science 31 1 No. 5759: 352.

Beschta, R.L. et al. 2004. Postfire management on forested public lands of the western USA. Conservation Biology 18: 957-967.

Lindenmayer, D.B. et al. 2004. Salvage harvesting policies after natural disturbance. Science 303:1303.

Karr, J. et al. 2004. The effects of postfire salvage logging on aquatic ecosystems in the American West. Bioscience 54: 1029-1033.

DellaSala, D.A., et al. 2006. Post-fire logging debate ignores many issues. Science 314-51-52.

[40] DellaSalla, et. al, In the Aftermath of Fire: Logging and Related Actions Degrade Mixed- and High-Severity Burn Areas, Nature's Phoenix, chp.11, p 314

[41] Hutto, R. L. 2006. Toward meaningful snag-management guidelines for post-fire salvage logging in North American conifer forests. Conservation Biology 20: 984–993.

[42] Nourished by Wildfire: The Ecological Benefits of the Rim Fire and the Threat of Salvage Logging, a Report by the Center for Biological Diversity & John Muir Project, 2014.

[43] DellaSala, D. Ecosystem Benefits of Wildfire vs. Post-Fire Logging Impacts, Geos Institute

[44] Early Seral Forest in the Pacific Northwest: A Literature Review and Synthesis of Current Science, Mark E. Swanson, PhD, Washington State University, January 11th, 2012 (citations omitted)

using the 2012 regulations have moved away from full suppression and adopted some form of wildland fire use on most lands.

An excellent review of eleven National Forests' approach to fire found in their Forest Plan revisions a common theme recognizing the beneficial role of fire in ecosystems and incorporating fire management strategies into the planning process to allow fire to play its natural role.[45] Along with a general recognition of the need to manage or restore vegetation to reduce fuels and fire severity, especially around WUI and neighboring lands, many of the Forests seek to balance protection with managing fires for resource benefits.[46] Using these Forest Plan revisions as an example, the following section discusses how to amend the NWFP to address changed conditions and implement the National Cohesive Wildland Fire Management Strategy.

A. Prioritize fuel treatments where wildfires threaten communities and homes to reduce fire intensity, structure ignition, and wildfire extent.

Amendments to the NWFP should include guidelines for prioritizing which areas receive fuels reduction treatment. Scientific understanding of the effectiveness of fuels treatment in affecting fire behavior has also grown significantly over the past 30 years. MHNF's 1990 Forest Plan's standards relating to Fuels Treatment focus almost exclusively on prescribed burning. However, over the past fifteen years, MHNF has implemented a program of commercial logging with the purpose of fuels reduction, for which the Forest Plan has little to no guidance.

Forested areas considerably exceed the area treated, so it is relatively rare that treatments encounter wildfire. For example, in agreement with other analyses, 10% of the total number of US Forest Service forest fuels treatments completed 2004–2013 in the western United States subsequently burned in the 2005–2014 period. Therefore, roughly 1% of US Forest Service forest treatments experience wildfire each year, on average. The effectiveness of forest treatments lasts about 10–20 years, suggesting that most treatments have little influence on wildfire. As a consequence of these factors, the prospects for forest fuels treatments to promote adaptive resilience to wildfire at broad scales, by regionally reducing trends in area burned or burn severity, are fairly limited.[47]

Fuels management in the form of prescribed fires or mechanical treatments has historically occurred in remote, wildland locations (Schoennagel et al. 2009), but recent studies suggest that treatments located closer to homes and communities may provide greater protection (Witter and Taylor 2005; Stockmann et al. 2010; Gibbons et al. 2012). In fact, one of the most commonly recommended strategies in terms of fuels and fire protection is to create defensible space immediately around structures (Cohen 2000; Winter et al. 2009). Defensible space is an area around a structure where vegetation has been modified, or 'cleared,' to increase the chance of the structure surviving a wildfire. The idea is to mitigate home loss by minimizing direct contact with fire, reducing radiative heating, lowering the probability of ignitions from embers and

[45] Graf, Hailey, "Integrating Fire and Forest Planning: A Review of National Forest Plan Revisions" (2018). Graduate Student Theses, Dissertations, & Professional Papers. 11097. https://scholarworks.umt.edu/etd/11097

[46] Id. at 32.

[47] Shoennagel

providing a safer place for fire fighters to defend a structure against fire (Gill and Stephens 2009; Cheney et al. 2001).

Even if all agreed that fuels reduction will reduce the severity of a possible future fire, there is still the question: how likely is it that a fire will burn in the treated area during the time that the treatment is effective? A study evaluating this question reminds that "treatments cannot reduce fire severity and consequent impacts, if fire does not affect treated areas while fuels are reduced."[48] From 2000 to 2015, almost 17 million acres of federal land were treated for fuels reduction, equating to approximately four percent of U.S. Forest Service and Bureau of Land Management lands. During the same time period, more than 93 million acres burned. The odds of putting fuel treatments in the wrong place are extremely high.[49]

Importantly, there has been increasing talk of applying this backcountry fuels reduction approach to wet forests, including forests covenant by the NWFP. For the vast majority of NW Forest Plan lands, the scientific community has found that managing vegetation to affect future fire behavior is both inappropriate and futile:

> "Given the wind-driven nature of fire spread common to these megafires and the heavy fuel loads of these mesic temperate rainforests that are quick to regrow fuels after fuel reduction treatments, our view is that it is not practical nor scientifically defendable to prevent large conflagrations by mechanically reducing fuels or prescribing fires."[50]

Furthermore, in all NWFP forests, cutting trees to affect future fire behavior or severity has uncertain benefits at best, and undeniable adverse trade-offs for carbon, water, and wildlife. A careful review of fire effects regionally shows that most wildfires burn in a mosaic with large patches of low and moderate severity, providing tremendous ecological benefits. A balanced view of wildfire requires that we credit fires for the ecological work they do. Extreme fire effects are driven mainly by extreme weather, making undesired effects mostly unresponsive to fuel management.

Logging has complex effects on wildfire risk. In many cases logging can make fires more destructive instead of less. For instance, removing medium and large trees reduces the forest canopy, making the forest hotter and dryer. Thinned forests are well-ventilated and in extreme fires that generate pyrocumulous clouds and intense local winds, these well-ventilated forests can burn far hotter than natural stands. Removing canopy trees also stimulates the growth of highly flammable brush and grasses that can spread fire quickly through the landscape. These surface and ladder fuels are expensive to treat and appear years after the logging occurs, so they are often neglected. To seriously address fire mitigation the Forest Service should stop

[48] Rhodes, J. and Baker, W. 2008. Fire Probability, Fuel Treatment Effectiveness and Ecological Tradeoffs in Western U.S. Public Forests. The Open Forest Science Journal, 2008.

[49] Pohl, K. 2019. For communities, land use planning is more effective than logging on federal lands to reduce future wildfire disasters. Headwaters Economics.

[50] Extreme Winds Alter Influence of Fuels and Topography on Megafire Burn Severity in Seasonal Temperate Rainforests under Record Fuel Aridity, https://www.mdpi.com/2571-6255/5/2/41

clearcutting and heavy thinning that produces highly hazardous fuel conditions, retain mature and old-growth forests that are relatively fire resistant and resilient, and modify fire suppression policies to let more fires burn when weather conditions are appropriate, so that fires can do their ecological work. It's time for the Forest Service to embark on a paradigm shift towards a new relationship with wildland fire and a new role for fire management, starting by amending all forest plans to allow more wildland fire use.

B. Amend the NWFP to allow for wildland fire use in all covered National Forests

"The 2014 National Wildland Fire Cohesive Strategy states plainly the need to increase use of wildland fire for meeting resource objectives. However, current fire-policy implementation remains suppression-centric and feeds a growing suppression-industrialism at the expense of fuel treatment and ecological restoration activities."[51]

1. Prescribed and managed fire

Continued aggressive fire suppression is counterproductive to building adaptive resilience to increasing wildfire in the long term.[52] In the United States and Canada, suppression remains the primary approach to wildfire, with more than 95% of all wildfires suppressed. Increasing the use of prescribed fires and managing, rather than aggressively suppressing, wildland fires can promote adaptive resilience as the climate continues to warm.

Managing unplanned, natural ignition fires for multiple objectives or for resource benefit is also a common thread throughout many of the revised forest plans. Wildland fire use (WFU) is the management of naturally ignited wildland fires (those started by lightning or lava) to accomplish specific resource objectives within a predefined area. Objectives can include maintenance of healthy forests, rangelands, and wetlands, and support of ecosystem diversity. Managing wildfires—as opposed to simply "fighting" them--with alternative strategies and tactics that maximize the social and ecological benefits of burning while minimizing their potential adverse effects is far more economically and ecologically rational. A more strategic and selective approach to fire suppression would focus it on front country communities which absolutely cannot tolerate fire, and then implement fire use tactics in backcountry wildlands which generally require more fire.[53]

Planning and management should identify and restore natural disturbance regimes to create resilient landscapes. In some wilderness and roadless areas, the management of natural fire regimes appears to have restored successional patterns and resilient landscapes. In other places, creating landscapes where successional patterns, disturbances, and climate dynamics are more in sync will require modification of forest structure and composition patterns. Naturally occurring

[51] Omi, P, B. Collins & S. Stephens, Forestry and US Forest Service Fire Management: Moving beyond Conventional Practices, 193 Million Acres: Toward a healthier and more resilient U.S. Forest Service, Society of American Foresters, 2018, p 110.

[52] Schoennagel, L., et. al. Adapt to m re wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

[53] Ingalsbee, Tim, 2010 Getting Burned: A Taxpayer's Guide to Wildfire Suppression Costs, www.fusee.org

(e.g., wildfires) and well-planned human-caused disturbances (mechanical and/ or prescribed burning treatments) can be used to modify successional patterns so they better match the disturbance ecology of the landscapes in question.[54]

As fire regimes shift over time, individual fire events filter for species adapted to changing fire and climate conditions. Strategic planning for more managed **and** uncontrolled fires on the landscape may enhance adaptive resilience to changing climate. Promoting more wildfire away from people and prescribed fires near people and the WUI are important steps toward augmenting the adaptive resilience of ecosystems and society to increasing wildfire.[55] Adapting to wildfire sooner rather than later provides the widest benefits to society at the least cost.[56]

2. Increase use of wildland fire as a management tool, as has been adopted in other Forest Plan revisions

While no Forest Plans amended by the Northwest Forest Plan have been fully revised or amended to address the need to change their fire management, looking to other forests in the West that have amended or revised their plans is helpful.

In December 2002, the Coronado National Forest proposed to amend its Land and Resource Management Plan (LRMP) to align it with the Federal Wildland Fire Management Policy.[57] The Forest found that appropriate use of wildland fire on a landscape scale is needed to (1) reduce hazardous fuels and avoid catastrophic fires, and (2) sustain wildland ecosystems. Providing for wildland fire use also broadens management discretion in the use of naturally occurring fires to meet resource management objectives already identified by the Forest LRMP.[58]

Under the Coronado amendment, changes made to fire management direction throughout the LRMP included:

• Allow fire to assume a more natural role as an essential ecological process and natural change agent across a greater extent of the landscape.

• Improve habitat for native species.

• Sensitize fire managers to a more complete spectrum of resource issues.

• Provide authority for managers to implement wildland fire use in areas currently designated as wildland fire suppression.

• Educate the public about the role of fire in the ecosystem.

[54] Hessberg, et. al, 2015, Restoring fire-prone Inland Pacific landscapes: seven core principles, Landscape Ecology, 30:1805–1835

[55] Schoennagel, L., et. al. Adapt to m re wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

[56] Schoennagel, L., et. al. Adapt to m re wildlife in Western America as climate changes. Proceedings of the National Academy of Sciences, vol. 114, No. 18, 4582-4590.

[57] Sherry A. Tune and Erin M. Boyle Coronado National Forest, USDA Forest Service, Tucson, AZ, USDA Forest Service Proceedings RMRS-P-36, 2005.

[58] Sherry A. Tune and Erin M. Boyle Coronado National Forest, USDA Forest Service, Tucson, AZ, USDA Forest Service Proceedings RMRS-P-36, 2005.

• Assure alignment of Forest fire management policies with Federal fire management policy.[59]

The Coronado NF made it clear that incorporating this amendment into the LRMP did not suggest that a wildland fire use strategy will be implemented for every natural ignition. The appropriate management response for each wildland fire would vary across the Forest and would include the full spectrum of options from aggressive initial attack to managing fires. Wildland fire use, appropriately applied, is intended to restore fire's natural role in maintaining a healthy, diverse, and resilient ecosystem, resistant to natural disturbances."[60]

Some National Forests have undertaken entire plan revisions, including updating their fire management framework. The following chart lists relevant Forest Plan components in the Nez Perce-Clearwater National Forest in western Idaho:

Nez Perce – Clearwater National Forest		
Plan Component Type	**Plan Component Code**	**Specific Language**
Desired condition	FW-DC-TE-01	"Vegetation management supports native forest composition and structural diversity as described across biophysical settings in the face of changing climate conditions."
Desired condition	FW-DC-FIRE-01	"Wildland fire occurs as an essential process in maintaining healthy, resilient ecosystems, as appropriate for the vegetation type and other resource objectives. Fire disturbance contributes to vegetation diversity across the landscape. Fire disturbances generally range from small spot-fire, to thousands of acres."

3. Case Study in outdated fire management: Badger Creek Wilderness

More than 20 years ago, the White River Watershed Analysis (WRWA) noted that the Badger Creek Wilderness was outside of its natural fire regime and would benefit from burning.[61] The Badger-Tygh subwatershed has high levels of tree mortality from recent spruce budworm epidemic within the Badger Creek Wilderness. The area last burned in mid- to ear1y 1800s and fire risk high to extreme.[62] Because fire has been excluded from the wilderness areas and all fires that have been detected were extinguished, the fuel loadings are such that any given fire has the potential to be a stand replacing fire.[63]

[59] Sherry A. Tune and Erin M. Boyle Coronado National Forest, USDA Forest Service, Tucson, AZ, USDA Forest Service Proceedings RMRS-P-36, 2005.

[60] Sherry A. Tune and Erin M. Boyle Coronado National Forest, USDA Forest Service, Tucson, AZ, USDA Forest Service Proceedings RMRS-P-36, 2005.

[61] White River Watershed Analysis (WRWA) at 5-33.

[62] WRWA, A-15, A-19.

[63] MHNF Fire Management Action Plan, 3.2.5.4 FMU Wilderness Fire Environment

To address this fire exclusion, the Watershed Analysis recommended that the Forest Service "[d]evelop prescribed natural Fire Plan for Badger Creek Wilderness" and suggested that adjacent Forest Service-managed land are appropriate for the FS to consider actions that would allow fire in the Badger Creek Wilderness.[64] The Forest Service has not developed such a plan; its current(?) Fire Management Action Plan guidelines for the Badger Creek wilderness require "initial action on all wildfires will be to suppress the fire."

Herein lies the paradox of current fire management on Mt. Hood National Forest. Everyone agrees that the Badger Creek Wilderness has missed several fire cycles and is in danger of experiencing an uncharacteristically severe fire. The *only* way to ensure this does not happen is to plan for managed fire in the area, but the Fire Management Action Plan does not allow for managed fire use.

To underscore this paradox, consider the relatively mild fire season of 2019,[65] during which four fires started in the Badger Creek Wilderness. All four fires received an immediate suppression response and only 2.5 acres burned.

At the same time the Forest Service was putting out the Jalland fire in Badger, in the Wallowa-Whitman National Forest, fire managers decided to allow a lightning-ignited fire in the Eagle Cap Wilderness to burn. Like Badger, the Eagle Cap Wilderness had missed many fire cycles and was in need of burning. Unlike Badger, the Fire managers had the discretion to manage the fire to restore forest health. The 3,400-acre Granite Gulch Fire was widely touted having a positive ecologic, and economic, impact. Forest Service fire manager Nathan Goodrich said he expected the Granite Gulch Fire to cost the Forest Service less than $150,000, in contrast to the millions often spent to suppress fires. In discussing this fire with the Statesman Journal, Mr. Goodrich noted: "In a wilderness area, where you can't do thinning or build roads or anything like that, wildfire is the only way to effect change. This fire is a very cheap treatment."[66]

IV. CONCLUSION

The Forest Service has a grand opportunity to meaningfully address the complex and timely issue of direct management in northwest forests. All the tools you need to update the NWFP already exist and we urge you to follow the direction of the National Wildland Fire Cohesive Strategy, relevant scientific and economic research, and National Forests that have already amended their Forest Plans to give managers more tools to use with fire. 350PDX looks forward to participating in this process and working together for vibrant forests and communities throughout the region.

[64] WRWA 6-5.

[65] https://www.oregonlive.com/environment/2019/10/summer-2019-the-oregon-wildfire-season-that-wasnt.html

[66] https://www.statesmanjournal.com/story/news/2019/08/26/forest-service-allows-wildfires-burn-wallowa-mountains-granite-gulch-fire/2101464001/

Sincerely,

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