Northwest Forest Plan Amendment Scoping Comments from Blue Mountains Biodiversity Project

TO: United States Department of Agriculture
Regional Forester, U.S. Forest Service
1220 SW 3rd Avenue
Portland, OR 97204
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RE: Rulemaking Docket Number 2023-27742 and ID Number 88 FR 87393
Notice of intent to prepare an environmental impact statement; Region 5 and Region 6; California, Oregon, and Washington; Forest Plan Amendment for Planning and Management of Northwest Forests Within the Range of the Northern Spotted Owl

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These comments are in response to the US Forest Service's ("USFS") notice of intent to prepare an environmental impact statement; Region 5 and Region 6; California, Oregon, and Washington; Forest Plan Amendment for Planning and Management of Northwest Forests Within the Range of the Northern Spotted Owl. We have a very limited time to implement the bold changes that are needed to protect imperiled species in the face of the growing biodiversity and climate crises. Large trees and mature and old forests are a crucial component to any efforts to ameliorate and slow climate change, and logging is the primary threat to mature and old forests that species such as the Northern spotted owl and other old-growth obligate species depend upon. Immediate action is needed to provide meaningful protections for large trees and mature and old forests, the species they support, and the crucial carbon storage they provide.

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Given the current climate and biodiversity crises, the agency must make a true paradigm shift away from failed logging practices and towards stronger protections for forests. Federal lands managers must immediately act to protect carbon storage, biodiversity, wildlife and fish habitats, connectivity, and unfragmented and un-roaded forests on National Forests.

Commercial logging on National Forest lands should be halted, and forests on federal public lands preserved for ecosystem integrity, biodiversity, climate refugia, and carbon storage. At a minimum, commercial logging should end on mature and old forests in the PNW and across the nation. The NWFP must include full protections of ***mature*** *and old forests* from logging. Mature forests are essential components of future old-growth ecosystems, and must not be excluded from protections.

Mature and old forests experiencing fire or other natural processes in recent years must be included in protections from logging, and current mature and old forests must be protected permanently, including when future natural processes, such as fire, occur.

Mature and old forests act as climate and wildlife refugia. When these forests experience natural disturbance processes, including patches of high-intensity fire, the resulting habitat provides essential wildlife habitat that supports rich biodiversity and irreplaceable carbon storage. The NWFP must commit to ensuring that natural processes are allowed to continue on the landscape, and that enduring protections are implemented regardless of natural processes. Natural processes– including fire, insects and disease– have shaped forests in our region for millenia, and forest ecosystems require these natural processes to persist into the future. The NWFP must implement enduring protection of designated areas, irrespective of future natural processes like insect outbreak, wildfire, or wind storms.

Commercial logging degrades and reduces resilience and resistance to insects, disease, wildfire, and a rapidly changing climate. There is overwhelming evidence on the ground from past and current timber sales that logging tends to: increase insect epidemics and possibly diseases as well—including mistletoe; increase the intensity and spread of wildfire by removing more fire-resistant mature and large trees, stimulating in-growth of highly flammable dense small tree thickets and spreading fire in more continuous blocks; and dry out micro-climate conditions by removing cooling shade and removing current and future logs which function as moisture reserves, reducing water retention. All this degradation and reduced forest resilience would be increased in intensity and scale since the Forest Service logging has returned to virtual clearcutting or actual clearcutting.

Commercial logging and “fuel” reduction removes biomass at the ground level and impairs soil integrity, fertility, and productivity, through heavy equipment use. Ash soil being displaced from

commercial logging is now considered by Forest Service soil scientists as irreplaceable. Replacement of ash soils would require another massive volcanic eruption at the scale of Mount Mazama erupting and forming Crater Lake—in geologic time—i.e. tens of thousands of years. Ash soil loss would be maximized by logging on steep slopes or clearcutting.

The Forest Service is long overdue for changing its perspective and management away from creating and maintaining structurally homogeneous forest that is less resilient and is less fire resistant than never logged, more diverse forest. Instead, the agency uses the "existing condition" to justify more of the same management that resulted in the existing degradation. The Forest Service needs to analyze in depth the root causes of the existing condition and consider alternative approaches to stop repeating management mistakes. Burying and not disclosing critical specific information as to what exactly was done that caused the existing degradation enables failure to learn from past mistakes and to avoid changing course. By subsuming past mismanagement into the "existing condition", there is no in-depth cumulative effects analysis (as required by NEPA) that would lead to ecologically sound restoration and leaving large areas alone to recover over time. The Forest Service needs to be willing to accept the finite limits of wild Nature to recover from intensive and extensive logging on short rotations, roading, and livestock overgrazing repeated over and over.

Evidence that a major paradigm shift is necessary:

- The Forest Service as an institution is strongly biased toward timber production rather than forest protection, which used to be the agency's original mission when the National Forests were originally called Forest Reserves. Back then the agency's concern was to protect the forests from increasing corporate logging. The time is way overdue for the Forest Service to return to its original mission of protecting the National Forests from commercial logging. The Forest Service also needs to fully preserve the treaty rights and indigenous peoples' cultural uses of their lands–that were stolen from them and converted into "National Forests".
- The Forest Service has unfortunately continued to repeat past management mistakes, based on very outdated Forest Plans and failure to consider the full range of best available current science and to disclose scientific controversy—the disjunct between selective use of the science to rationalize continued commercial timber sales and more recent science that contradicts the agency's outdated mission to log almost everywhere at an accelerated scale, pace, and intensity of commercial logging.
- There is little or no consideration of the root causes of increased insect outbreaks, such as past logging eliminating tree species diversity in stands by converting the stands to only one or two

species plantations. For example, plantations create homogenous expansive feeding grounds for defoliating insects that fuel insect epidemics. Without acknowledging the contributions of past mismanagement to increased defoliating insect outbreaks, there will be little or no adaptive management that would change the paradigm for management to continue maintaining homogenized plantations.

Mature and old forests and President Biden's 2022 Executive Order:

President Biden's 2022 Executive Order gave the USFS clear guidance that it should prioritize the protection and restoration of mature and old-growth forests (trees generally over 80 years old) across the nation as a natural carbon and climate solution. The NWFP governs the largest natural carbon reserves found in North America and the amendment must prioritize increasing carbon storage.

To follow the direction of President Biden's Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies, the amendments must, at the very least:

- Protect all mature and old-growth forests and trees (80+) for carbon storage, wildlife habitat, and clean water.
- Expand the existing old-growth and conservation reserve network to address the joint climate and biodiversity crisis
- Enhance and strengthen the NWFP reserve network by protecting all unroaded areas larger than 500 acres to provide for wildlife habitat needs. These areas are ecologically significant and rare on the landscape due to human activities that have degraded and fragmented the landscape.
- The reserve network should have clear and enforceable standards that exclude logging and road building. The reserve network needs to remain spatially connected to facilitate dispersal of spotted owls and other wildlife, and must remain redundant to accommodate natural disturbance regimes.

Strengthen protections for forests in the NWFP amendment

It is extremely concerning that the Forest Service seems to be using a rushed and abbreviated planning process for this amendment. National Forest lands and the public deserve a full and transparent process that adequately analyzes and considers any changes to the NWFP.

Where strong protections have been implemented and adhered to, the NWFP has begun to restore forests by allowing them some time to recover from the damage caused by past overlogging. The NWFP created guardrails to protect important wildlife and environmental values from destructive logging. These

guardrails should be strengthened and expanded; there is no scientifically sound reason to remove such protections.

Any changes to the NWFP should set the stage for the landscape-scale preservation of natural areas and restoration of ecosystems necessary to address the dual climate and biodiversity crises and help meet national land and water conservation goals. With these standards in place, the Forest Service can focus on real restoration of watersheds to return salmon to their native streams, connect habitats for species that need to migrate to adapt to climate change, and enhance degraded habitat.

The reserve network should be greatly expanded, and the USFS should re-establish the scientific foundation of the reserve network (https://www.mdpi.com/1999-4907/6/9/3326)

Mature and Old Forests: The usual stated purpose of "capturing" the economic value of timber excess to other resource needs" is outdated, based on outdated Forest Plans that don't take into account the cumulative and now landscape scale loss of forest cover, loss of areas of higher canopy closure, and loss of mature and large tree structure from commercial logging. The National Forests can't withstand the completely unsustainable scale, intensity, and short rotations of current logging on top of past overlogging causing long-term degradation of the forest ecosystem.

There's really no "timber" that is "excess to other resource needs" due to a century of repeatedly logging the National Forests. There is very little forest left outside of Wilderness Areas and Inventoried Roadless Areas that have not been altered and degraded by commercial logging. The "resource needs" of multiple Forest values in National Forest Plans are no longer being met and no longer have "excess" capacity for mature and old forest timber extraction. Forest values that are no longer upheld sufficiently now include: diverse wildlife habitat; intact forest cover; higher canopy closure forest and higher density forest required by many wildlife species; and mature and large and old tree structure, including live trees, snags, and logs. Never-logged forest and forest refugia for avoiding human disturbance are now very limited on the landscape. These greatly reduced forest conditions are necessary to retain and increase wildlife and plant biodiversity and flourishing ecosystem processes and functions. Natural resiliency for intact functioning ecosystems is needed for wild species to survive the ongoing and increasingly alarming biodiversity crisis, which has been caused by human resource extraction and manipulation. Further, the effects of increasingly extreme climate change present unprecedented challenges to forest ecosystem functioning.

Resource conditions that are already degraded from past logging and which would suffer severe long-term impacts from further logging include: abundance and size of mature and large trees, as well as

old growth trees, which are already at a deficit compared to historic conditions; soil integrity, fertility, and productivity; much needed long-term tree carbon sequestration and storage to reduce the effects of escalating climate change; forest habitat for wildlife species needing large blocks of security habitat, denser forest (especially east of the Cascades and within range of the Northern spotted owl), forest with abundant large and old trees, forest with abundant snags and logs, and moist mixed conifer forest with multi-layer tree canopy and higher canopy shading and water retention; as well as riparian areas already severely degraded from past logging, associated roads, and overgrazing by livestock.

This is not the time to "capture the economic value of timber", given the past and ongoing widespread and heavy logging across the region. Due to continued long-term over-logging and mismanagement, forests across the region face irreversible and fundamental changes to ecosystems. A true paradigm shift that focuses on doing everything possible to preserve ecosystem processes and functions and biodiversity is urgently needed. Such a shift would require that the agency no longer focusing on resource extraction and manipulation as a purpose or goal. The "more extraction will result in restoration and resilience" public relation messaging from the Forest Service uses to justify yet more huge timber sales will unfortunately just repeat the same mistakes and compound them. None of us can reasonably follow the same worn-out extraction script that has caused so much ecological degradation.

Continuous forest cover of mature and old forests (including large trees) needs to be greatly expanded, and include increased connectivity between these blocks of ecologically vital habitat. Clearcutting, virtual clearcutting, and other logging removal of mature and large trees to low basal areas would further set back forest recovery from past logging and climate change stressors. It's important to allow the forest to respond to climate change by retaining mature and large trees, and allowing younger-mature trees to grow into mature and large trees to grow into future mature and large tree structure to replace the forest structure that was lost to a century of over-logging. This would allow for natural levels of mortality over time to create snags and logs for wildlife habitat and provide long-term carbon storage.

Allowing trees to grow into mature and old growth structure results in more resilient, healthy stands that thin themselves through mortality creating snags and logs. Older forest stands with larger trees open up the stands through shading out smaller trees and thinning through natural competition for sunlight, nutrients, and water. The Forest is capable of thinning itself; commercial-size logging is not necessary to thin the forest and create openings. Non-commercial thinning of small trees up to 9" dbh, managed wildfires, and prescribed burning in dry forest types could be done where wildfire suppression continues to stimulate denser growth of small, young trees.

Further, commercial logging is not ecologically sustainable and is no longer cost effective due to most trees having been reduced in size and large trees having become no longer abundant and less accessible. This is particularly true in much of eastern Oregon, where the NWFP overlaps the eastern Cascades in the Deschutes National Forest.

While we oppose logging of old trees, we are also opposed to logging of any live large trees or large snags >/=21"dbh, as the size of the tree, not the age, matters for wildlife use by most species associated with large tree structure and for maximizing retention of carbon sequestration and storage to reduce climate change effects.

There should be no more conversion of tree species composition or tree density to drier forest types, such as moist mixed conifer being converted to Ponderosa pine or Douglas fir plantations. There's already been far too much conversion of natural tree species diversity to timber industry preferred tree species—usually to Ponderosa pine, Western larch, or Douglas fir. Homogenous plantation stands or gradual conversion to just one or two tree species leads to greater susceptibility to defoliating insect epidemics and poor forest health due to tree species not adapted to local conditions, such as the moisture regime. Tree species diversity is important for not having whole stands wiped out by defoliating insects. Tree species diversity is also essential for retaining plant and wildlife biodiversity.

We strongly oppose any logging of the "undeveloped lands" as never logged and unroaded areas are rapidly diminishing due to timber sales. Undeveloped lands are important to preserve as such for: wildlife security habitat; carbon sequestration and storage; headwater water sources and water quality for drinking water, rivers, creeks, and streams; providing for primitive recreation with a sense of solitude and immersion in wild nature; and local reference conditions to guide adaptive management elsewhere and to study climate change effects in forest relatively unaltered by humans.

The agency is still trying to provide commercial logging economic return and to maximize output results despite current landscape scale virtual clearcutting (and now clearcutting)-- in some areas on an unsustainable timber sale rotation of 30 years or less. This amounts to forest liquidation, with little or no consideration of long-term cumulative negative impacts to multiple resources that are supposed to be protected under the existing Forest Plan. The Forest Service is evidently not considering current best available science that contradicts the existing outdated Forest Plan and the effects of the intensity, scale, and pace of current logging.

Most of the National Forest lands need to be allowed to naturally recover from past logging, drought, insect epidemics, and intense wildfire, so that we can learn from natural thinning

mechanisms—especially from the natural process of recovery and rejuvenation from climate change effects. Insect infestations, prolonged drought, and wildfires are far more natural and beneficial than the use of heavy equipment, logging, and roading.

Snag retention: The Forest Service should retain more snags and logs, and mature trees that could soon become snags and logs. Current best available science and never logged areas testify to there being far more abundant and larger snags in natural conditions than the outdated Forest Plan requires. The Forest Service needs to allow for some trees to be suppressed by others and become snags or smaller old growth trees.

Retention of groves or clusters of trees: Logging to wide spacing of trees could be cutting off inter-tree community exchanges of carbon, nutrients, and chemical alerts to communicate the onset of insect infestations and trigger the trees' use of chemical defenses. (See Suzanne Simard's peer reviewed research since the 1990's regarding these findings and her recent book, *Finding the Mother Tree, Discovering the Wisdom of the Forest,* that includes the relevant citations for her science articles.)

Wide spacing of trees through logging tends to reduce the stand's resiliency. The long-term detrimental soil impacts of logging with heavy equipment can disrupt or destroy mycorrhizal fungal communities supporting healthy trees. The mycorrhizal fungal communities assist trees in receiving and transferring nutrients and carbon to and from each other, as Simard's controlled experiments demonstrate through radioactive tracers showing the transfers from one tree to another—even across different tree species. Yet the Forest Service ignores the implications of the results of her decades of peer-reviewed controlled experiments.

Large tree retention: As we emphasize throughout these comments, it is the large tree size that is important for many wildlife species that are associated with large tree structure, not the age of the trees. What matters for maximizing forest carbon sequestration and storage is also the large size of the trees, not age.

Most Grand firs are old growth >/= 21" dbh based on Van Pelt visual characteristic guidelines for old growth determination. The Van Pelt guideline authors cautioned that these morphological guidelines were less accurate for determining the age of firs—especially Grand fir. More significantly, based on coring of Grand fir by the Deschutes Forest Service on the Bend-Fort Rock District for the Ursus timber sale, Grand firs were statistically almost always at least 150 years old (defined as old growth) at 22" dbh. The 22" dbh finding is not much different from the East Side Screens 21" dbh limit, that was based on

Ponderosa pine reaching 150 years old by that size. The Eastside Screens are based on sound science, and should not be ignored in the Northwest Forest Plan. .

There is considerable science refuting clearcutting. There is an increasing movement to stop all large and old tree logging and to stop most or all mature tree logging throughout the National Forests. As described above, the Biden administration is moving toward protecting old growth and establishing restrictions on logging in mature and old forests to protect these forests and increase their carbon stores. Logging removes far more carbon than wildfire, and produces far more carbon emissions than wildfire, exacerbating climate change. Further, wildlife and forest ecological processes evolved with fire, not with logging and roading. Wild fires—even stand replacement fires—provide new habitat niches to provide habitat for a diversity of wildlife and plant species. Logging tends to severely degrade most wildlife and plant habitat through unnatural interventions. Scientists have recently found that wildfire burned forest is about as biodiverse as old growth forest. The same can't be said for commercially logged forest, which often homogenizes the forest to even age, single or two tree species plantations, losing diverse wildlife habitat and wildlife diversity in the process. Logging, especially clearcutting, does not mimic wildfire, in that wildfires create more varied mosaics of green, lightly burned, and more severely burned stands, not logged stands.

We ask that the Forest Service adopt new "purpose and need" statements for management that prioritizes ecosystem integrity, wildlife, streams and water quality, and carbon storge, rather than commercial logging. Our suggested "need" statements should be used for formulation of new Forest Plan standards and goals such as the following:

The need to retain all large trees, all old trees, and all mature trees >/= 15" dbh to replenish diminished large and old tree structure as well as mature forest cover in general, to support critically needed wildlife habitat for declining species, increase the fire and insect resistance of stands, and to maximize water retention and long-term tree-based carbon sequestration and storage.

The need to retain Forest moisture: Preserving and protecting forest moisture retention through intact forest canopy during extreme climate change is critical for: Threatened and Sensitive fish species, such as Threatened Bull trout, Threatened Mid-Columbia Steelhead trout, Sensitive Malheur sculpin, and Sensitive MIS Redband trout, and other aquatic organisms; headwater sources of water for streams and public drinking water, as well as farming and ranching irrigation; and for plant and wildlife biodiversity. Intact forest canopy and undergrowth plants and shrub layers are necessary to slow flooding and run-off and preserve high water table retention. Forest moisture retention also requires mature and large tree

overstory shading, forest litter, and down wood accumulation. For retention of forest moisture it is also important to greatly reduce open roads, not re-open unmaintained closed roads, and not construct any "temporary" or system roads to reduce run-off and flooding.

The unsustainable short rotations of timber sales being implemented again in the same areas are preventing sufficient passive rest from commercial logging and associated road re-opening, construction, and use, preventing natural recovery over time. Long-term impairment of ecological processes and functions include loss of moisture retention from forest cover loss on a landscape scale; and loss of riparian processes and functions, such as reduced flood plains, reductions in pool abundance for cooling of the water for fish, widening of stream channels that increases stream temperatures, and loss of riparian hardwoods stabilizing streambanks and cooling streams through shading. All of the degradation of stream processes and functions are exacerbated or directly caused by past and current logging within Riparian Habitat Conservation Areas (RHCAs) and livestock overgrazing in RHCAs, but are also caused by the decimation of forest cover across watersheds.

Streams, water quality, and aquatic species

Water quality, streams, and other riparian habitats continue to suffer from logging, roading, and other resource extraction and associated activities. Water quality violations and impairments, lack of monitoring, and artificial fish passage barriers are ubiquitous across the PNW, including within the range of the NWFP.

The NWFP must include strong, enforceable standards that protect water quality, fish and aquatic species, stream habitats, and riparian connectivity. It is essential to include measurable, quantitative objectives through well-monitored and strictly-enforced standards. More stringent protections are also required for often overlooked and under-protected habitats such as headwater streams, small wetland habitats, and groundwater dependent ecosystems.

Cold-water dependent species such as Bull trout, wild summer steelhead, and spring Chinook are in increasing peril due to climate change. Swift and decisive protection from logging and roading are urgently needed to protect already shrinking cold-water habitats and human drinking water sources.

Strengthened protections for streams and Riparian Reserves should include, for example, standards that protect habitats and processes such as standards for stream temperature, shade, sediment embeddedness, downed wood in streams, pool depth, and pool-to-riffle ratios. Current PACFISH/INFISH

standards on eastside forests are a good starting-place model for comprehensive quantitative standards that could be strengthened and adapted into a NWFP framework.

Logging, grazing, and road-related activities are well-documented to alter watershed hydrology and negatively affect water quality parameters such as stream temperatures, increase fine sediment, alter peak flows, and lower water tables. True restoration strategies urgently needed include road decommissioning and removal, culvert replacement and repair, placing wood in streams, encouraging beaver to recolonize areas, livestock exclusions, retiring livestock grazing allotments,, and reconnecting streams with floodplains.

Swift and widespread reduction of road densities, problematic roads, and fish passage barriers should be a cornerstone of NWFP strategies for riparian restoration. This is particularly true in areas designated as important for at-risk or special-status aquatic species such as Bull trout. No new or "temporary" roads should be built, particularly in watersheds important to at-risk or special status species or where road densities are already putting soils, wildlife, and water quality at risk or where there are already high road densities. Strong mechanisms for enforcement must be in place to ensure that National Forests and BLM lands are in compliance with these more stringent standards and goals.

In many cases, data are completely lacking for water quality or habitat parameters for streams within timber sales or livestock grazing allotments. Other times, the Forest Service relies on data that are many years or even decades old. Sound decisions that incorporate adaptive management or aim for real restoration are impossible without current baseline data and an understanding of longer-term trends that have been established through adequate monitoring. Increased data collection and rigor are sorely needed, and should be a key component of the NWFP. If contracted, data collection should not be done by parties who have a conflict of interest.

Similarly, implementation and compliance with standards must be enforced not only for road densities but also for stream temperature and fine sediment standards, and other water quality and habitat-based standards.

Wildlife:

The NWFP amendment should ensure protections for the full complement of native species, and incorporate ongoing threats of climate change and habitat and biodiversity loss. In order to protect biodiversity and forest ecosystems throughout the region, the NWFP amendment should ensure that natural processes and dynamics are maintained– including disturbances such as fire and native insects and diseases.

Protections for at-risk and imperiled species must be expanded and strengthened, including for species that are the cornerstones of the NWFP such as the Northern spotted owl, Marbled murrelet, and native salmonids.

Habitat for Northern spotted owls must include expanded and strengthened protection for core and dispersal habitats, particularly from logging. For example, dispersal habitat should have enforceable standards that ensure such habitat cannot be degraded or destroyed by logging, including in timber sales termed as "restoration" or "fuels reduction" logging. "Fuels reduction" logging targets the very habitat that the owls rely on, such as mid-canopy and complex forest structure.

Logging in Northern spotted owl habitat is the primary threat to the owls, with the agencies often instead falsely blaming fires as the primary driver of risks or declines in NSO populations (Bond et al. 2022 https://www.mdpi.com/1999-4907/13/10/1730)

For instance, based on our timber sale monitoring and field surveying of proposed timber sales on the Deschutes National Forest since 2001, there is a persistent trend of the timber sales chipping away at Northern Spotted owl Nesting, Roosting, and Foraging habitat and Core Critical Habitat first, and then later targeting for Dispersal habitat for logging. In each case it was clear that the logged Spotted owl habitat would no longer be considered suitable habitat. In the Five Buttes timber sale, the EIS admitted that the Northern Spotted owl Nesting, Roosting, and Foraging habitat would not be suitable as NRF habitat for at least 50 years–although, given the structural complexity and old growth status of suitable NRF habitat, it would not become suitable for probably at least 100-150 years, given the Spotted owl's need for high overstory canopy closure and big old growth trees with complex structure. The Five Buttes timber sale was preceded by other timber sales that also logged suitable Spotted owl NRF habitat, including the Baja sale and other timber sales on the buttes in the Crescent Ranger District. The Five Buttes sale was also followed by the Ringo sale, which then targeted logging in the Spotted owl dispersal habitat. The EXF timber sale on the Bend-Fort Rock District also logged some suitable Spotted owl NRF habitat. The Ursus sale on the Bend-Fort Rock District also targeted Spotted owl dispersal habitat for logging. The Metolius timber sale also logged Northern Spotted owl habitat. In addition, the Green Ridge timber sale on the Sisters Ranger District is planned to commercially log suitable Spotted owl dispersal habitat to only about 30% canopy closure, when the Spotted owl requires canopy closure of at least 60% or higher. The Northern Spotted owl has continued to decline precipitously due to commercial logging on the National Forests that have, or had, Northern Spotted owl populations in flagrant violation of the Endangered Species Act. The revised Deschutes National Forest Plan revision must have enforceable

standards that fully protect all existing suitable and future potential habitat for Northern Spotted owls so they can recover their populations.

Unfragmented, complex mature and old forest habitat with abundant snags and downed wood are required by species such as the Northern spotted owl. Further, preserving such habitats, especially in large blocks, helps give spotted owls the best chance at maintaining territory as barred owls expand their range. Logged forests decrease or destroy key habitats such as snags, and consistently have fewer snags than unlogged forests.

Preserving core habitats and connectivity across the region in order to support biodiversity must be a core principle of any forest plan revision. The Forest Service has a responsibility to the public trust to ensure that species such as Pacific fisher, red tree voles, wolves, goshawk, marten, vaux's swifts, and all other native species persist and thrive across the region.

We are concerned by ongoing degradation of Pileated woodpecker and marten suitable habitat. Pileated woodpeckers are no longer "over-represented" on the landscape due to -increased over-logging of their habitat. Logging removes mature and large trees in moist mixed conifer and reduces future mature and large trees, including reduction of large snags for nesting. Associated "fuel" reduction, hazard tree removal, and prescribed burning removes soft snags and logs used for foraging. Pileated woodpeckers also require a minimum of 40% canopy closure for foraging and a minimum of 60% canopy closure for nesting, neither of which would be retained in most of the commercial sale units that would be logged in current planned timber sales, based on extremely low live tree retention being planned. Commercial "thinning" often only retains about 40 square feet of basal area per acre, which would leave less than 40% canopy closure. American marten are already ranked as "Vulnerable" in Oregon. They are rare and declining due to landscape scale and cumulative down wood reduction, forest overstory canopy removal, and loss of large snags used by Pileated woodpeckers for nesting, as marten use Pileated nest holes for denning. Both Pileated woodpecker and American marten are Management Indicator species on some of the National Forests, which means their population viability must be ensured under the National Forest Management Act. Management Indicator species habitat must be protected in proposed timber sale areas to ensure their population viability. The Forest Service must consider through detailed analysis the cumulative impacts to MIS suitable habitat across the entire National Forest to determine population viability, combined with the direct and indirect impacts to suitable habitat from the current timber sale being proposed.

The need to retain and provide moist mixed conifer habitat and denser forest habitat for associated wildlife species and larger, more intact blocks of mature and old forest for wide-ranging

wildlife species: This includes species sensitive to human disturbance or human-caused mortality such as shooting, hunting, and trapping. The species that require moist mixed conifer forest or denser forest habitat include many in decline, including Management Indicator species and Endangered, Threatened, and Sensitive-listed species. These include MIS Pileated woodpecker, MIS and Vulnerable-ranked American marten, Threatened Canada lynx, and Sensitive Pacific fisher. Wide-ranging species include Endangered Gray wolf, Threatened Canada lynx, MIS and Vulnerable American marten, and Threatened wolverine. Denser forest-dependent wildlife species include MIS Rocky Mountain elk, MIS Northern goshawk, MIS American marten, and multiple bird species of concern, including Northern pygmy owl and Neotropical migratory songbirds that rely on multilayered canopy forest, such as multiple warbler species and Western Tanager.

The need to protect old growth forest: Large trees >/=21"dbh are statistically over 150 years old—the definition of old growth—for most tree species and most trees. The Forest Service is inevitably logging old growth trees by logging large trees >/=21"dbh, which is contrary to the broad scientific consensus that old trees are critically important to protect from logging as these older trees survived many adverse conditions in the sites where they are found. Many wildlife and plant species are adapted to, and dependent on large tree structure and/or old growth characteristic structure, including large trunks and branches, complex structure, high big crowns, development of cavities for denning and roosting, and sufficient size to support large birds, including eagles, large hawks, large owls, and large woodpeckers, including MIS Pileated woodpecker, MIS Northern flicker, and Sensitive Lewis' woodpecker. The high live crowns and thick bark of old growth trees makes them more resistant to fire. The Forest Service needs to stop planning to log large trees and old trees, and must instead fully protect them from logging.

The need to retain moist mixed conifer forest: Moist mixed conifer has been noted by scientists as not greatly deviating from natural or historic conditions regarding fire regimes. Scientists have made it clear that moist mixed conifer and high elevation moist or cold forest types are not priorities for fire risk reduction. Yet the Forest Service keeps targeting moist mixed conifer for logging based on its naturally denser, more productive forest. Yet moist mixed conifer is critical to retain and protect from logging to retain moisture retention (see the previous key issue) and to provide habitat for wildlife species migrating or being displaced due to the intensity of lower elevation dry forest extreme heat waves, prolonged droughts, and loss of forest cover to logging and increased insect defoliation. Wildlife and even trees and other plant species will need to be able to move to higher elevations or to the north to find suitable habitat with sufficient shading, cooler temperatures, and greater moisture retention.

Wildlife Connectivity Corridors: Intact wildlife connectivity corridors are now more important than ever because of the increasing loss of forest cover to high intensity logging (virtual clearcutting, and clearcutting) on a landscape scale. Logging impacts are now combined with extreme climate change effects forcing wildlife species and even tree species to migrate to cooler and moister higher elevation areas or north as suitable habitat conditions disappear due to extreme heat waves, prolonged drought, and/or more intense wildfires. This situation calls for no more commercial size logging of identified wildlife connectivity corridors and only limited non-commercial thinning and/or prescribed burning—only where these are really necessary for the viability of the stands. Many wildlife connectivity corridors also overlap riparian corridors, which also should not be logged. Forest cover is needed for moisture retention and provision of fresh water flows for wildlife, trees, and plants. The need to fully protect wildlife connectivity corridors from logging is also imperative due to the ongoing biodiversity crisis of wildlife species from many human-caused impacts, including logging.

Fire:

Logging to suppress fire is an outdated, misguided strategy. Logging in the backcountry does not keep communities safe. The most effective way to keep homes and people safe is to focus on work directly adjacent to homes.

Focusing efforts on home hardening in and around communities is a far more effective way to keep people safe. Work around homes and communities includes efforts such as building and retrofitting homes with fire resistant materials and design features, pruning trees and clearing brush immediately adjacent to homes, and not building homes in the Wildlands Urban Interface and areas in and adjacent to fire-prone forests. For example, rather than creating ecologically destructive and often ineffective fuel breaks in Wilderness areas, we should be creating defensible space immediately adjacent to homes. Focusing on the community out, rather than the backcountry in, also protects firefighters from unnecessary risk in areas where wildfires could be allowed to burn. For more on how to protect communities from wildfires, see this short report by Jack Cohen (https://static1.squarespace.com/static/61ef51b68cfef85e3fed8d43/t/6340520e899c747a294725bf/1665159696338/Dr.+Jack+Cohen+Wildland+Urban+Fire+Primer+for+Elemental+Viewers.pdf)

Large trees and mature and old forests should be protected, not logged. Large trees and mature and old forests are more resilient to fire. In addition, heavily managed forests such as plantations and those that have experienced industrial logging practices tend to burn at higher severity.

Protecting forests from logging and human development does not lead to increased risk of fire. In fact, logging large trees makes forests more flammable. Increased forest protection does not lead to

increased severity of wildfires. Although often associated with the highest levels of biomass and fuel loading, protected forests generally burn at lower severity levels than unprotected forests (Bradley et al. 2016). Zald and Dunn (2018) found that intensively managed forests tended to increase fire severity in plantation stands in climate-driven severe fire events. In their study in California, Levine et al. (2022) found that the odds of high-severity fires on private industrial lands were approximately 1.8 times greater compared to public lands. In considering fire, it's important to note:

- Large intense wildfires are climate-driven. Wind, drought, and heat are the primary drivers of fire severity and behavior in climate-driven fires—not previous "fuels reduction".
- Protected forests do not burn at greater severity compared to managed forests.
- Native mature and old forests with complex structures are the most resilient to fire. Forests that have been degraded by decades of clearcutting are more prone to severe fires.
- Closed canopy forests with large trees tend to burn at lower severities compared to more open forests.
- Logged forests may burn more severely due to increased solar radiation and wind, drying out of the more-open logged forests, and changes to complex structure and microclimates that occur as a result of logging.
- Most fire ignitions in the US are human-caused, particularly in areas of increased access and high road densities. Thus, it would be far more effective to close and decommission roads than to log in the backcountry.
- Fires that destroyed the most human structures in cross-boundary ignitions originated from private lands, not public National Forest lands. Fire activity peaked with dense road networks and moderate human population densities.
- There is a statistically small probability that a "treated" (logged) area will encounter a wildfire within the window of time that the "treatment" is considered effective (e.g., "fuels treatments" are only effective within a ~20-year timeframe, before shrubs and saplings grows back– often in more dense and brushy forests than before logging occurred). For example, Rhodes and Baker (2008) found that: "[u]sing extensive fire records for western US Forest Service lands, we estimate fuel treatments have a mean probability of 2.0-7.9% of encountering moderate-or high-severity fire during an assumed 20-year period of reduced fuels."
- We support returning fire on the landscape as a natural disturbance regime, including by managing wildfire rather than suppressing it, whenever possible. We support prescribed burning as a more natural method of thinning where there has been significant wildfire suppression and consequent excess small tree density—but only for dry forest types. Historic mixed conifer areas

tend to have more infrequent fire regimes than dry forest types, not frequent, low severity fire that prescribed burning is intended to mimic.

- Often large fires are described as if everything within the perimeter of the fire burned at high severity, when in fact the majority of the fire area consists of mostly unburned and lightly or moderately burned forest. This lack of nuance contributes to inaccurate use of the science, by not considering the factors influencing the intensity of potential wildfires. These include ambient humidity levels, precipitation, wind speeds, and the timing of burning, as with nocturnal low intensity burning versus diurnal burning higher intensity burning. Climate change-driven factors of humidity, wind speeds, and precipitation are much more significant in determining fire intensity and spread than biomass "fuels". Emphasizing biomass over other dominant influences serves to rationalize heavy logging as reducing fire risk, misleading the public. Usually it is precipitation that stops wildfires, not the fire "fighting". Wildlife and plant species are adapted to various types of fire, including species that evolved with infrequent, high severity fires.
- We also support prescribed burning—but only for dry forest types, not historic mixed conifer that includes Grand fir, Douglas fir dominance, and/or other more moisture-dependent tree species such as evidence of historic Englemann spruce or Western larch. We advocate for no prescribed burning in moist mixed conifer forest that naturally has less frequent fire, more water retention, and/or suitable habitat for Pileated woodpecker habitat or American marten. Prescribed burning eliminates Pileated woodpecker and marten habitat suitability by reducing or eliminating abundant logs for marten foraging, large snags for Pileated nesting and marten denning, and soft snags and logs for Pileated foraging.
- We are also opposed to prescribed burning in the spring reproductive season due to associated harms to water retention for the dry season, Sensitive plants, fledgling and nesting birds, and small mammals and reptiles using burrows.
- It's particularly useless to do fire risk reduction management in the back country. Instead residential communities (not just private property boundaries) should be prioritized for fire risk reduction.

The short-term and temporary nature of the perceived fuels reduction benefits from most projects are not likely to result in meaningful changes to fire intensity, size, or severity. Furthermore, re-entering forests to repeatedly and heavily log and then burn them requires a huge road infrastructure, which is damaging to water quality and wildlife. In addition, areas with more roads are more likely to experience human-caused fire ignitions. Human-caused fire starts are the majority of fire starts in many areas.

The cumulative impacts of such large scale, repeated logging would cause untold degradation or destruction of wildlife and stream habitats, water quality, old and mature forests, carbon storage, and more. It would also create unnaturally open, dry, and hot conditions in many forests– very likely exacerbating fire risk rather than lessening it.

For too long, the Forest Service has touted logging as restoration. It's time for the Forest Service to distinguish rhetoric from reality: **logging is not restoration**. Amid the push from the timber industry and the Forest Service to increase logging, particularly logging of large trees and in mature and old forests, it is important to recognize the discrepancy between what the Forest Service is calling restoration and what is actually happening on the ground. Repeatedly, BMBP and others have found very concerning and heavy logging in sales that were presented to the public as necessary for restoration and safety. You can see example photos of the Forest Service's widespread heavy logging here.

These timber sales were called "commercial thinning," "restoration," and other euphemisms, when the outcomes were outdated clearcuts—forest liquidation, not forest resiliency. As can be seen in these photographs, the intensive use of heavy equipment and the landscape scale removal of forest causes loss of ecological functions and ecosystem integrity. Such widespread removal of forest and plants reduce wildlife habitat for declining species, water retention, soil productivity, carbon sequestration and storage, and cultural uses of the forest.

Mitigating Climate Change:

The Forest Service has a responsibility to do all it can to mitigate climate change, and work to restore forests from ongoing degradation caused by activities such as commercial logging and roading. To do so, a NWFP amendment must:

- Protect and expand the number of large trees and mature and old forests. Large trees and mature and old forests are important for sequestering and storing carbon in soils, and both biomass, and in the complexity of organisms in these biodiverse and complex systems.
- Include explicit direction to protect (meaning not log, commercially or otherwise) previously unlogged forests and forests with little or no previous logging. The NWFP should also require an analysis of carbon that identifies the net loss of carbon due to logging, including outputs from transportation, milling, and waste.
- Incorporate provisions that require and encourage recruitment of large trees, mature and old forests, snags and downed wood, and complex canopy structure across the landscape

- The Forest Service needs to transition away from resource extraction. Forests are more economically important as carbon sinks and providers of ecosystem services than as providers of extractive resources.
- Maintain and protect microclimates and other refugia, as well as connectivity corridors, as these places will provide important habitat as climate change drives species to move north and to higher elevations, changing the range maps of many species.

Climate change is projected to warm streams, lower baseflows, and shrink ranges for already imperiled fish. Leaving forests standing, reducing fragmentation, and protecting forests from logging and roading will help protect streams and aquatic species. Protecting large trees and mature and old forests is crucially important for providing clean drinking water to communities, particularly as the climate warms and issues such as low streamflows and algal blooms become more frequent and severe.

Halting logging of forests, especially mature and old forests, is crucial for storing carbon across our region and at a global scale. Large wildfires consume less than 2% of tree carbon (Harmon et al. 2022 https://www.mdpi.com/1999-4907/13/3/391). Logging, including thinning, releases far more carbon over an equivalent area (Bartowitz et al. 2022 https://www.frontiersin.org/articles/10.3389/ffgc.2022.867112/full).

Since implementation, the guardrails and protections provided by the NWFP have aided in forest recovery. Under the NWFP, the region shifted from a source of carbon emissions to instead providing an important carbon sink (Kranking et al. 2017 https://www.sciencedirect.com/science/article/abs/pii/S0378112712005129). As a result, the region now supports some of the most carbon dense multi-functional mature and old forests on the planet (Kranking et al. 2014 https://pubmed.ncbi.nlm.nih.gov/24894007/; Brandt et al. 2014 https://www.researchgate.net/publication/259495573_Multifunctionality_and_biodiversity_Ecosystem_services_in_temperate_rainforests_of_the_Pacific_Northwest_USA). In the era of climate change, the agency needs to expand the reserve system, and put in place more stringent protections so that carbon storage is further increased.

Some of the reasons why commercial logging degrades forest resilience to climate change and reduces resistance to climate change include the following: timber sale loss of significant carbon sequestration and carbon storage from the removal of mature and large—or future large trees, increasing the harmful effects of extreme climate change; removing shading and down wood, thus reducing badly needed water retention for headwater streams and downstream flows to support fish and other aquatic wildlife species and riparian-associated plants and wildlife and their habitat; loss of high quality drinking

water for people; and greater loss of wildlife and plant biodiversity during the human-caused Sixth Mass Extinction and global warming.

Retaining a mature and old canopy and forest cover retains more moisture, which is critical to retain under extreme climate change. In addition, maintaining mature and old forest provides hedging of bets for retaining at least some intact green forest, as global warming will intensively thin the forest wherever tree species are growing on marginal sites, and will create large openings through prolonged droughts, extreme heat waves, more intense wild fire, and associated insect outbreaks. The Forest Service needs to step out of the way as climate change does the tinning and creates the openings. This is a train that can no longer be stopped.

Based on updated science, it is absolutely critical to preserve mature forest cover and all large/old trees to provide as much forest habitat and moisture retention as possible, and to fully maximize forest carbon sequestration and storage. Continuing to log off the forests perpetuates reduction of moisture retention, extensive and long-term soil damage, loss of plant and wildlife diversity, and exacerbation of heat waves, droughts, fires, and insect epidemics.

Tribal Engagement:

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.

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