February 2, 2024

Wild Heritage Comments on the Notice of Intent to Prepare an Environmental Impact Statement for Land Management Plan Direction for Old-Growth Forest Conditions Across the National Forest System[1,2]

Wild Heritage, a Project of the Earth Island Institute, is a science-based conservation organization dedicated to protecting the Earth's primary (unlogged) forests, including our nation's exceptionally important and imperiled mature and old-growth forests (herein MOG). We appreciate the opportunity to submit these comments to the public record regarding conservation options for MOG based on best available science as it pertains to the relevant presidential executive orders (cited herein) and forest-climate policies (national and international, cited herein).

And we applaud the decision by the Forest Service to establish a National Old-Growth Monitoring Network (NOGMN). We request that you open that up to scientists that can contribute to monitoring and evaluation procedures using the latest remote sensing technologies and that you include mature in the network and not just old growth. The NOGMN will need to be budgeted for ensuring that it has the necessary resources and attention within USDA and is sustainable. Monitoring MOG nationwide should be based on a network of permanent plots at long-term ecological sites (newly established plots and paired up with the LTER Network) that collectively build on the Forest Inventory and Assessment (FIA) distribution by increasing plot sampling and coverage as a means for validating remote sensing monitoring. We request that you include in the old growth EIS a specific budget and plan for creating and supporting the NOGMN collaboratively through an inclusive and transparent process that assures the use of best available science from independently published scientists as well. The NOGMN also needs to include levels of protection and representation of MOG within protected areas using standard GAP analysis procedures inherent in conservation biology approaches (e.g., how much (%) of MOG is

---

[1] Submitted via https://cara.fs2c.usda.gov/Public//CommentInput?Project=65356.

[2] Given restrictions on the number and size of files via the Forest Service comment portal, we request that you include in the public record all the links to publications cited herein. In a related submission of our comments on the Northwest Forest Plan amendment, we received this email on January 25, 2024 regarding pdf links in comments: *"Schlichting, Dean - FS, OR: Good morning, I did get some additional guidance on this; links are fine as long as they are not to personal data servers. Public websites only."* We note that the Forest Service technically cannot post pdfs on its comments server without violating copyright laws with the journals that own the rights to the publications and therefore we submit the links to the pdfs as the only means for supplying the necessary source materials given file size restrictions in your portal, copyright issues, and limitations of splitting our comments into separate submissions to clear the file size problem.

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

within GAP 1 and 2 vs GAP 3 and 4, see DellaSala et al. 2022a) as well as rates of logging and other land-use impacts within MOG in comparison to an historical baseline of when MOG was abundant before European colonization and expansive development. That baseline is essential for determining how long it will take to grow MOG back within a network of conservation reserves to make the system more functional and restore ecosystem integrity.

Throughout our comments, we underscore the main reason that MOG is at all-time lows in distribution and abundance is because of historic and ongoing logging, and related cumulative land-management stressors that have pushed them to the brink of systemic collapse. We are concerned that the agency has lost sight of these causal mechanisms and is instead overly focused on futile attempts to ameliorate large-scale natural disturbances like wildfires and insects that are beyond management control. We provide evidence-based science that MOG ecosystems are dynamic with built in adaptive features that confer resistance (e.g., large, thick bark trees for fire resistance) and resilience (e.g., "seed-rains," epicormic branching, and sprouting following fire mortality) to natural disturbances that clearly differ from areas where anthropogenic stressors amplify and accumulate disturbances that exceed thresholds/tolerances (i.e., the main reason why hundreds of species and ecosystem types are listed under the Endangered Species Act and/or the IUCN Red List is logging and related actions, DellaSala et al. 2022a). Therefore, we request that you recognize the hundreds of species listed in MOG due to land-use disturbances as in DellaSala et al. 2022a.

While we acknowledge that climate change is amplifying natural disturbance effects in MOG, the only control you have over any disturbance at meaningful scales is to **reduce anthropogenic stressors from logging (e.g., clearcutting, selective removals, large-tree thinning, shelterwood, biomass extraction for energy, post-disturbance logging, "forest health" logging, "restoration" and "resilience" logging, logging for early seral forests). Additional stressors that compromise and degrade ecosystem integrity under your control include road building, mining, ORVs, livestock grazing, and invasive species that accumulate across spatial and temporal gradients with the combined effect of forest degradation and greatly diminished ecosystem integrity**. Clearly, treating natural disturbances as the main "threat" to forests, while downplaying anthropogenic stressors as the principal threat, whether historic or ongoing, runs counter to developing conservation options rooted in principles of conservation biology and ecosystem integrity.

The Forest Service has a unique responsibility to steward the nation's MOG as the main management agency of this biodiverse, carbon rich, natural climate solution that is otherwise exceptionally rare on nonfederal lands (DellaSala et al. 2022a). We note that based on an independent inventory of MOG, >50 million acres (76% of the total) of federal MOG are vulnerable to logging, as they are not within formally protected areas (DellaSala et al. 2022a). That is, the Forest Service has only protected 24% of its MOG, which is below the minimum 30 x 30 target. A GAP status analysis would demonstrate that and

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

should be done using the agencies' MOG dataset along with published MOG datasets (e.g., DellaSala et al. 2022a) and entered into the NOGMN as the current condition.

There is also concern that the agency has increased timber sales within MOG recently in anticipation of potential restraints via this EIS process. This is why over 200 NGOs and 200 scientists (attached as an appendix) are requesting a moratorium on timber sales within MOG on all the national forests, including the Tongass, to allow the development of conservation options without further MOG losses. This request also includes removing the Tongass exemption to MOG logging as the exemption is clearly inconsistent with the transition underway. Both the exemplary transition of the Siuslaw National Forest in Oregon, an early adopter of the Northwest Forest Plan, and the transition out of old-growth logging underway on the Tongass, should be expanded to all national forests with sufficient resources/assistance provided to help rural communities diversify.

Link the Old Growth EIS to Executive Order 14008 (30 x 30) and International Forest-Climate Policies and Pledges

While the NOI cites Executive Order (EO) 14072 ("Strengthening the Nation's forests, communities, and local Economies"- i.e., the national MOG inventory for "conservation purposes"), the NOI did not mention EO 14008 ("Tackling the Climate Crisis at Home and Abroad" - i.e., 30 x 30). In EO 14008, the president specifically directed federal agencies to begin setting-aside up to 30% of the nation's lands and waters by 2030; thus, the EIS should include such a conservation alternative. Additionally, there is no mention in the NOI of US commitments to nationally determined contributions (NDCs) to the Paris Climate Agreement via carbon sinks and reservoirs (Article 5), and the Glasgow Forest Pledge to end deforestation and **forest degradation** by 2030 signed by the president. Managing MOG as natural climate solutions by ceasing logging within them would be exemplary of the Glasgow Forest Pledge and is consistent with the White House "roadmap for nature-based solutions." Additionally, the NOI appears to downplay the importance of mature forests that need protection as well from logging to begin making the old-growth ecosystem whole again.

Develop a Conservation Alternative for MOG that Prohibits Logging and Related Actions

As requested by the scientists and NGOs (below), a recent moratorium requested by top scientists in the Conversation, and related science herein, we request a conservation alternative for MOG with the following issues analyzed.

(1) Protect from **logging and related anthropogenic threats (as noted above) all remaining mature and old-growth forests and large trees** on all Forest Service land designations to better comply with EO 14008 (30 x 30), the Glasgow Forest Pledge, and the Paris Climate Agreement Article 5. This alternative should include a GAP status analysis of MOG in terms of what actually is protected using GAP status codes 1 and 2 to define protection (or in this case "conservation"). The conservation alternative should include how best to

elevate the protection of MOG to contribute to the 30 x 30 targets (GAP 1 and 2 level). Importantly, while Late-Successional Reserves (LSRs, Northwest Forest Plan) and Inventoried Roadless Areas (IRAs) offer some protections, they do not qualify as GAP 1 or 2 (or IUCN protection equivalents) given that there are exemptions for some forms of logging and mining within these designations. However, by prohibiting logging of live and dead trees ≥80 years old, a MOG protection status may warrant GAP 2.5 designation such as the case of inventoried roadless areas (DellaSala et al. 2022a, DellaSala et al. 2023). This protection standard should carry through all plan revisions and all forest types be they in wet or dry forests given their unique biodiversity, clean water (DellaSala et al. 2022a), and superior carbon accumulation rates in large trees (Birdsey et al. 2023). Once properly analyzed for GAP status 1 and 2, the Forest Service can look to ways to elevate GAP2.5 to a higher protection status so it can be assessed relative to 30 x 30.

(2) Prioritize fire-risk reduction nearest homes (see Cohen 2000, Schoennagel et al. 2017, Calkin et al. 2023, Law et al. 2023) and in flammable young tree plantations (see Bradley et al. 2016, Zald and Dunn 2018 for high flammability of plantations) where risks are highest. MOG should be the lowest priority for mechanical treatment ("thinning") as they serve as irreplaceable climate and wildfire refugia ("resilience" and "resistance" to fires) (see Lesmeister et al. 2019, Lesmeister 2021 for spotted owl habitat as fire refugia).

(3) The focus of treatments within dry MOG should be on prescribed and cultural burning practices (not pile burning, which is damaging to soils and below-ground processes). Removing large trees is not necessary prior to conducting burning, which can be introduced under low fire weather to minimize escaped fires (Knapp et al. 2005, Knapp et al. 2006, Knapp et al. 2007 - only the abstract is available online given paywall restrictions - van Mantagem et al. 2011, van Mantagem et al. 2016).

(4) Increase natural wildland fire use for ecosystem benefits under safe conditions (DellaSala et al. 2022b, Baker et al. 2023a). Wildland fire use can accomplish substantially more and faster fuel reduction with myriad ecosystem benefits and carbon storage largely intact (DellaSala et al. 2017, Harmon et al. 2022), as compared to expansive mechanical treatments that accomplish little to alter fire behavior in severe fire weather and if scaled-up would damage ecosystems and cause more emissions than the fires (e.g., see Harris et al. 2016, Law et al. 2018, DellaSala et al. 2022b).

(5) Close and obliterate roads to reduce unwanted ignitions in transportation planning for fire risk reduction (see Balch et al. 2017 for highest fire risks closest to populated areas). Nationwide, more than 80% of wildfires are human-caused with greatest risks of unwanted ignitions in areas with dense populations and high road densities (Balch et al. 2017). This ignition factor is something you can control through effective transportation planning involving road closures, road obliteration, closing the national forests during extreme fire weather conditions, as for example, during heat domes and droughts. Thus far, the Forest Service has focused on fuels and not human-caused ignitions, a much bigger problem you can limit.

(6) Expand the restoration objectives of the Aquatic Conservation Strategy (ACS, watershed analysis) under the Northwest Forest Plan to all national forests. This should include road obliteration of failing and degrading roads, restrictions on logging out to at least two-dominant tree heights within riparian areas; designate beavers as a keystone species of conservation concern for water storage, flood abatement, riparian restoration; remove

livestock near streams, springs, wetlands, and seeps; expand culvert repair and culvert enlargement for flood abatement; and prohibit post-disturbance "salvage" logging. Logging needs to be reduced at watershed scales - and not just riparian buffers. Mass wasting events, fire intensities, and ambient temperatures all increase with logging and road building, and this should be acknowledged[3], along with livestock grazing, as the top threats to aquatic systems with and without MOG.

(7) Analyze and reduce cumulative impacts from ineffective and damaging wildfire suppression tactics (DellaSala et al. 2022b), mining, livestock grazing (Beschta et al. 2012, Kauffman et al. 2022), ORVs, biomass utilization, and energy development affecting MOG regionally and nationally. The agencies' "Introductory Report" on MOG threats downplays these cumulative factors by instead focusing on severe natural disturbances you cannot control.

(8) Reject any proposal to use the national forests as repositories for pumping carbon underground that would create substantial infrastructure impacts.

Overall, we anticipate that this alternative would have far lower cumulative impacts than all other alternatives that emphasize intensive "active management" that otherwise lead to forest degradation (and damaged ecological integrity) (DellaSala et al. 2022b). In this context, natural disturbances are not treated as a "threat" per se but rather are monitored as part of the NOGMN while shifting approaches toward working with natural disturbances like wildfires for ecosystem benefits. Any thinning in MOG should prohibit logging of economically valued trees as this incentivizes forest degradation. Instead, large trees could have lower branches pruned or trees killed and left on site - or tipped into streams - to promote structural development (see below).

For all alternatives, we request that the Forest Service take a **"hard look"** at direct, indirect, and cumulative impacts of anthropogenic disturbances (threats), including within the surroundings where logging is much greater for contextual purposes. The agencies' threat assessment is inadequate and not based on best available science for the reasons noted.

---

[3]PNW old-growth forests maintain water balance in forested watersheds. Jjang et al. 2019. Also see Perry and Jones 2016. Analysis of 60-year records of daily streamflow from eight paired-basin experiments in the Pacific Northwest (Oregon) revealed conversion of old-growth to Douglas-fir plantations had a major effect on summer streamflow (abstract only due to paywall restriction. Average daily streamflow in summer (July through September) in basins with 34- to 43-year-old plantations of Douglas-fir was 50% lower than streamflow from reference basins with 150- to 500-year-old forests. Young Douglas-fir, which have higher sapwood area, higher sapflow per unit of sapwood area, higher concentration of leaf area in the upper canopy, and less ability to limit transpiration, appear to have higher rates of evapotranspiration than old trees of conifer species, especially during dry summers. Reduced summer streamflow in headwater basins with forest plantations may limit aquatic habitat and exacerbate stream warming, and it may also alter water yield and timing in much larger basins. (abstract only due to paywall). Also see Frissell in Williams et al. 1997. In general, uncut watersheds with older forests are more functional and with higher levels of biodiversity (paywall restricted). Also see Ham 1982. Net precipitation under old growth Douglas-fir in the Bull Run Municipal Watershed (Portland, Oregon) totaled 1739 mm during a 4-week period, 387 mm more than in adjacent clearcut areas. Expressing data on a full water year basis and adjusting gross precipitation for losses due to rainfall interception suggest fog drip could have added 882 mm (35 in) of water to total precipitation during a year when precipitation measured 2160 mm in a rain gage in a nearby clearing. Standard rain gages installed in open areas where fog is common may be collecting up to 30 percent less precipitation than would be collected in the forest. Long term forest management (Le., timber harvest) in the watershed could reduce annual water yield and, more importantly, summer stream flow by reducing fog drip (paywall restricted).

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

Provide Greater Transparency on the MOG Inventory

We are generally supportive of your MOG inventory of 200 regional vegetation types. This is a good first step toward establishing a current timeline of existing conditions for the NOGMN. It should also include potential or historic MOG distribution as a baseline and means for tracking progress or departures in restoring ecosystem integrity nationally and regionally on federal lands. A proper baseline would include estimating potential MOG from back-casting techniques (e.g., historical accounts, potential vegetation and disturbance dynamics) to compare with current and potential future conditions with and without MOG protections (run simulations on MOG conservation status by 2030 to determine current protection levels and what's needed by 2030 to comply with EO 14008).

Importantly, the agency inventoried 24.7M acres of "old-growth forest conditions" and 68.1M acres of "mature forest conditions," representing 17 and 47 percent, respectively, of 144.3M acres. In contrast, DellaSala et al. (2022a) report 53.8M acres of combined MOG on national forests. The DellaSala inventory was based on LiDAR mapping of the relative structural scorings derived from three proxies related to canopy height, canopy density, and biomass at 30-m resolution. Importantly, their remote sensing MOG estimates included validation of remote sensing mapping by using overlapping FIA plot data. It is unclear why the agencies' combined MOG estimate (92.8M ac) is nearly twice that of DellaSala et al. (2022a) and whether it included any validation of MOG structure classes. Thus, we request that you provide the specific mapping methods and MOG thresholds and contrast that with independent methods to determine levels of uncertainty and ensure that the agencies' inventory is on par with rigorously established MOG inventory procedures that have gone through peer-review. The metadata and datasets (including raster files) should be immediately entered into a NOGMN database for open access to all published (peer-reviewed) inventory approaches.

The Threat Analysis Needs to Clearly Separate Out Natural Disturbances (i.e., "pulse disturbances") from Cumulative Land-Use Stressors (i.e., "press disturbances") as Distinctly Different Effects on Ecosystem Integrity

We note that the NOI definition of a "threat" and the agencies' "Introductory Report" are far too simplistic as follows: "In the analysis, the term "threat" indicated a change in forest structure resulting in a reclassification of the forest condition but not necessarily a loss of ecological function and integrity."

This definition lumps all disturbances together so long as they result in a reclassification of forest condition. It is not based on best available science as noted herein.

Most importantly, logging nearly eliminated all (99%) of the MOG in the eastern US (north to south) during the late 1800s-1900s, sweeping westward as timber supply in MOG areas was exhausted. Logging accelerated in the Pacific NW (PNW) and across the West in response to the post World War II housing boom and other factors, eliminating nearly all MOG on nonfederal lands and in some regions (PNW) wiping out all but 20% of the MOG

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

on federal lands (Strittholt and DellaSala 2006). In the 1950s, logging picked up on the Tongass rainforest in response to two 50-year pulp contracts that began targeting the most productive, highest volume old growth stands where the biggest trees were selectively removed (Albert and Schoen 2013, DellaSala et al. 2022c). In the eastern Oregon and Washington Cascades and Blue Mountains, most of the largest trees were high graded during the 1960s (Henjum et al. 1993), necessitating the "eastside screens" in 1994 to protect trees >21 inches dbh. In a rush to judgement (without a proper EIS), the screens were removed in the final days of the Trump administration that redefined large trees as >150 years old, up to which could be logged, even though large trees (>21 in dbh) of all species remain at historic lows and are critically important for wildlife and as carbon repositories (Mildrexler et al. 2020, 2023). These protections need to be restored in the OG amendment process.

Historic logging (and ongoing albeit at lower levels) is therefore the **main** threat and reason for why MOG were nearly liquidated nationally (DellaSala et al. 2022a) and the threat analysis needs to reflect this more than natural disturbances. In particular, even though rates of MOG logging have dropped recently, the legacy effect of logging remains a major threat to MOG ecosystems still responding to widespread losses. MOG remains largely in 8 regions in the conterminous US (see DellaSala et al. 2022a). The federal MOG distribution within these regions is especially important as climate refugia (Lesmeister et al. 2019, 2021) and carbon sinks (DellaSala et al. 2015b). We request that you acknowledge your unique role in protecting and stewarding what's left of the nation's most biodiverse, carbon dense MOG and how widespread forest degradation is a consequence of decades of logging and road building even if those rates have slowed on federal lands. Every acre of MOG is now irreplaceably important to the resilience and recovery of the entire ecosystem (i.e., **context and importance of the federal lands are magnified by high rates of logging in the surroundings**).

There are clear differences in "forest reclassification" due to natural disturbances vs. logging-related disturbances and this too needs to be properly acknowledged. Wildfire dynamics and epizootics are part of the natural ecosystem processes that forests are uniquely adapted to even as structure and reclassification changes in severe events. Severe natural disturbances produce a critical pulse of biological legacies associated with high levels of biodiversity and intact carbon stores within the ensuing underappreciated complex early seral forests that are as diverse as old growth (Swanson et al. 2011, DellaSala et al. 2014, DellaSala et al. 2017). Natural disturbances in these forests jump start the trajectory from pioneering stages toward MOG over decades via interconnected seral stages (Donato et al. 2012). The Forest Service has not unequivocally established that natural disturbances are currently or soon to be overriding recovery objectives of MOG as in fact the Introduction Report indicates the opposite:

Figure on p. 2 of the Introduction Report shows fire, insects, disease together account for 2.8% OG loss, but losses are offset by a 3.8% gain OG, net +1%. Notably, the report states, "despite the threats highlighted in this analysis, the RPA assessment predicted an increasing trend in the amount of mature and old-growth forests on NFS and BLM lands until at least mid-century.

We present published evidence that wildfire and beetle-drought severities are not increasing beyond historic bounds (Baker et al. 2023a,b), and thus we request that the Forest Service conduct a statistically robust analysis of MOG recruitment vs loss, including confidence intervals around any observed trends (these data should be made available to the public in a data portal complete with raster files for GIS analysis). To do otherwise, is not statistically valid nor best available science. Visual graphs of disturbance acreages by type are not validation in themselves nor should unrelated disturbances (anthropogenic vs. natural) be grouped on the same graph given clear differences.

This Table from DellaSala et al. (2014) show that there are marked differences in forest conditions between logged areas (chronic disturbance) vs natural disturbances (press disturbances) that function as pulse disturbances important in the maintenance of ecological integrity.

Table 1. Differences between early seral systems produced by natural disturbance processes vs. logging. For natural disturbances, assume that a disturbance originates from within a late-successional forest as legacies are maintained throughout succession. For logged sites, assume site preparation includes conifer plantings but no herbicides, which, if also applied, would magnify noted differences.

Attribute	Regeneration Harvest or Postfire Logged	Natural Disturbance
Large trees	rare	abundant and widely distributed
Large snags/downed logs	rare	abundant and widely distributed
Understory	dense conifer plantings followed by sparse vegetation as conifer crowns close (usually within 15-20 years depending on site productivity)	varied and rich flora
Species composition	few species mostly commercially stocked, deer initially abundant then excluded as conifer crowns close	varied and rich flora, rich invertebrates and birds, abundant deer
Structural complexity	simplified	highly complex; many biological legacies
Soils and below-ground processes	compacted and reduced mycorrhizae	complex and functional below ground mats
Genetic diversity	low due to emphasis on commercial species and nursery genomes	complex and varied
Ecosystem processes (predation, pollination)	moderate initially then sparse as conifer crowns close; limited food web dynamics	rich pollinators and complex food web dynamics
Susceptibility to invasives	moderate to high depending on site preparation, soil disturbances, livestock, road densities (see McGinnis et al. 2010)	low due to resistance by diverse and abundant native species and low soil disturbances
Disturbance frequency	commercial rotations (40-100 years or so)	varied and complex
Landscape heterogeneity	low	high; shifting mosaics and disturbance dynamics
Resilience/resistance to climate change	low due to nursery stock genomes but conifer plantings can be adjusted for locally anticipated climate envelopes	varied and complex genomes allow for resilience and resistance to climate change

In sum, you should not place natural disturbances on the same graphs as human disturbances or treat natural disturbances similar to logging, road building, and related "active management" practices in terms of impacts to carbon storage, carbon sequestration, carbon flux (especially gross emissions from logging) wildlife habitat, water quality, and ecosystem processes. The pulse of biological legacies (particularly large live and dead trees, below-

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

ground processes, seed banks, mycorrhizae) are uniquely created or maintained by wildfires and epizootics but removed by logging. Severe natural disturbances produce complex early seral forests (Swanson et al. 2011, DellaSala et al. 2014) that are as biodiverse as MOG and are interconnected from pioneering to old growth stage and back again. Logging breaks this cycle (DellaSala et al. 2014, DellaSala et al. 2022c), leading to compounded disturbances and widespread forest degradation (Paine 1998, abstract only). The long-term persistence of MOG depends mainly on the only disturbance factor you can control - logging and related practices. The Forest Service's Wildfire Crisis Strategy and threat assessment does not make that proper distinction, blames natural disturbances mainly for MOG losses, and fails to properly analyze cumulative impacts of its actions from widespread attempts to suppress, contain, and minimize natural disturbances that are far beyond control, leading to type conversions in places (forests to weed infested savannahs, collateral ecosystem damages, and climate harmful actions (DellaSala et al. 2022c).

We note that while the NOI states, "current management practices may benefit from consistent direction to vulnerabilities and increase resilience to stressors," this consistent direction should start **with a moratorium on MOG logging** as requested below in letters to the president from scientists and NGOs to allow development of conservation alternatives in good faith. It should include placing all remaining MOG within a protective reserve network for the myriad ecosystem benefits, including long-term carbon storage, wildlife habitat, drinking water, and recreation, to name a few. Focusing on maintaining carbon stocks through the only meaningful scalable action you can take - cessation of logging of large trees and MOG on federal lands - would provide consistent direction across the national forest systems by recognizing the unique values of MOG from the eastern hardwoods and long-leaf wiregrass forests to the Great Lakes beach-maple and pine forest, to the old pines of the Rockies and southwest, to the massive coast redwoods and giant sequoia, to the towering Douglas-fir/spruce/hemlock forests of the Pacific Northwest, large pines and other conifers of the inland forests, and carbon-dense coastal rainforests from the Pacific NW to Alaska. Such a conservation alternative that set-asides MOG from logging and related activities would provide the consistency you seek. It needs to follow on the success of the National Roadless Conservation Rule that provided consistent direction for inventoried roadless areas across the national forest system.

Carbon Stored in Mature Forests and Not Just Old-Growth Needs to be A Central Focus

The Forest Service must recognize the importance of mature forests in long-term storage and maintenance of carbon stocks as well as old growth. Proforestation, the practice of allowing forests to mature to reach their true carbon potential (Moomaw et al. 2019), needs to be emphasized in a conservation alternative for MOG, as exemplified by the successful Northwest Forest Plan (NWFP).

Reduction in logging levels that started in the 1990s under the Northwest Forest Plan (NWFP) shifted the region from a source of carbon emissions to a sink for long-term carbon capture and **storage** (Krankina et al. 2012, Law et al. 2018). This unanticipated benefit of the

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

plan should be recognized in revision. Cessation of logging has been repeatedly demonstrated to have benefits not only to biodiversity but to carbon accrual and storage in large trees (e.g., Krankina et al. 2012, Law et al. 2018, Moomaw et al. 2019, Nagel et al. 2023). One such benefit is federal MOG is now considered among the most carbon dense (carbon stocks per acre) ecosystems on the planet (Smithwick et al. 2002, Keith et al. 2009, Krankina et al. 2014, Brandt et al. 2014, Law et al. 2021). The OG amendment therefore needs to include regional contributions of MOG to climate mitigation involving carbon capture and long-term stores (i.e., natural climate solutions). This includes how MOG protection can match up with US commitments to nationally determined contributions (NDCs) to the Paris Climate Agreement via carbon sinks and reservoirs (Article 5), the Glasgow Forest Pledge to end forest degradation, and the 30 x 30 presidential directive as noted.

By a natural climate solution, we mean the protection from logging of carbon stored within MOG (large trees - live and dead - soils, etc) and by allowing mature forests to develop old growth characteristics over time via "proforestation" (Moomaw et al. 2019). What matters most in a climate emergency, is keeping additional carbon from logging out of the atmosphere (Mackey et al. 2013) rather than storing a small amount in short-lived (relative to MOG) wood product pools (Keith et al. 2015, Harmon 2019, Hudiburg et al. 2019). Protection is the most effective natural climate solution and best climate smart forestry option (Moomaw et. 2019, Mackey et al. 2015, Mackey et al. 2022).

This particular statement by the IPCC scientist Dr. Brendan Mackey et al (2022) points to the flaws in net carbon accounting methods often used by the forestry industry given that what matters most is not net carbon but keeping additional emissions out of the atmosphere by protecting existing carbon stocks (sinks and reservoirs):

> "All CO_2 emissions from, and atmospheric removals into, forest ecosystem carbon stocks now matter and should be counted and credited to achieve the deep and rapid cuts in emissions needed over the coming decades. Accounting and reporting systems therefore need to show gains and losses of carbon stocks in each reservoir. Changing forest management in naturally regenerating forests to avoid emissions from harvesting and enabling forest regrowth is an effective mitigation strategy that can rapidly reduce anthropogenic emissions from the forest sector and simultaneously increase removals of CO_2 from the atmosphere."

We repeat our concern here that net carbon flux is the wrong indicator of the carbon importance of forests because it ignores the need to keep gross emissions from logging out of the atmosphere. Instead, the agency should allow mature forests and large trees to age for carbon uptake and long-term carbon **storage to reach their ecological potential**. Forests take at least a decade to restart carbon capture at meaningful scales after logging, and very little carbon is stored in short-lived wood product pools with over 80% of a logged forests' carbon winding up in the atmosphere at some point. Thus, no form of logging or tree planting can be considered "climate smart" or compensatory for the carbon debt created by logging, especially in a global climate emergency (Keith et al. 2009, Mackey et al. 2014, Moomaw et al. 2019, Harmon 2019, Mildrexler et al. 2020, 2023, Mackey et al. 2022, Ripple et al. 2022, DellaSala et al. 2022a, DellaSala et al. 2023, Birdsey et al. 2023). That distinction is further illustrated as follows and needs to be included in the EIS.

The severity of forest degradation and the extent of the carbon debt from logging depends on what logging methods are used, how much forest biomass is removed (timber volume removed converts to emissions), and where removals occur (MOG vs plantations, see Law et al. 2018, Law et al. 2021, Moomaw and Law 2023, Birdsey et al. 2023, DellaSala et al. 2023, Peng et al. 2023). The greatest carbon losses take place when most of the forest biomass is removed (clearcuts, postfire salvage) and especially the removal of large, carbon-rich trees within MOG forests (e.g., > 21 inches dbh, Mildrexler et al. 2020, 2023). Those losses are not "temporary" as the carbon debt created by logging can last for centuries, a luxury of time we no longer have in the climate emergency (Hudiburg et al. 2019, Moomaw and Law 2023). In sum, the carbon costs of wood harvest have been grossly underestimated, including wood substitution that is overvalued (Harmon 2019).

Removing large trees for any perceived reduction in fire risks is also unrealistic as it would require massive amounts of thinning to get to scale. This is because of the extremely low chance of a site encountering a fire when flammable vegetation is reduced, high levels of treatment uncertainty due to the climate signal overwhelming on-the-ground efforts, expansive co-lateral damages from thinning (DellaSala et al. 2022b), and significant emissions from logging that can exceed those from all natural disturbances combined (Harris et al. 2016, Law et al. 2018, DellaSala et al. 2022a, Moomaw and Law 2023). Carbon losses also occur whenever commercial thinning is involved and not just clearcut logging (Law et al. 2018, Mildrexler et al. 2020, 2022, Bartowitz et al. 2022). The Bartowitz et al. citation in this call-out box is exemplary of the thinning problem noted and needs to be considered in any EIS alternative for significant limitations and expansive co-lateral damages.

> "While prescribed fire has been shown to decrease fire risk (Kolden, 2019) and increase carbon storage (Wiedinmyer and Hurteau, 2010), removal of biomass through large-diameter tree thinning or logging produces mixed outcomes for fire risk mitigation and forest resilience (Sohn et al., 2016) and reduces forest carbon storage and sequestration for decades to centuries (Campbell et al., 2012; Bartowitz et al., 2019; Stenzel et al., 2021). The misconception that trees need to be saved from wildfire through harvest (Zinke, 2018; Infrastructure Investment and Jobs Act, 2021; Table 2) may lead to unintended consequences through increased logging. These consequences include increased fire risk, a decreased forest carbon sink, decreased forest resiliency, and loss of the forest as a natural climate solution (Hudiburg et al., 2013; Law et al., 2018; Zald and Dunn, 2018; Stephens et al., 2020).

Notably, logging contributes to the dangerous feedback with extreme fire weather (see below). Any assumptions about temporary carbon losses from "active management" that offset natural disturbances would require detailed carbon life cycle analysis and independent verification (see Law et al. 2018, Harmon 2019, Hudiburg et al. 2019). We request that a life cycle analysis of carbon leaving the forest from logging in the EIS be conducted and verified independently (e.g., published in the peer-reviewed literature).

Additionally, we request that carbon storage in MOG becomes **a central focus** of the EIS along with the co-functionality benefits that come from protecting MOG with high carbon

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

stores (i.e., biodiversity, clean drinking water, recreation; Brandt et al. 2014, Law et al. 2021).

Exceptions within the Wildland-Urban Interface (WUI) and Alaska's Tongass are Outdated, Completely Ineffective, and Should be Dropped

We note that this statement in the NOI is outdated and not based on best available science:

"Exceptions to this standard may be allowed if the responsible official determines that actions are necessary: to reduce fuel hazards on National Forest System land within the wildland-urban interface to protect a community or infrastructure from wildfire…."

Notably, under the "Healthy Forest Restoration Act," the WUI can extend out to 1.5 miles from the nearest structure in "at-risk" communities, which in some cases can include nearly an entire county! Human-caused ignitions that spill over into urban areas; however, are mostly coming from private lands where logging is most intense and roads are extensive (human-caused ignition risk is highest) and not from federal lands (Downing et al. 2022). Notably, the most effective wildfire risk reduction measures for communities is to work from the home-out and not the wildlands-in. Home-out fire risk reduction is within 50-100 feet of the structure itself (Cohen 2000). This is why many scientists are calling for a new relationship with wildfire management by working with wildfire for ecosystem benefits and focusing surgically on fire risk reduction with home-out treatments (Schoennagel et al. 2017, Calkin et al. 2023, Law et al. 2023). Thus, the Forest Service should tighten up WUI management to mean home-out and a very narrow zone around ingress and egress roads to limit damages to urban areas and allow for escape routes. Treating beyond the home-ignition zone is completely ineffective in reducing fire losses to homes as stated by the agencies' own researchers (Calkin and Cohen).

We underscore here tht many of the largest fires were human caused (Balch et al. 2017) as exemplified by the Dixie Fire in California (https://www.yahoo.com/news/california-college-professor-pleads-guilty-194850298.html?guccounter=1).

Additionally, backburning to reduce fire intensity in fire operations sometimes can contribute to fire spread rates and high severity burns when escaped burning happens in red-flag conditions. This is almost never reported in fire incident reports and is no doubt contributing to recent upticks in wildfires blamed instead on natural factors. Closing roads and access during extreme fire weather is the only way to limit this and is directly in your ability to limit unwanted ignitions. More comprehensive fire incident reports are also need to track backburning influences in fire perimeter and severity determinations.

We note that the Tongass OG exemption is especially controversial and inconsistent with efforts to transition the Tongass out of old growth logging: "Exceptions to standards 2 and 3 may be granted by the Regional Forester in Alaska if necessary to allow for implementation of the Southeast Alaska Sustainability Strategy and the rationale must be included in a decision document." There is no need for this exemption as there is ample second growth to

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

meet the Tongass timber targets with no further old growth logging. The Forest Service should instead concentrate its resources on the transition by further assisting rural communities and the timber industry (small mills) in making the needed wood processing changes to young logs coupled with value-added manufacturing instead of shipping logs and jobs overseas. Notably, the timber industry on the Tongass is a mere 100 or so jobs that can better be served in less destructive ways by shifting to value-added manufacturing of young trees with a redirection of Forest Service subsidized logging to the second growth transition. The Tongass continues to be a money losing national forest with the industry floated on subsidized old growth logging that is destructive to the ecosystem and irresponsible to communities that eventually will run out of supply due to overcutting (which is what has happened historically, nationally). That subsidy should be redirected to the transition.

Conclusions

The NOI does not go far enough in meeting the president's executive orders (especially 30 x 30), the Glasgow Forest Pledge (end forest degradation), the Paris Climate Agreement (Article 5 on carbon sinks and reservoirs), and the White House roadmap on nature-based solutions. Importantly, there are no clear standards for the inclusion of mature forests that need to receive the same protections as old growth to begin restoring the integrity of MOG ecosystems and their myriad benefits. We have requested the following as a conservation alternative for analysis summarized in closing:

(1) Fully fund the national old growth monitoring network (and include mature forests) and make the network monitoring transparent and inclusive of independent researchers to increase plot and remote sampling capacity. This should be a cooperative process that also determines an appropriate historical baseline to track progress toward making MOG whole again with clear targets for MOG protection via a GAP analysis and contributions toward 30 x 30 targets.
(2) Remove from the timber base all MOG on all land-use designations.
(3) In dry forests, focus treatments in MOG on prescribed and cultural burning where appropriate. Tree tipping (streams), snag creation, and lower branch pruning may be warranted to create structure in places.
(4) Prioritize retention of carbon stores - and not just sequestration - by protecting all large trees (e.g., >21 inches, Mildrexler et al. 2020, 2023). Birdsey et al. (2023) provide large tree carbon accrual rates for several national forests using other diameter examples of large trees having the highest carbon accumulation rates.
(5) Establish a network of MOG conservation areas (e.g., carbon reserves, Law et al. 2020, 2021) that is inclusive of threatened species and rare forest communities, drinking water source areas, and carbon dense forests (see DellaSala et al. 2022a).
(6) Eliminate the exemptions for the Tongass and fuel treatments involving removal of economically valued trees within the WUI that are ineffective and outdated.
(7) Redirect timber subsidizes to enable nationwide transition out of MOG logging as in the example of the Siuslaw early adopter of the Northwest Forest Plan and the Tongass transition underway. This needs to expand to all national forests.

(8) Expand the Northwest Forest Plan Aquatic Conservation Strategy to the national forest system.
(9) Close and obliterate roads and close the national forests during extreme fire weather to limit human-caused ignitions.
10 Manage MOG to reduce cumulative human-caused disturbances - livestock grazing, roads, invasives, all forms of logging, mining, ORVs, biomass extraction to name a few.

The Forest Service has a unique opportunity to move its logging program out of controversial MOG whether those forests are wet or dry, and prohibit post-disturbance logging whenever MOG succumbs to natural disturbances. The agency needs to respond to the presidential directives (EO 14072 and 14008) together, the US commitment to the Glasgow Forest Pledge (ending forest degradation in this case), the Paris Climate Agreement (Article 5, sinks and reservoirs), and the White House roadmap to nature-based solutions. In the interim, the Forest Service needs to cease and desist all logging within MOG and large trees generally in good faith to allow the EIS to develop conservation options as proposed herein with strong protections for MOG and no further MOG logging losses.

Wild Heritage
A Project of Earth Island Institute
PO Box 9451 Berkeley, CA 94709 ▪ (510) 862-5359 ▪ www.wild-heritage.org

February 2, 2024

President Joe Biden
The White House
1600 Pennsylvania Avenue, N.W.
Washington, DC 20500

Cc: Ali Zaidi, National Climate Advisor, The White House; Stephenne Harding, Council on Environmental Quality; Thomas J. Vilsack, Secretary of Agriculture; Deb Haaland, Secretary of Interior

Re: Request for an Executive Order to Place a Moratorium on Logging Mature and Old-Growth Forests, and Large Trees Generally, on National Forests and Bureau of Land Management (BLM) Lands While the Old Growth EIS Proceeds

Dear President Biden:

We are scientists with backgrounds in forest ecosystems, climate change, and natural resources writing in response to the December 20, 2023 Notice of Intent for a National Old Growth Amendment in the Federal Register (Federal Register, Vol. 88. No. 243). We applaud your Executive Order 14008 directing federal agencies to protect 30% of the nation's lands and waters by 2030, and Executive Order 14072 directing the national inventory of mature and old-growth forests for conservation purposes, most of which are on National Forests and BLM lands. Because of the global loss of mature and old-growth forests, and large trees generally,[1] and their importance in mitigating the climate and biodiversity crisis on federal lands[2], we fully support calls by fellow scientists for a moratorium[3] on logging in these critically important forests. Therefore, we request that you now direct the Forest Service and BLM to suspend all timber sales in mature and old-growth forests, and refrain from proposing new timber sales in these forests, while the federal agencies develop their Environmental Impact Statements that best comply with Executive Order 14072 in securing a national network of conservation areas.

We are concerned that the Administration's proposed old-growth Amendment "does not alter or prescribe any substantive standards for the management of old growth forests" that in the meantime remain vulnerable to dozens of timber sales nationally and efforts by the Forest Service to increase logging of these forests before any substantive conservation takes hold. We are also concerned that the proposed Amendment excludes mature forests, and includes a

[1]Lindenmayer, D. et al. 2012. Global decline in large trees. Science 338 (6112):1305-6 https://www.researchgate.net/publication/233887120_Global_Decline_in_Large_Old_Trees
[2]DellaSala, D.A. et al. 2022. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States. Frontiers in Forests and Global Change https://www.frontiersin.org/articles/10.3389/ffgc.2022.979528/full. DellaSala et al. 2022. The Tongass National Forest, Southeast Alaska, USA: a natural climate solution of global significance. Land 2022, 11(5), 717; https://doi.org/10.3390/land11050717. Law et al. 2023. Southern Alaska's forest landscape integrity, habitat, and carbon are critical for meeting climate and conservation goals. AGU Advances https://doi.org/10.1029/2023AV000965
[3]Makarieva et al. 2023. Re-appraisal of the global climatic role of natural forests for improved climate projections and policies. Frontiers in Forests and Global Change (https://www.frontiersin.org/articles/10.3389/ffgc.2023.1150191/full). Law et al. 2024. Old forests are critically important for slowing climate change and merit immediate protection from logging https://theconversation.com/old-forests-are-critically-important-for-slowing-climate-change-and-merit-immediate-protection-from-logging-220771)

loophole that would allow logging of old-growth forests under certain conditions. Additionally, based on an independent inventory of mature and old-growth forests in the conterminous United States, and the Tongass rainforest in Alaska, more than 50 million acres of mature and old-growth forests[2,4] are vulnerable to logging. In particular, the Amendment exempts the Tongass, the nation's highest concentration of old-growth forests and forest carbon[4], from further analysis, which is inconsistent with your efforts to transition this forest out of old-growth logging.

The Glasgow Leaders' Declaration on Forests and Land Use was signed by 141 countries, including the United States, at the COP26. The declaration pledges to end global deforestation and **forest degradation** by 2030 (emphasis added). Additionally, the United States is committed to the Paris Climate Agreement that "encourages Parties to conserve and enhance, as appropriate, sinks and reservoirs of GHGs that are referred to in Article 4, paragraph 1(d) of the Convention, **including forests**" (emphasis added). Following through on these commitments in practice is crucial for climate change mitigation[5].

Logging and associated road building in mature and old-growth forests and the removal of large trees on federal lands is the main form of **forest degradation** and is therefore inconsistent with your global commitments and relevant executive orders. We ask that you lead by example in signaling to the world that the United States takes its commitment seriously in halting the global biodiversity and climate crises by now directing federal agencies to enact the strongest protections for the nation's mature and old-growth forests and large trees as natural climate solutions and a flagship initiative of your roadmap for nature-based solutions. Doing so would be a legacy gift of your Administration to the nation and the planet.

Sincerely,

Richard Birdsey
Senior Scientist
Woodwell Climate Research Center

Beverly Law
Professor Emeritus of
Global Change Biology
Oregon State University

William R Moomaw
Distinguished Visiting Scientist
Woodwell Climate Research Center
Tufts University

Barry Noon, Ph. D.
Emeritus Professor
Colorado State University

Stuart Pimm
Doris Duke Professor of Conservation
Duke University

Bill Ripple
University Distinguished Professor of
Ecology
Oregon State University

---

[4] DellaSala, D.A. et al. 2022. The Tongass National Forest, Southeast Alaska, USA: a natural climate solution of global significance. Land https://www.mdpi.com/2073-445X/11/5/717. Law, B. E., et al 2023. Southern Alaska's forest landscape integrity, habitat, and carbon are critical for meeting climate and conservation goals. AGU Advances, 4, e2023AV000965. https://doi.org/10.1029/2023AV000965

[5]Gasser et al. 2022. How the Glasgow Declaration on forests can help keep alive the 1.5C target. PNAS https://www.pnas.org/doi/10.1073/pnas.2200519119#:~:text=At%20last%20year's%2026th%20UN,the%20Paris%20agreement%20within%20reach. DellaSala, D.A., et al. 2023. A carpie diem moment on forests and climate policy. https://www.esciinfo.com/uploads/article_pdf/6/scientific_6_7_03042023070834.pdf

Rose Abramoff, Ph. D.
Research Scholar
Ronin Institute

Daniel Anderson
Professor Emeritus
University of California

William Armbruster
Principal Research Scientist
University of Alaska Fairbanks

Erik Asphaug
Professor
University of Arizona

Peter Auster
Research Professor Emeritus
retired

Peter Bahls
Executive Director
Northwest Watershed Institute

David Bain, Ph. D.
Chief Scientist
Orca Conservancy

Carl Baker
Research Scientist III
University of Washington (retired)

William L. Baker
Emeritus Professor, Ecology and Geography
University of Wyoming

Bryant Baker, MSc
Director & Principal GIS Analyst
Wildland Mapping Institute

Norman T. Baker, Ph. D.
Ecologist and Entomologist
Northstar Nurseries Inc.

Mark Barath
US EPA
Retired

Jesse Barber
Professor
Boise State University

Phoebe Barnard, Ph. D.
Co-Founder
Global Restoration Collaborative

Phoebe Barnard, Ph. D.
Advisor
Global Evergreening Alliance

Jeff Beane
Curator of Herpetology
North Carolina State Museum of Natural Sciences

Craig Benkman
Professor Emeritus
University of Wyoming

Robert Beschta
Professor Emeritus
Oregon State University

Harvey Blankespoor
Professor Emeritus
Science teacher (retired)

Harvey Blankespoor, Ph. D.
1991 National CASE professor of the year (Retired)
Hope College

James Blauth
Professor of Biology
University of Redlands

Brian Bodenbender
Professor of Geology and Environmental Science
Hope College

Monica Bond, Ph. D.
Principal Scientist
Wild Natural Institute

Jim Boone
Senior Scientist
Desert Wildlife Consultants, LLC

Mary S. Booth, Ph. D.
Director
Partnership for Policy Integrity

Curtis Bradley
Senior Scientist
Center for Biological Diversity

William Bromer
Professor Emeritus of Biology
University of St Francis

Barbara Brower
Emerita Professor of Geography
Portland State University

Paul Butler
Emiritus Faculty Member
Geoscience

Alan Cady
Professor of Biology
Miami University

Philip Cantino
Professor Emeritus
Ohio University

Gary Carnefix
Ecologist
Retired

Bobb Carson
Professor- and Dean-Emeritus
Lehigh University

Donna Cassidy-Hanley
Senior Research Associate
Cornell University

Donald Charles
Senior Scientist
Drexel University

Tonja Chi
M.S. Biological Sciences
Independent Research Scientist

Darlene Chirman, M.S.
Retired
University of California at Davis

John Cigliano
Professor of Biology
Cedar Crest College

Raymond Clarke
professor emeritus
Sarah Lawrence College

Malcolm Cleaveland
Professor Emeritus
U. of Arkansas-Fayetteville

Patrick Crist
Principal
PlanIt Forward LLC

John M. DeCicco, Ph.D.
Research Professor Emeritus
University of Michigan

Dominick A. DellaSala
Wild Heritage, Project of Earth Island Institute
Chief Scientist

Alan Dickman
Professor Emeritus
Retired, University of Oregon

Craig Downer
Wildlife Ecologist, President
Andean Tapir Fund

Ken Driese, Ph. D.
Emeritus Lecturer
University of Wyoming

Steve Dudgeon
Professor of Biology
California State University, Northridge

Jonathan Evans
Professor of Biology
University of the South

Daniel Fisher
Professor Emeritus, Earth & Environmental Sciences
University of Michigan

Johannes Foufopoulos
Associate Professor
University of Michigan

Michael Fox
Independent Consultant
Veterinary Consultancy

Jerry Freilich
Research Coordinator
National Park Service (retired)

Jennifer Frey
Professor
New Mexico State University

Evan Frost
Terrestrial Ecologist / Conservation Scientist
Wildwood Consulting LLC

Jed Fuhrman
Professor
University of Southern California

Karen Gallardo
Ph. D. Student
UC Davis

Daniel Gavin
Professor
University of Oregon

Nick Gayeski, Ph. D.
Fisheries Scientist
Wild Fish Conservancy

John Gerwin
Research Curator, Ornithology
NC Museum of Natural Sciences

Deborah A. Giles, Ph. D.
Science & Research Director
Wild Orca

Jamie Glasgow, M.S.
Director of Science and Research
Wild Fish Conservancy

Scott Goetz
Regents Professor
Northern Arizona University

Steven Green, Ph.D.
Senior Professor Emeritus
University of Miami

Gregory Grether
Professor
UCLA

Jon Grinnell
Uhler Chair in Biology
Gustavus Adolphus College

Gary Grossman
Professor Emeritus
Universiry of Georgia

Rickard W. Halsey
Director and Founder
California Chaparral Institute

Chad Hanson
John Muir Project
Director and Principal Ecologist

Cheryl Harding
Professor Emerita
Hunter College, City University of New York

Will Harlan
Southeast Director and Senior Scientist
Center for Biological Diversity

John Harte
Professor Emeritus
University of California, Berkeley

Robert Heath
Professor Emeritus
Kent State University

Kenneth Helms
Research Affiliate, Ph. D.
University of Vermont

Betsy Herbert
Forest/drinking water consultant
Friends of the Corvallis Watershed

Bill Hilton Jr.
Executive Director
Hilton Pond Center for Piedmont Natural History

Karen Holl
Professor of Environmental Studies
University of California, Santa Cruz

Richard Holmes
Professor Emeritus of Biological Sciences
Dartmouth College

Paula Hood
Co-Director
Blue Mountains Biodiversity Project

Paula Hood, M.S.
Co-Director
Blue Mountains Biodiversity Project

Elizabeth Horvath
Associate Professor, Biology
Westmont College

Edward Huang
Principal Researcher
CIEDM

Malcolm Hunter
Professor of Wildlife Ecology
University of Maine

Alexis Hunzinger
Scientific Software Developer
NASA GES DISC

David Inouye
Professor Emeritus
University of Maryland

Charles Janson
Professor Emeritus
The University of Montana

Daniel Janzen
Professor of Biodiversity Ecology, emeritus
University of Pennsylvania

Jennifer Johns
Instructor
Chemeketa Community College

Mitchell Johns Ph.D.
Professor Emeritus of Soil and Plant Science
California State University Chico

Mitchell Johns, Ph.D.
Professor Emeritus of Soil and Plant Science
California State University Chico

Harrison Jones
Southwest Avian Ecologist
The Institute for Bird Populations

Jay Jones
Professor
University of La Verne

Jacob Kann, Ph.D.
Research Aquatic Ecologist
Aquatic Ecosystem Sciences LLC

David Karowe
Professor of Biological Sciences
Western Michigan University

Sterling Keeley
Professor of Botany Emerita
University of Hawaii

Maya Khosla, M.S.
Biologist and Writer
Independent Research Scientist

Bruce Kirchoff
Emeritus Professor
UNC Greensboro

John Kirkley
Emeritus Professor of Biology
University of Montana - Westen

John Kloetzel, Ph. D.
Retired biologist
UMBC

Jason Koontz
Professor of Biology and Environmental Studies
Augustana College

Dana Krempels
Senior Lecturer
University of Miami

Flora Krivak-Tetley
Lecturer and Researcher
Dartmouth College

Janet Kubler, Ph. D.
Biologist
California State University, Northridge

Andréa L. Kuchy, Ph. D.
Conservation Scientist
Wild Heritage, A Project of Earth Island Institute

Sam L. Davis, Ph.D.
Partnership for Policy Integrity
PFPI

Stephen La Dochy
Prof. Emeritus
CSULA

Rick Landenberger, Ph. D.
Associate Professor
West Virginia University

Derek Lee, Ph. D.
Principal Scientist
Wild Natural Institute

Derek E. Lee, Ph. D.
Associate Research Professor
Pennsylvania State University

Gene Likens
Founding Director and President, Emeritus
Cary Institute of Ecosystem Studies

Jason A. Lillegraven
Retired
Depts, Geology and Zoology

Brian Linkhart
Biology Professor
Colorado College

Fred M. Rhoades
Research Associate
Western Washington University

Jennifer Mamola
Advocacy and Policy Director
John Muir Project of Earth Island Institute

Jasmine Manny
Ph. D. Student, Graduate Group in Ecology
University of California, Davis

James Marden
Professor of Biology
Penn State University

Janet Marsden, Ph. D.
Research Fellow
Syracuse University

Travis Marsico
Vice Provost
Arkansas State University

Susan A. Masino, Ph.D.
Professor of Applied Science
Trinity College

Robert Meese
Staff Research Associate IV
U.C. Davis - retired

Douglas Meikle
Professor of Biology
Miami University

Anthony Metcalf
Professor of Biology
LOS

David Mildrexler
Systems Ecologist
Eastern Oregon Legacy Lands

William R. Moomaw
Professor Emeritus
Woodwell Climate Research Center, Tufts University

Molly Morris
Professor
Ohio University

John C. Morse
Professor Emeritus
Clemson University

Greg Murray
T. Elliot Weier Professor Emeritus of Plant Science
Hope College

Chris Myers
Professor
Miami University

Philip Myers
Professor Emeritus
University of Michigan

Dhruba Naug
Professor
Colorado State University

Gretchen North
Professor of Biology
Occidental College

Clare O'Connell
Researcher
New Mexico State University

David P. Craig
Professor of Biology
Willamette University

Gustav Paulay
Professor
University of Florida

Timothy Pearce, Ph. D.
Head of Mollusks
Carnegie Museum of Natural History

Roger Powell
Professor Emeritus
North Carolina State University

Thomas Power
Professor Emeritus
Economics: University of Montana

Jessica Pratt
Professor of Ecology & Evolutionary Biology
University of California, Irvine

Nancy Pullen
Professor
Kennesaw State University

Robert Pyle
Founder
The Xerces Society

James Quinn
Professor Emeritus
Rutgers University

Gurcharan Rahi
Physical Sciences Professor (retired)
Fayetteville State University

John Ratti
Professor and Research Scientist, Ret.
University of Idaho

Paul Rogers
Director, Adjunct Professor
Western Aspen Alliance

Paul C. Rogers
Director
Western Aspen Alliance, Utah State University

Steven Rogstad
Professor (Botany, Emeritus)
University of Cincinnati

Juliette Rooney-Varga
Professor
University of Massachusetts Lowell

Amy Rossmam
Research Leader (retired)
USDA Agriculture Research Service

Matthew Rubino
Research Scholar
North Carolina State University

Robin Salter
Professor Emeritus
Oberlin College

James Saracco
Research Ecologist
The Institute for Bird Populations

Melissa Savage
Associte Professor Emerita
UCLA

Paula Schiffman
Professor of Biology
California State University, Northridge

Joshua Schimel
Distinguished Professor
Univ. California Santa Barbara

William H. Schlesinger
President, emeritus
Cary Institute of Ecosystem Studies

James A. Schmid, Ph. D.
President
Schmid & Co., Inc., Consulting Ecologists

Tania Schoennagel
Research Scientist
University of Colorado-Boulder

Walter Shriner
Professor of Natural Resources Technology
Mt. Hood Community College

Herman Shugart
W.W. Corcoran Professor of Natural History
University of Virginia

Thomas D. Sisk
Professor Emeritus
Northern Arizona University,

Leslie Smith
Founder
LesliePlatoSmith

Jack Sobel
Board Member
LFWA

Stefan Sommer
Director of Education and Board Member
NAU and NAZCCA

Shelley Spalding
Endangered Species Division (retired)
US Fish and Wildlife Service

Wayne Spencer
Chief Scientist Emeritus
Conservation Biology Institute

Timothy Spira
Emeritus Professor Botany
Clemson University

Trygve Steen
Professor, ESM Dept.
Portland State University

Mark Steer
Associate Professor
University of the West of England

Julia Steinberger
Professor, Inst. of Geography & Sustainability
University of Lausanne

Rick Steiner
Founder/Director
Oasis Earth

Sandra Steingraber, Ph. D.
Senior Scientist
Science and Environmental Health Network

Alan Stemler
Professor Emeritus
UCDavis

John Sterman
Jay W. Forrester Professor of Management
MIT

Brian Stewart, MES
Habitat Connectivity Scientist and Conservation Biologist
Washington State

James Strittholt
Chief Scientist
Conservation Biology Institute

Alexandra Syphard
Senior Research Ecologist
Conservation Biology Institute

Melanie Szulczewski
Associate Professor of Environmental Science
University of Mary Washington

John Talberth, Ph.D.
President and Senior Economist
Center for Sustainable Economy

John Terborgh
James B. Duke Professor Emeritus
Duke University (retired)

Edward Thornton
Professor of Chemistry
University of Pennsylvania

Tamara Ticktin
Professor of Botany
University of Hawaii at Manoa

Aradhna Tripati
Founding Director
Center for Diverse Leadership in Science, UCLA

Walter Tschinkel
Professor Emeritus
Florida State University

Mary Tyler
Professor Emerita of Zoology
University of Maine

Michael Vandeman
Founder
Machine-Free Trails Association

Greg Walker
Emeritus Professor
University of California Riverside

Donald Waller
Professor (retired)
Univ. of Wisconsin - Madison

Glenn Walsberg
Professor Emeritus
Arizona State University

Judith Weis
Professor Emerita
Rutgers University

Sue Wick
Professor Emerita
University of Minnesota

Susan Willson
Assoc. Professor of Biology
St. Lawrence University

Tyler Wilson
Biologist
Independent

Shaye Wolf, Ph.D.
Climate Science Director
Center for Biological Diversity

February 2, 2024

President Joe Biden

Cc: Ali Zaidi, National Climate Advisor, The White House; Stephenne Harding, Council on Environmental Quality; Thomas J. Vilsack, Secretary of Agriculture; Deb Haaland, Secretary of Interior; Tracy Stone-Manning, Director of Bureau of Land Management,

Re: Request for an Executive Order to Place a Moratorium on Mature and Old-Growth Logging on National Forests and Bureau of Land Management (BLM) Lands While the Forest Service Old Growth Amendment EIS and Related BLM Rulemaking Proceeds

Dear President Biden,

On behalf of our members and supporters, we extend our appreciation for commencing the process aimed at protecting mature and old-growth (MOG) forests. While recognizing this positive step, we strongly urge immediate action, emphasizing that an executive order from President Biden, which could be signed and issued now, holds the highest potential to establish enduring protections for MOG forests for generations to come. Our request, along with those in the scientific community, includes issuing a moratorium on logging within MOG forests, and large trees generally, on all federal lands to ensure these forests are protected as the planning processes proceed to full protections for MOG.

We urge you to implement the following critical measures:

- **Acknowledgment of the Singular Threat to Forests: Logging**
  - Identify logging as a primary threat to forest carbon storage and biodiversity and address it as the foremost concern. This is the only threat that the Forest Service and BLM can effectively cease.
- **Closure of Logging Loopholes for MOG Forests**
  - The Administration's current proposal includes a glaring loophole for logging under the guises of forest health or fire management, currently used to conduct logging that is degrading the integrity of MOG forests. We request you eliminate this loophole. While the felling of some roadside hazard trees may be permissible for human safety, prioritize preserving felled trees as crucial habitat and stored carbon.
- **Inclusion of Mature Forests**
  - Include full protection of mature forests from logging, not just old-growth forests, and recognize mature forests as vital components of future old-growth ecosystems. For the Administration's proposal to be truly meaningful, mature forests must not be excluded from protections. The Administration's current proposal leaves out mature forests, which is tantamount to excluding the entire eastern half of the nation, since very little old-growth forest remains in the eastern U.S., due to logging.
- **Enduring Protection Regardless of Natural Processes**
  - Commit to the enduring protection of designated areas, irrespective of future natural processes like insect outbreaks, wildfires, or wind storms. A deep body of science finds that MOG forests most often act as climate and wildfire refugia. When these forests experience natural disturbance processes, including patches of high-intensity fire, the resulting habitat is highly biodiverse and carbon-rich. MOG forests experiencing fire or other natural processes in recent years must be protected from logging, and current MOG

forests must be protected permanently, including when future natural processes, like fire, occur.

- **Full Protection for Tongass Old-growth**
  - Remove the Tongass old-growth logging exemption from any further analysis in the upcoming EIS. Any financial incentive to log old trees on the Tongass conflicts with the conservation directive in EO 14072 and the global biodiversity and carbon importance of the Tongass that is currently transitioning out of old-growth logging.

Scientists have extensively documented the climate and biodiversity significance of mature and old-growth (MOG) forests, and large trees generally, in the continental United States and on the Tongass, offering valuable insights for protections based on the best available science. Moreover, it is important to emphasize that even in the case of large wildfires, they only consume less than 2% of tree carbon. In contrast, thinning operations release a considerably higher amount of carbon into the atmosphere over an equivalent area compared to wildfires.

The evidence is clear: we must cease logging in MOG forests, and large trees generally, both before and after natural processes, and refrain from blaming natural processes as a threat to these resilient forests.

We implore this Administration to exercise executive authority promptly, rather than postponing crucial decisions until after the election. The time to act, to protect MOG forests, and large trees generally, for climate change mitigation and biodiversity conservation, is now. The power is in your hands; we urge meaningful and immediate action based on the wealth of evidence available to make the right decisions for our citizens and the climate.

Sincerely,

1. 198 methods
2. 350 Bay Area
3. 350 Bay Area Action
4. 350 Chicago
5. 350 Eugene
6. 350 Hawaii
7. 350PDX
8. 350 Salem OR
9. 350 Seattle
10. 350 Sonoma
11. A Community Voice ACORN
12. All Aspects Ecological Restoration and Arboriculture
13. Alliance for the Wild Rockies
14. American Jewish World Service
15. Animals Are Sentient Beings, Inc.
16. Anthropocene Alliance
17. Athens County's Future Action Network, ACFAN
18. Battle Creek Alliance & Defiance Canyon Raptor Rescue
19. Biodiversity for a Livable Climate
20. Biofuelwatch
21. Blue Mountains Biodiversity Project
22. California Chaparral Institute
23. California River Watch
24. Cascadia Climate Action Now
25. Cascadia Wildlands
26. Center for Responsible Forestry
27. Center for Sustainable Economy
28. Chattooga Conservancy
29. Choosing Green
30. Christians Caring for Creation
31. Clean Energy Action
32. Climate Action Now Western MA
33. Climate Communications Coalition
34. Climate Generation
35. Climate Healers
36. Climate Healing Chorus
37. Climate Reality Massachusetts Southcoast
38. Climate Writers
39. Coast Range Association
40. Coastal Plain Conservation Group
41. Color Brighton Green
42. Colorado Democratic Party - Energy and Environment Initiative
43. Concerned Citizens of Franklin County (MA)
44. Conservation Congress
45. Creation Justice Ministries

46. Deer Creek Valley Natural Resources Conservation Association
47. Deignan Institute for Earth and Spirit at Iona University
48. Democratic Socialists of America - Knoxville, TN
49. Disquiet Voices
50. Doctors and Scientists Against Wood Smoke Pollution
51. Dogwood Alliance
52. Don't Waste Arizona
53. Down East Coal Ash Environmental and Social Justice Coalition
54. Democratic Party of Oregon Environmental Caucus
55. Earth Ethics, Inc.
56. Earth Law Center
57. Earth Ministry/Washington Interfaith Power and Light
58. Earth Neighborhood Productions
59. Earth Path Sanctuary LLC
60. Eco Justice Collaborative
61. Eco-Integrity Alliance
62. ecoAmerica
63. Education, Economics, Environmental, Climate and Health Organization (EEECHO)
64. Eighty2degrees Design Studio
65. Elders Climate Action
66. Empower Our Future
67. Endangered Species Coalition
68. Environmental Education Fund
69. Environmental Justice Ministry Cedar Lane Unitarian Universalist Congregation
70. Environmental Protection Information Center - EPIC
71. Edmonds Unitarian Universalist Congregation
72. Extinction Rebellion Portland
73. Extinction Rebellion San Francisco Bay Area
74. Extinction Rebellion Western Massachusetts
75. Feather River Action!
76. Forest Keeper
77. Forest Unlimited
78. Forests Forever
79. Foundation Earth
80. Fox Valley Citizens for Peace & Justice
81. Franciscan Action Network
82. Fridays for Future Orange County
83. Friends of Bell Smith Springs
84. Friends of Big Bear Valley
85. Friends of Inwood Hill Park
86. Friends of the Bitterroot
87. Friends of the Clearwater
88. Friends of the Ferdinand State Forest
89. Friends of Trees Committee of Restoring Earth Connection
90. Friends of Wakefield's NEMT Forest
91. Gallatin Wildlife Association
92. Gallatin Yellowstone Wilderness Alliance
93. Great Swamp Watershed Association
94. Greater Northfield Watershed Association
95. Greece Baptist Church Sustainability Team
96. Green Snohomish
97. Greenvironment, LLC
98. Heartwood
99. Heirs To Our Ocean
100. Holloway Educational Resources
101. Human Nature, Tree Foundation
102. Indiana Forest Alliance
103. Inland Empire Task Force
104. Interfaith Oceans Program
105. In The Shadow Of The Wolf
106. John Muir Project
107. Kentucky Heartwood
108. Kettle Range Conservation Group
109. Klamath Forest Alliance
110. Kootenai Environmental Alliance
111. Last Tree Laws Massachusetts
112. Legacy Forest Defense Coalition
113. Life Net Nature
114. Los Padres ForestWatch
115. Love Our Land
116. Magnolia Forest Group
117. Mason County Climate Justice
118. Massachusetts Forest Watch
119. MO's Defensible Space
120. Mount Shasta Bioregional Ecology Center
121. Muslim Caucus - YDA
122. Native Ecosystems Council
123. Natural Capitalism Solutions
124. Natural Resources Law
125. New Jersey Forest Watch
126. New Jersey Highlands Coalition
127. New Mexico Climate Justice
128. Nicaragua Center for Community Action
129. North American Climate, Conservation and Environment (NACCE)
130. North Cascades Conservation Council
131. North Country Earth Action
132. Northwest Environmental Defense Center
133. Northwest Watershed Institute
134. NTS Group
135. Occupy Bergen County
136. Ohio Environmental Council
137. Oil and Gas Action Network
138. Old-Growth Forest Network
139. Olympic Climate Action
140. Olympic Forest Coalition
141. Olympic Park Advocates
142. One Earth

143. Oregon Unitarian Universalist Voices for Justice
144. Our City SF
145. Our Revolution Massachusetts - GND/Climate Crisis Working Group
146. Our Revolution Michigan
147. Our Revolution National
148. Outdooredge
149. Pacific Rivers
150. Partnership for Policy Integrity
151. Passaic River Coalition
152. Peace Action WI
153. People's Justice Council
154. People’s Voice on Climate
155. Pisgah Defenders
156. Portland Raging Grannies
157. Presente.org
158. Progressive Democrats of America, Oregon Chapter
159. Protect Our Woods
160. Protect Thacker Pass
161. Public Employees for Environmental Responsibility
162. Putnam Progressives
163. Rachel Carson Council
164. Raritan Headwaters Association
165. RESTORE: The North Woods
166. Ridgeview Conservancy
167. Rocky Mountain Wild
168. San Diego County Democrats for Environmental Action
169. Santa Fe Forest Coalition
170. Satoria Sustainability Consulting
171. Save Massachusetts Forests
172. Save Our Woods
173. Selkirk Conservation Alliance
174. Shagbark
175. Shawnee Forest Defense
176. Shawnee Natural Area Guardians
177. Sisters of St. Dominic of Blauvelt, New York
178. Sisters Trails Alliance
179. Soda Mountain Wilderness Council
180. Sonoma County Climate Activist Network (SoCoCAN!)
181. South Umpqua Rural Community Partnership
182. Southern Forest Conservation Coalition
183. Spokane Audubon Society
184. Stand4Forests
185. Standing Trees
186. Sunflower Alliance
187. Support Roaring Rock Park
188. Swan View Coalition
189. Tahoe Forests Matter
190. Tennessee Heartwood
191. Terra Advocati
192. The Conservation Cooperative
193. The Enviro Show
194. The Forest Advocate
195. The Rewilding Institute
196. The Wei LLC
197. Timbuctoo Mountain Club
198. Thurston Climate Action Team (TCAT)--Tree Action Group
199. Treehuggers International
200. Trees as a Public Good Network
201. Turtle Island Restoration Network
202. U.S. Youth Advisory Council for the UN Ocean Decade
203. Umpqua Natural Leadership Science Hub
204. Umpqua Watersheds
205. Unitarian Universalists for a Just Economic Community
206. Unitarian Universalists for Social Justice
207. Unite the Parks
208. United Plant Savers
209. Utah Physicians for a Healthy Environment
210. Veterans for Peace
211. Virginia Interfaith Power & Light
212. Vote Climate
213. Wall of Women
214. Washington Green Amendment
215. Wasteful Unreasonable Methane Use
216. Water League
217. Waterspirit
218. Wenatchee350.org
219. Wendell State Forest Alliance
220. Western Watersheds Project
221. Wild Heritage, a Project of Earth Island Institute
222. Wild Hope magazine
223. Wild Nature Institute
224. Wild Watershed
225. WildEarth Guardians
226. Wilderness Watch
227. WildLands Defense
228. Williams Community Forest Project
229. Women's Earth and Climate Action Network
230. World Rainforest Fund
231. Yaak Valley Forest Council
232. Young Democrats of America Environmental Caucus
233. Young Democrats of America Jewish Caucus
234. Young Democrats of America Rural Caucus