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Comments: My name is Sarah Alvarez. I am a criminal defense attorney, a board member of Breach Collective, and volunteer with Cascadia Wildlands. Before I became a criminal defense lawyer, I wanted to be an environmental attorney, and first became familiar with the Northwest Forest Plan when I clerked the Klamath-Siskiyou Wildlands, in Southern Oregon almost ten years ago. As a person who values science, the great outdoors, and ecology, I hope to share my comments on the NWFP below.

Retain the Core Components of the Northwest Forest Plan. The Northwest Forest Plan was adopted almost 30 years ago to solve a crisis caused by decades of over-logging and overconfidence in managers' ability to understand and manipulate complex ecosystems that support old-growth conditions, biodiversity, clean water, and quality of life for human communities. The plan has been a tremendous success in reducing the rate of habitat loss, restoring watersheds, and reversing the flow of carbon from the forest to the atmosphere. The plan has remained in place for this long because it was built to last. The damage done by past forest mismanagement was so severe that the plan was designed to guide a 100- to 200-year forest recovery period. The plan's reserves were designed to be redundant and durable in the face of natural disturbance like wildfire. The plan allows active management but also wisely includes standards to help ensure that logging is both necessary and effective in meeting the goals of the plan. These requirements need to be faithfully implemented, not weakened.

The core components of the Northwest Forest Plan must be retained, and enhanced where necessary. These include:

A reserve system that is well-distributed, redundant, and well-connected, that accommodates natural disturbance to create a functional, interconnected late-successional ecosystem to support biodiversity in all its dimensions;

An Aquatic Conservation Strategy that protects watersheds and water features to benefit both aquatic and terrestrial wildlife, with generous buffers, limits on disturbance, and a restoration component;

Protections for species that have low mobility and are less able to disperse in a fragmented landscape;

An overall biodiversity strategy that contributes to recovery of ESA-listed species, maintains viability of wildlife populations, avoids the need for additional listings, and mitigates for more intensive management of non-federal lands;

Standards and guidelines that avoid, minimize, and mitigate the effects of management;

Provision of a balanced set of ecosystem services, including clean water, biodiversity, climate stability, recreation, quality of life, and products;

A planning process that is inclusive, cooperative, fair and respects Tribal Treaty Rights and interests;

A natural disturbance/fire policy that is science-based, ecosystem-centered, and tolerant of characteristic natural processes, including wildland fire, recognizing these natural processes are "essential for the development and maintenance of late-successional and old-growth forest ecosystems." (1994 NWFP ROD, p B-2).

The core purposes of the plan were about conserving biodiversity, and these purposes must be faithfully preserved.

I am concerned that the Forest Service is using a rushed and abbreviated planning process to reach predetermined outcomes that have not been revealed to the public yet. The proposal described in the Federal Register Notice of Intent is dangerously vague. What is clear is that the agency seeks to give managers more discretion to cut trees, especially mature trees and trees in reserves. The proposal overestimates the benefits of logging and underestimates the adverse trade-offs of logging. While the agency has often found some alleged social or ecological benefit they can achieve through logging, doing so without weighing the adverse trade-offs is not sound decision-making. To address the effects of climate change and biodiversity loss, the Forest Service must de-emphasize commercial logging and use a more diverse set of tools to meet its management objectives.

Mature and Old-growth Forests.

In order to meet the intent of Executive Order 14072 on Strengthening the Nation's Forests, Communities, and Local Economies, and rise to the urgent need to address climate change, the NWFP amendment must protect all mature and old growth (MOG) trees and forests, and no commercial logging should be allowed in these forests.

Protecting trees that are 80 years or older is important for ecosystem function and has many co-benefits.

Carbon storage: An 80-year-old conifer can live for hundreds of more years, absorbing more and more carbon from the atmosphere and storing it in its wood, roots, soil, and supporting diverse wildlife.

Biodiversity preservation: Biodiversity is strongly associated with mature and old growth forests. The Northwest Forest Plan was devised to protect old-growth-dependent threatened and endangered species. Prohibiting logging in MOG forests would better protect Threatened and Endangered species, and benefit a wide range of wildlife and plant species.

Water quality and quantity: Prohibiting harvest within MOG forests and stands preserves streamflow and summer flows. Downstream drinking water has better water quality and quantity. One study evaluated the long-term impact of forest harvest on summer low flow deficits in the Oregon Coast Range. The study found streamflow was 50% lower in a 40-43-year-old plantation relative to 110-year-old forest. Summer low flow deficits persisted over six months or more each year. Thus, logging prohibition within MOG will also provide better habitat for aquatic species.

Spotted Owls and Barred Owls. Even the barred owl invasion and climate change were known issues when the plan was adopted, though the magnitude of these stressors may not have been fully anticipated or accounted for in the plan. If the Northwest Forest Plan needs amending, it needs to increase conservation requirements, not reduce them. The spotted owl needs more suitable habitat to increase the chances of coexistence with the barred owl. There is evidence that the two owls are most tolerant of each other where late successional habitat is of the highest quality. An aggressive program of thinning and fuel reduction may create a landscape more suitable for barred owls than spotted owls. USFWS' proposed large-scale removal of barred owls does not in any way reduce the need for owl habitat conservation and restoration.

Carbon and Climate. The proposal fails to acknowledge that the Northwest Forest Plan covers one of the most significant living carbon reservoirs on the planet, and that logging, even thinning, will emit far more carbon than it saves. Extensive studies have found that harvest-related emissions from thinning are much higher than potential reduction in fire emissions. In west coast states, overall harvest-related emissions were about 5 times fire emissions, and California's fire emissions equaled only a few percent of its fossil fuel emissions. In the conterminous 48 states, harvest-related emissions are 7.5 times those from all natural causes. There can be no doubt that the agency's over-reliance on timber sales as the dominant forest management tool results in significant net carbon emissions, even when the expressed goal is to reduce wildfire effects. Ecosystems can be made more resilient to climate change by retaining climate refugia such as the cool, moist conditions found in mature and old-growth stands and riparian reserves, careful use of non-commercial thinning in planted stands, and reintroducing fire.

The existing plan is already well suited to help ecosystems and species persist during a climate transition, with reserves and other mitigation that serve both as stable climate refugia, and as a network of well-connected habitat that helps wildlife move across gradients of elevation and latitude. To address the accelerating climate crisis and meet the requirements of various Executive Orders, the plan must incorporate a Climate Strategy which:

Facilitates persistence of fish and wildlife populations by maintaining mature and old-growth forests as climate refugia, and maintaining reserves to facilitate movement of wildlife toward favorable habitat conditions within a dynamic landscape;

Manages ecosystems to avoid carbon emissions and to maintain and increase carbon storage toward each ecosystem's biological potential;

Harmonizes any management of ecosystems for resilience to climate change and amplified disturbance

processes with carbon storage goals by minimizing carbon emissions;
Considers the social cost of carbon dioxide emissions when making decisions that will cause carbon emissions, such as logging.

Aquatic Conservation Strategy. Though the Notice of Intent lacks any meaningful details, it seems clear that the Forest Service intends to reduce protection of streamside forests and increase logging in riparian reserves, which puts at risk one of the most important and successful parts of the Northwest Forest Plan. This has significant implications for drinking water, salmon conservation, carbon storage, and climate refugia. Existing riparian reserves must be retained, and allowed to develop mostly under the influence of natural processes as prescribed in the Northwest Forest Plan. The Forest Service should recommit to reducing road density in watersheds, especially given that roads interact unfavorably with climate change, both as sources of unnatural peak flows and fire ignitions.

Tribal Engagement. The Forest Service should go beyond Tribal "engagement" and seek Tribal inclusion in the amendment process. Establishing good communication and trust with Indigenous communities takes time and, while it's good to see recognition by the Forest Service that the original Northwest Forest Plan was severely lacking by not meaningfully engaging the Tribes, the truncated process and shortened timeline for completing the Plan amendment may well undermine any current need and desire for meaningful inclusion. Full inclusion of Tribal representatives and Indigenous perspectives is vitally necessary to the success of the Plan amendment, not only as a means of ensuring social and ecological sustainability, but as a matter of establishing justice.

Wildfire and Fuel Management. I am concerned that the Forest Service is framing this entire amendment exercise incorrectly, and exploiting the risk of fire to justify spending, reduce forest protections, and increase logging and other vegetation management more than a ¼ mile away from homes and communities. Forest Service-funded research amply demonstrates that protecting homes, businesses, communities, and critical infrastructure can be accomplished by making homes and communities ignition resistant, and that this protection cannot be achieved through fire suppression or vegetation management. 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 defensible to prevent large conflagrations by mechanically reducing fuels or prescribing fires."

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 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.

The agency's approach to fire management must be careful and calibrated. Western forests evolved with fire. Mature and old-growth forests are relatively more resistant and resilient to wildfire, compared to managed forests. Wildfires do important ecological work to maintain and diversify forests. There is no compelling evidence that mature and old-growth forest ecosystems receive net benefits from commercial logging to reduce fuels. The best evidence is that the spotted owl and other wildlife would fare better under the influence of wildfire than under the combined effects of logging plus wildfire.

The Forest Service must recognize that its ability to modify wildfire effects at scale are highly uncertain and modest at best. Attempts to modify fire effects must therefore be highly targeted, and wisely focused on community protection, which science tells us is best achieved by focusing on the home ignition zone. Outside the home ignition zone and the community itself, it is simply not possible to alter and maintain vegetation across broad landscapes to affect future fire behavior:

"Our findings reinforce that the Labor Day fires were fundamentally a weather-driven event (Abatzoglou et al., 2021; Mass et al., 2021). The influence of forest management on fire severity was minimal and variation in forest structure or fuels played relatively little role. These results provide little evidence to support the use of fuel treatments to mitigate fire severity under extreme fire weather conditions on the westside."

The Forest Service NOI makes some distinction between moist forests (that are naturally dense and tend to experience fire infrequently, and are not highly departed from natural conditions except where they have been logged) and dry forests (that tend to be less dense, experience fire more frequently, and may arguably be more departed from natural conditions due to fire suppression and logging), but their proposal seems to suggest that more logging is needed in both. This is not supported by recent science.

The recent addendum to the "National Cohesive Wildland Fire Management Strategy" specifies an important goal: "Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire." Achieving this vision means confronting the failed approach of trying to remove fire from our landscapes. We must recognize that our communities were developed in a climate and environment that no longer exists. We have the tools and knowledge to reduce community wildfire risks. But we must address the profound and deeply rooted misalignment of political and social expectations regarding what it means to live with wildfire. In this regard, I ask that the Forest Service be very clear on the goals of its activities on federal public lands, and not use the desire for community safety or the general fear of fire to justify logging, thinning or other vegetation management that has no relationship to making that community safer. I encourage the Forest Service to pursue forward-looking ecological and practical thinking that will help move us away from continually degrading fire-adapted ecosystems through intensive fire suppression and futile, scientifically unproven attempts to manipulate vegetation before fire comes.

Social and Economic Values. Another major development over the last 30 years is the diversification of the Northwest economy. The region has grown tremendously and replaced many times over any timber jobs lost due to the adoption of logging restrictions. There is also a better understanding that well-protected public forests provide direct and indirect contributions to our survival and quality of life, serve as a foundation for regional economic development, and far exceed the value of logs produced for the timber industry.

The socioeconomic benefits of the Northwest Forest Plan now include much more than timber jobs and wood products. Building a modern forest workforce focused on ecological restoration of riparian and planted areas for the benefit of wildlife, fish, water, and biodiversity will contribute to the economic vitality of the region and the

ecological resilience of our National Forests and other public lands and give us our best shot at enduring clean water sources for human and natural communities and continued public enjoyment of these lands we all value.

The economic benefits of clean water, biodiversity, watershed protection, climate stability, fire moderation, recreation, and quality of life need to be recognized as first-order economic benefits of forest conservation. The plan amendment must also recognize that the value of avoided GHG emissions alone vastly exceeds the economic effects of logging.

Clear Guardrails Keep the Agency on Track. Clear management standards and mechanisms for accountability have been part of the success of the Northwest Forest Plan. No compelling justification exists for weakening management standards and increasing management discretion. Clear standards help avoid conflict and controversy by telling managers where the guardrails are, and by tempering agency incentives that could bias managers toward commercial extraction.

Conclusion. I encourage the Forest Service to pursue forward-looking ecological and practical thinking that will help move us away from continually degrading fire-adapted ecosystems through intensive fire suppression and scientifically unproven attempts to manipulate vegetation before fire comes. By retaining and strengthening the core components of the Northwest Forest Plan, protecting old-growth and mature forests from logging, increasing suitable spotted owl habitat, maximizing carbon storage, retaining intact riparian reserves, emphasizing tribal inclusion, and shifting economic focus away from reliance on commercial extraction, this amendment to the Northwest Forest Plan can bolster the life-supporting ecosystems that human and natural communities rely on.