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US Department of Agriculture  
US Forest Service  
*submitted via Federal eRulemaking Portal:*  
<https://www.regulations.gov>

1/26/2024

**RE: USFS Request for Comments: Land  
Management Direction for Old-Growth Forest  
Conditions Across the National Forest System**  
<https://www.fs.usda.gov/project/?project=65356>

The Juniper Group Sierra Club (JSC) and the Bitterbrush Broadband Chapter (Broads) of the Great Old Broads for Wilderness are responding to the Forest Service (FS), Request for Comments on Land Management Direction for Old-Growth Forest Conditions across the National Forest System project 65356 (or simply 65356).

The JSC represents over 2000 members in Eastern Oregon counties. The mission of the Sierra Club is:

- To explore, enjoy, and protect the wild places of the earth.
- To practice and promote the responsible use of the earth's ecosystems and resources.
- To educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

We are filing comments for 65356 in part to protect wild places, educate, and restore the quality of the natural and human environment.

The mission of the Great Old Broads for Wilderness, including the Bitterbrush Broads and Bros chapter of central and eastern Oregon, is to preserve and protect wilderness and wild lands. We give voice to the millions of Americans who want to protect their public lands and wilderness for now and future generations, bring knowledge, leadership, and humor to the wilderness preservation movement, and educate the public about the critical connection between healthy public lands and climate change mitigation.

We comment on mature and old growth forests of central and eastern Oregon examples, where most of our chapter members reside and use USFS lands for recreation. However, we also comment on behalf of all mature and old growth forests across our nation that need more protection and change in how natural resources are valued and managed on our public lands.

**General.** Our comments focus on Oregon, but the concepts discussed apply across all National Forest Service (NFS) lands. We support saving all mature and old growth (MOG) trees because of their importance to water, fish, wildlife, soils, scenic, scientific, spiritual, recreation, and other resource values.

Large and connected intact landscapes with MOG are critical to support biodiversity, healthy ecosystems and their conservation is essential to meet the challenges of climate change.

We urge the FS to adopt a final amendment that emphasizes protection of MOG trees, sets aside strategic reserves to support natural climate-based solutions, implements strong enforceable standards to protect MOG, monitors progress, and limits proposed “fixing” of forest landscapes through intensive vegetation management. This will only occur if the amendment is strengthened to ensure that conservation of MOG takes precedence over any extractive uses.

We need solutions that match the magnitude of climate change and biodiversity threats that we face. Conserving mog forests on federal public lands is a critical natural climate solution that will have a meaningful impact on these twin crises. We have a moral imperative to act boldly for future generations.

**Mature and Old Growth Forests and Trees are Threatened by Logging.** The inventory of MOG on USFS and BLM lands<sup>1</sup> was released in April 2023 in fulfillment of the Executive Order 14072 (EO). The EO emphasizes the importance of MOG forests on public lands for their role in contributing to nature-based climate solutions by storing large amounts of carbon and increasing biodiversity. The major threat to our MOG, particularly in western states, is *timber harvest*. While wildfire, insects and disease are also increasing climate-related threats, logging is the threat that you can address. We should not be selling any old-growth trees on public lands and limit harvest of mature trees which are future recruitment for old growth. With most timber products coming from private lands, the FS can manage our public lands forests effectively without selling MOG. End of story.

The primary threat to mature and older forests in the Pacific Northwest is *logging*, not insects, disease, wildfire, or climate change. There are approximately 11 million acres of MOG on public lands in Oregon and Washington (about 19% of the lower 48 states). Despite the significant role they play in carbon storage and climate mitigation, only about 10% of MOG on public land in Oregon is protected from logging (GAP 1 & 2 designation)<sup>2</sup>. The remainder have varied levels of protection, some under the Northwest Forest Plan (also currently under revision), in Late Successional Reserves, or in Inventoried roadless areas (which may be subject to post-fire logging.) This analysis was released in a mapping study by DellaSala et al. in 2022.<sup>3</sup>

Law and Moomaw (2024)<sup>4</sup> report that “In the U.S., forests remove 12% of the nation’s greenhouse gas emissions annually and store the carbon long term in trees and soils. Mature and old-growth forests, with larger trees than younger forests, play an outsized role in accumulating carbon and keeping it out of the

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<sup>1</sup> USFS. Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management Fulfillment of Executive Order 14072, Section 2(b). April 2023.

<sup>2</sup> Law, B. E., Berner, L. T., Buotte, P. C., Mildrexler, D. J., & Ripple, W. J. 2021. Strategic forest reserves can protect biodiversity in the western United States and mitigate climate change. *Communications Earth & Environment*. 2:254. <https://doi.org/10.1038/s43247-021-00326-0>, [www.nature.com/commsenv](http://www.nature.com/commsenv).

<sup>3</sup> DellaSala, Dominick A., Brendan Mackey, Patrick Norman, Carly Campbell, Patrick J. Comer, Cyril F. Kormos, Heather Keith, and Brendan Rogers. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States. *Frontiers in Forests and Global Change*, September 28, 2022.

<sup>4</sup> Law, B.E. and W. Moomaw. 2024. Old forests are critically important for slowing climate change and merit immediate protection from logging. *The Conversation*. <https://theconversation.com/old-forests-are-critically-important-for-slowing-climate-change-and-merit-immediate-protection-from-logging-220771>.

atmosphere. These forests are especially resistant to wildfires and other natural disturbances as the climate warms.” They further state that “Most forests in the continental U.S. have been harvested multiple times. Today, just 3.9% of timberlands across the U.S., in public and private hands, are over 100 years old, and most of these areas hold relatively little carbon compared with their potential... there is ample scientific evidence to justify an immediate moratorium on logging mature and old-growth forests on federal lands.” We concur with an immediate moratorium of logging MOG on our public lands and the opportunity to increase carbon sequestration with immediate and long-term protections of MOG.

Furthermore, the FS consistently fails to identify that logging MOG is one of the greatest threats to our old growth stands and future recruitment from mature stands. The USDA FS (2023) report on mature and old growth states that “old-growth and mature forests are threatened by climate change and associated stressors. The initial inventory and definitions for old-growth and mature forests are part of an overarching climate-informed strategy to enhance carbon sequestration and address climate related impacts, including insects, disease, wildfire risk, and drought.” Astonishingly, timber harvest and logging are not mentioned at all and is an egregious oversight by the FS. *The failure to acknowledge that timber harvest is one of the greatest mortality factors to MOG undermines trust in your agency.*

The greatest threat to forest stands in western states is timber *harvest*, particularly in the Pacific Northwest, see Berner et al. (2017)<sup>5</sup>. Figure 1 shows that tree mortality is highest in Oregon among the 11 western states with timber harvest causing 83% of tree mortality, with bark beetles and wildfire causing substantially less mortality at 9% and 8%, respectively.

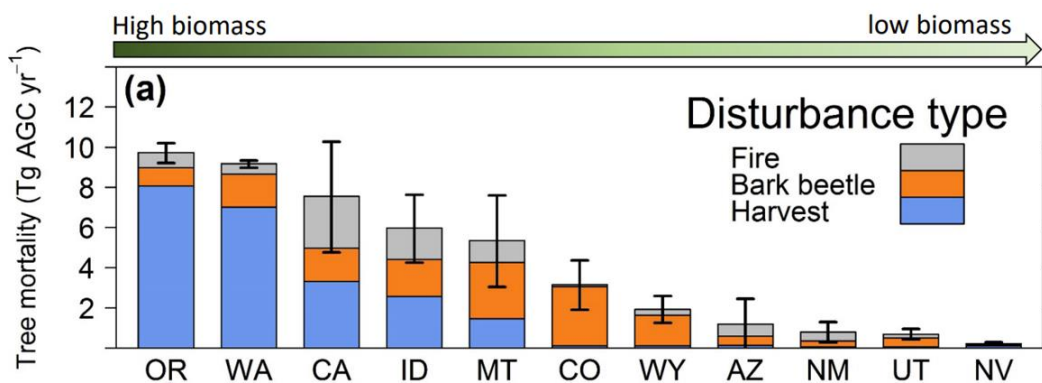


Figure 1. Mean annual tree mortality from fires, bark beetles, and timber harvest on forestland from 2003–2012 for each state in the western US. Tree mortality was quantified as the amount of aboveground carbon (AGC) stored in tree biomass killed by disturbance (Berner et al. 2017).

Another study by Harris et al. (2014)<sup>6</sup> reported that most of the carbon loss in the western US is due to *timber harvest* (66%), while fire was only (15%), and insect damage (13%).

<sup>5</sup> Berner, L.T., B.E. Law, A.J.H. Meddens, and J.A. Hicke. 2017. Tree mortality from fires, bark beetles, and timber harvest during a hot and dry decade in the western United States (2003–2012). *Environ. Res. Lett.* 12 (2017) 065005. DOI 10.1088/1748-9326/aa6f94.

<sup>6</sup> Harris N.L., S.C. Hagen, S.S. Saatchi, T.R.H. Pearson, C.W. Woodall, G.M. Domke, B.H. Braswell, B.F. Walters, S. Brown, W. Salas, A. Fore, and Y. Yu. 2014. *Carbon Balance Manage* (2016) 11:24. DOI 10.1186/s13021-016-0066-5. Berner, L.T., B.E. Law, A.J.H. Meddens, and J.A. Hicke. 2017. Tree mortality from fires, bark beetles, and timber harvest during a hot and dry decade in the western United States (2003–2012). *Environ. Res. Lett.* 12 (2017) 065005. DOI 10.1088/1748-9326/aa6f94.

Berner et al. 2017. *Ibid.*

The Sierra Club and Broads urge the agencies to halt all logging of mature and old growth forests on NFS lands while this process is underway. The inventory includes forest stands of at least one acre in size. We stress the urgent need to complete the process in a timely manner and protect mature and old growth forests under FS jurisdiction.

**Failure to Protect Mature Trees Important for Old Growth Recruitment.** Despite the EO 14072 direction to protect both mature and old growth, the proposed plan amendment ignores protecting mature trees, which are the recruitment for future old growth, and provide many of the same benefits as old growth. To meet President Biden's Executive Order promises, there must be substantial protections for *both* mature and old-growth trees, from both logging and 'inappropriate management' techniques by the agencies under the guise of “restoration” and “wildfire resiliency.”

The failure to include mature trees in the plan amendment also means that the FS fails to protect important middle aged and older forests from timber harvest. Mature forests are most capable of sequestering carbon in the coming decades and are in the age range of 70 to 125 years. The most important action is to grow trees that are MOG to reach their full ecological potential, store carbon, support biodiversity, and develop a forest that has its full complement of environmental services. Mature and old growth forests accumulate carbon with about half as the dry weight of wood, but also stores carbon in soils. The bigger the trees the more carbon they store annually in both wood and soil.

**Ongoing Logging Threats to MOG forests.** Despite the efforts underway to protect MOG forests on federal land, many logging projects throughout the nation include harvest of large trees in MOG stands. There are logging projects in the pipeline that threaten mature and old-growth trees. The FS included an elevated review process for proposed projects that contain old growth in the announcement, but there is a pressing need to ensure current and proposed projects are re-evaluated to reverse the loss of MOG.

There are many ongoing examples of central and eastern Oregon national forests actively targeting harvest in late old seral (LOS) and old growth stands including MOG under the guise of restoration. These are not just thinning and prescribed burning to reduce forest stand density but actively targeting LOS and MOG. A sample and by no means exhaustive projects list include Green Ridge and Klone on the Deschutes Forest; South Warner on the Winema-Fremont Forest; Mill Creek and the North Fork Crooked River on the Ochoco Forest; Austin, Bark, Camp Lick, Boundary, and Cliff Knox on the Malheur Forest; Ellis, Upper Touchet, and Parker Mill on the Umatilla Forest and Lower Joseph, Morgan Nesbit, and Tiger Mill on the Wallowa Whitman Forest. The FS rationale for these projects is typically "promoting watershed or wildfire resiliency", “restoring historical or park-like conditions”, “hazardous fuels reduction” and “forest restoration.” However, the bottom line is timber harvest for commercial exploitation under these euphemisms. The alleged use of funds to mitigate timber harvest actions are rarely completed, such as fences for better management of livestock (over)grazing and reducing road densities that far exceed forest plan standards.

The FS Region 6 went through a flawed and failed public NEPA process and shoved through a politically motivated revision of the 1995 Eastside Screens (pushed by former Congressman Greg Walden) that formerly protected all trees over 21 inches east of the Cascade Mountains in central and eastern Oregon forests. Conservation groups recently litigated and won in court. Despite the recent decision by Judge

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Harris N.L, S.C. Hagen, S.S. Saatchi, T.R.H. Pearson, C.W. Woodall, G.M. Domke, B.H. Braswell, B.F. Walters, S. Brown, W. Salas, A. Fore, and Y. Yu. 2014. Carbon Balance Manage (2016) 11:24. DOI 10.1186/s13021-016-0066-5.

Hallman<sup>7</sup> in the ruling against FS for the revised Eastside Screens that formerly protected all trees over 21 inches, these same central and eastern Oregon forests have ongoing projects targeting MOG and harvesting trees over 21 inches in direct violation of the ruling.

On a national scale, in July and November 2022, the Climate Forests Campaign<sup>8,9</sup> issued two reports that identified many timber sales targeting at least 370,000 acres of mature and old-growth forests for logging on public federal land. The two reports show a pervasive and widespread pattern of willful forest mismanagement in forests across our nation that disregards science about the importance of retaining MOG trees for climate change and biodiversity crises. These are not just thinning and prescribed burning projects to reduce forest stand density which is the stated goal of most if not all projects. The reports repeatedly show willful cutting of MOG trees under the guise of “protection from wildfires.” Most old-growth forests and many mature forests have already been logged and a tiny fraction is left on our federal public lands. Despite EO 14072, the Climate Forests Campaign demonstrated that federal agencies, including the FS, have done zero actions to correct any of these logging projects except for two projects where a judge found agencies were illegally harming an imperiled species.

It should not take litigation by concerned citizens against federal agencies that are violating laws to protect remaining mature and old growth trees. This is why standards, not guidelines, are needed as part of the proposed plan amendment. The FS has a long history of failing to meet required regional or forest standards that were put in place as part of forests plans to protect other resources such as wildlife habitat, riparian areas and streams, and road densities as a few examples. Standards must be included in the proposed amendment, or there will be no public oversight of the chronic, politically driven mismanagement of our public lands.

The FS recently has accelerated commercial timber harvest rather than protect MOG trees under the guise of “restoration.” The agency repeatedly discards climate-based science and promotes fear about wildfires to build public support for large timber sale planning areas, many far from towns and communities. The amount and type of logging proposed far exceeds what is needed to support legitimate restoration. These “vegetation management” projects (aka timber harvest) result in damaging and unnecessary loss of MOG trees and resulting loss of carbon storage and sequestration. In January 2022, Department of Agricultural Secretary Vilsack and Randy Moore, head of the Forest Service, unveiled a 10-year strategy for “confronting America’s wildfire crisis through increased logging, thinning and prescribed fires to reduce high fuel loads”. The plan calls for “forest health treatments” on an additional 50 million acres of forest land across the nation over the next 10 years which is twice the current levels of timber harvest. The FS is clearly cherry picking its science to choose timber harvest over protecting MOG trees and accelerating the loss of carbon storage while increasing carbon emissions. As part of the proposed plan amendment, there must be accountability for all forests and project planning areas to account for carbon losses and increased carbon emissions from logging and road building.

We find it unconscionable that the FS continues to harvest MOG despite 1) the EO 14072, 2) the numerous scientific reports that demonstrate the need to retain MOG for a variety of resource values including combatting climate change and increasing biodiversity, and 3) the recent ruling by Judge

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<sup>7</sup> Judge Hallman, US Magistrate, Pendleton Court. 2023. Findings and Recommendations. Case No. 2:22-cv-00859-HL.

<sup>8</sup> Climate Forest Coalition. 2022. Worth More Standing: 10 Climate-Saving Forests Threatened by Federal Logging. 13 pp.

<sup>9</sup> Climate Forest Coalition. 2022. America’s Vanishing Forests: How the U.S. Is Risking Global Credibility on Forest

Hallman that vacated the FS decision to cut trees over 21 inches in central and eastern Oregon forests. It is past time to change the agency's paradigm and implement protections that provide for the many other ecosystem benefits provided by MOG.

**MOG Trees are a Low-Cost Climate Change Solution.** Mature and old growth forests are our best natural, low-cost climate solution. There are no other silver bullets that are the equivalent for MOG trees to remove atmospheric carbon and store and sequester carbon at a large scale. The next 10 to 30 years are a critical window for climate action and the FS must protect all MOG and reduce carbon loss by increasing harvest intervals and decreasing harvest intensity. Protecting MOG trees safeguards clean water, clean air, wildlife habitat, biodiversity, and recreation. Our members recreate, hunt, fish, camp, hike and find peace and solitude in MOG forests. These MOG forests require decades to centuries to develop into beautiful landscapes that wildlife, other plants and animals, and humans need.

MOG trees store and sequester the most carbon. Mildrexler et al. (2020)<sup>10</sup> report that the 4% of trees in over 21 inches in diameter in eastern Oregon and Washington store 41% of the carbon. These trees are under threat of logging by changes in the "21-inch rule" at the end of the Trump administration and now applied by the FS despite the recent Hallman decision and EO 14072.

MOG trees are in short supply due to the legacy of past and present timber harvests. When logged, MOG trees release up to two thirds of their stored carbon to the atmosphere contributing to global warming. Their emitted carbon takes decades to centuries to recover, if ever. Scientists have tracked carbon emissions from forests to wood products to landfills and from forest wildfires<sup>11</sup>. Their analysis of Oregon carbon emissions from wood harvested over the past century showed that 65% of the original carbon returned to the atmosphere as CO<sub>2</sub>, while landfills retained 16%, and only 19% remained in wood products. The scientists also undermined the false claims that wildfires are major carbon emitters. Their research from the enormous Biscuit Fire, which burned 772 square miles in southwest Oregon in 2002, emitted less than 10% of Oregon's total emissions that year.

Climate scientists are sounding the alarm to protect more areas from land conversions and implement conservation practices to stabilize climate change, protect biodiversity, and enhance natural carbon removal (DellaSala et al. 2022<sup>12</sup>; Dinerstein et al. 2020<sup>13</sup>; Law et al. 2021, 2022; Moomaw et al. 2019<sup>14</sup>; Parmesan et al. 2022<sup>15</sup> (Intergovernmental Panel on Climate Change (IPCC) report). There are very few

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<sup>10</sup> Mildrexler, David J, Logan Berner, Beverly Law, Richard Birdsley, William Moomaw, Large Trees Dominate Carbon Storage in Forests East of the Cascade Crest in the United States Pacific Northwest. *Frontier for Global Change*, November 5, 2020.

<https://doi.org/10.3389/ffgc.2020.594274>

<sup>11</sup> Law, B.E. and Moomaw, W. 2021. Keeping trees in the ground where they are already growing is an effective low-tech way to slow climate change. <https://theconversation.com/keeping-trees-in-the-ground-where-they-are-already-growing-is-an-effective-low-tech-way-to-slow-climate-change-154618>.

<sup>12</sup> DellaSala et al. 2022. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States.

<sup>13</sup> Dinerstein, E., A.R. Joshi, C. Vynne, A.T.L. Lee and more. 2020. A "Global Safety Net" to reverse biodiversity loss and stabilize Earth's climate. *Sci. Adv.* 2020; 6: eabb2824.

<sup>14</sup> Moomaw, W. R., S.A. Masino, and E.K. Faison, E. K. 2019. Intact forests in the United States: Proforestation mitigates climate change and serves the greatest good. *Front. For. Glob. Change* 2:27. doi: 10.3389/ffgc.2019.00027.

<sup>15</sup> Parmesan, C., M.D. Morecroft, Y. Trisurat and more. 2022. Terrestrial and Freshwater Ecosystems and Their Services. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of*

years left to make a difference in global climate change and cutting trees MOG and increasing carbon emissions is the wrong solution.

**Need for Strategic Reserves to Protect MOG.** Nature-based solutions are an urgent and high priority need to meet global climate policy (IPBES-IPCC, IPCC AR6, and Biden EO) and to meet 30X30 and 50X50 targets. Protecting MOG trees on federally managed and *publicly* owned lands is essential to meet carbon sequestration, biodiversity, and water security crises. As noted by DellaSala (2023) at Wild Heritage “Best available science (Krankina et al. 2014, Law et al. 2021, 2022, Boute et al. 2022, DellaSala et al. 2022a) and the importance of late-successional reserves to carbon sinks as exemplified by the Northwest Forest Plan (Krankina et al. 2012) establish precedent for inclusion of MOG in RNA designations, forest carbon reserves (Law et al. 2021, 2022) or some other protective designation (DellaSala et al. 2022a). Importantly, MOG forests do not need active management aside from passive restoration (remove human stressors) whereas logged areas need both active and passive restoration”<sup>16</sup>.

Many well-respected climate scientists advocate for forest reserves to protect valuable lands and resources that provide carbon storage and sequestration<sup>17, 18, 19</sup>. Scientists at Oregon State University and around the West advocate that the US should create strategic forest reserves in the West to fight climate change and safeguard biodiversity. They explain that climate change and biodiversity are mutually linked, and forest reserves would counter both emergencies and protect water resources. We support these scientists and forest protection as low-cost climate mitigation solutions and encourage the FS to protect all MOG trees which accumulate massive amounts of carbon in trees, vegetation and soils, homes for diverse wildlife, and serve as sources of water for drinking and other uses.

Law et al. (2022) proposes strategic reserves in Oregon forests for biodiversity, water security, and carbon sequestration to mitigate and adapt to climate change<sup>20</sup>. The researchers looked at ways of achieving the Executive Order 14008 goal of “conserving 30% of our land and waters by 2030.” They also looked at preservation targets of 50 x 50 proposed by the Intergovernmental Panel on Climate Change (IPCC). They state that “protecting mature and old growth forests on federal lands fulfills an urgent need for protection and provides a low-cost way to simultaneously meet national and international goals.” (Emphasis added.)

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Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 197–377, doi:10.1017/9781009325844.004.

<sup>16</sup> DellaSala, D. 2023. Protecting large trees & mature old-growth forests (MOG) from logging is climate smart forestry: comments on Advanced Notice for Proposed Rulemaking (36 CFR Part 200) submitted by Dr. Dominick A. DellaSala, Chief Scientist, Wild Heritage.

<sup>17</sup> Law, B. E., Berner, L. T., Buotte, P. C., Mildrexler, D. J., & Ripple, W. J. 2021. Strategic forest reserves can protect biodiversity in the western United States and mitigate climate change. *Communications Earth & Environment*. 2:254. <https://doi.org/10.1038/s43247-021-00326-0>, [www.nature.com/commsenv](http://www.nature.com/commsenv).

<sup>18</sup> DellaSala et al. 2022. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States.

<sup>19</sup> Law B.E., W.R. Moomaw, T.W. Hudiburg, W.H. Schlesinger, J.D. Serman, and G.M. Woodwell. 2022. Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States. *Land*. 2022; 11(5):721. <https://doi.org/10.3390/land11050721>.

<sup>20</sup> Law et al. 2022. *Ibid*.

The Pacific Northwest forests, especially on the moist western part, are carbon dense, with a high potential for climate mitigation, and lower vulnerability to wildfire<sup>21</sup>. Selection of areas for the highest priority for preservation were ranked by aboveground carbon stocks, biodiversity, and climate resilience. The scientists defined landscape resilience as the capacity of a landscape or ecoregion to maintain biological diversity and ecological function despite climate change. They identified areas not currently protected that should be protected at GAP 1 or 2 levels (USGS ratings). Only about 10% of Oregon's forests currently are protected which fails to meet 30X30 or 50X50 targets.

Researchers have identified roadless areas and wilderness study areas that have a high proportion of MOG forests that could administratively be protected at GAP 1 or 2 levels. Dr. David Mildrexler presented a vision of connectivity in the Blue Mountain Ecosystem in eastern Oregon at a "Rewilding Oregon" Conference in May 2023. Existing wilderness areas can be enhanced by full protection of roadless areas between them, allowing for wildlife corridors, and protecting carbon stocks. More protected areas are urgently needed.

**Need for Standards.** The proposed plan amendment *must* include standards for protection of MOG including age and dbh size limits and acres of forest refuges that need to be targeted for protection. In addition, there have been recent attempts by some national forests to enter existing designated remnant old growth, Inventoried Roadless areas, non-inventoried roadless areas, and designated Wild and Scenic River areas under the guise of restoration. There should be no allowances for any of these areas and should have complete protection from timber harvest. Period. Failing to provide concrete specific standards allows the FS unlimited "guidance" on doing anything and everything on our public lands without public oversight. Recent forest plan revisions to do away with standards undermines trust in public lands managers and the agency and increases mismanagement of our public lands.

**Need for Monitoring.** In addition to enforceable standards, the plan amendment must include monitoring. There is no point in implementing protections for restoring mature and old growth trees to fight climate change and restore biodiversity unless enforceable standards are monitored. Monitoring must include collecting information on forest stands and success or failure for restoring biodiversity and carbon storage. Information must be collected for the status and trend of ESA and species of concern to demonstrate whether actions are improving habitat conditions for fish and wildlife species or failing to restore these species. Habitat data is not a surrogate for fish and wildlife population monitoring. Both types of information must be collected to demonstrate whether actions are improving or harming fish and wildlife species. Again, the FS has a long and troubled history of failing to conduct basic monitoring such as collecting, analyzing, and reporting information on streams and riparian areas, ESA and management indicator or focal species, livestock grazing, road densities and travel management, and much more. Without data collection, monitoring and trend information, the agency will fail to restore biodiversity and meet the climate change emergency.

**Need for Carbon Accounting.** It is imperative to understand the climate impacts of proposed management activities and how these impacts vary among forest or project planning alternatives. It is also the duty for the FS to report how climate change is impacted by proposed forest plans or projects and report alternatives and decisions in public NEPA documents. As part of the planning rule for MOG, the FS must include enforceable standards and regulations for planning efforts on all forest projects to

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<sup>21</sup> Law, B. E., Berner, L. T., Buotte, P. C., Mildrexler, D. J., & Ripple, W. J. 2021. Strategic forest reserves can protect biodiversity in the western United States and mitigate climate change. *Communications Earth & Environment*. 2:254. <https://doi.org/10.1038/s43247-021-00326-0>, [www.nature.com/commsenv](http://www.nature.com/commsenv).



account for GHG emissions and changes in carbon sequestration capacity due to proposed and current management actions.

**Eliminate Supplying the Biomass Industry.** We oppose using forest products to support the biomass industry and any subsidies since these activities increase carbon emissions both in supplying the wood and producing the product. The claim that woody biomass is a sustainable fuel source and economic enterprise is false. Biomass extraction should not be considered part of a sustainable economy for local communities because of its adverse ecological and climate impacts.

The natural carbon cycle developed over eons and allowed for biomass accumulation, soil creation, plant succession, and a complex food chain, along with carbon sequestration and healthy biodiversity. The above ground carbon cycle proceeds from carbon capture in photosynthesis to storage of carbon in living and dead organic matter, to its final release during decay back into the atmosphere. The global climate crisis demands that any consideration of extracting woody biomass from a forest have a critical life-cycle analysis done regarding energy inputs required for extraction and processing as well as realistic evaluations of carbon stored and released over time<sup>22, 23</sup>.

Woody biomass materials created from thinning and timber harvest operations are considered waste and often burned on-site. The growing biomass industry is making extraction of this natural resource seem economically appealing. However, this material is also essential to the health and biodiversity of the forest ecosystems, as well as for long-term storage of carbon. Claims that extracting woody biomass from forests is beneficial to the forest and is carbon neutral are questioned and challenged on many fronts.

Natural ecosystem cycles including both nutrient and carbon cycling use decaying wood and are impacted by removing this woody biomass from these cycles. Disturbing these cycles affects insect, bird, reptile, and mammal populations, as well as floral and fungal species. The removal of small trees for biomass removes nutrients from the ecosystem and increases water depletion of the ecosystem by removing wood, standing and downed, that holds moisture, slows the wind, and blocks the solar radiation that dries the soil<sup>24</sup>. Downed wood contributes organic matter to the soil which improves the soil structure and helps retain moisture, build more soil, and slow water runoff. Important decay organisms at the bottom of the food chain are also limited by removing wood, and thus limit the number and complexity of species higher on the food chain.

The removal of woody biomass from either thinning or as downed wood also disturbs forest ecosystems and alters the microclimate. The wind has easy access to low vegetation and the soil surface. Solar radiation becomes more intense at the ground level, which with the increased wind, dries the soil and remaining surface vegetation leading to wildfire spread<sup>25</sup>.

Biomass plants produce a tremendous amount of dust and particulate matter and is not a carbon-neutral source of energy. Cutting trees to burn them is not a way to reduce carbon emissions. Burning biomass releases about the same amount of carbon dioxide as burning fossil fuels and releases carbon monoxide,

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<sup>22</sup> Speare-Cole, R. 2021. "Biomass Is Promoted as a Carbon Neutral Fuel. But Is Burning Wood a Step in the Wrong Direction?" October 5, 2021.

<https://www.theguardian.com/environment/2021/oct/04/biomass-plants-us-south-carbon-neutral>.

<sup>23</sup> Yassa, S. 2021. "Forest Biopower Is Far from Carbon Neutral." October 13, 2021.

<https://www.nrdc.org/bio/sami-yassa/forest-biopower-far-carbon-neutral>.

<sup>24</sup> Maloof, J., and A. Joslin. 2016. Nature's Temples: The Complex World of Old-Growth Forests. Portland, Oregon: Timber Press. <https://www.goodreads.com/book/show/28009889-nature-s-temples>.

<sup>25</sup> Hanson, C.T. 2021. Smokescreen: Debunking wildfire myths to save our forests and our climate.

carbon dioxide, nitrogen oxides, and other pollutants and particulates. If these pollutants are not captured and recycled, burning biomass creates smog and even exceeds the number of pollutants released by fossil fuels. If biomass is obtained from cutting natural forests or other practices that release copious amounts of carbon stored in the forest, then it contributes to a net increase in carbon emissions. This is because when natural forests are impacted by “management,” carbon stored in the trees and soil is released into the atmosphere.

Additionally, the way the biomass is processed, transported, and combusted also affects the overall emissions from the process. For example, if biomass is transported over long distances or the combustion process is not optimized for low emissions, then the carbon footprint is even higher, further increasing carbon emissions.

**MOG Trees are a Biodiversity Solution.** MOG trees provide habitats that other seral stages cannot replicate for some wildlife species and are critical for species richness and biodiversity. Numerous wildlife species use large trees for nesting, foraging, overwintering, roosting, and denning habitats. These include a wide array of species including raptors, woodpeckers, songbirds, bats, and other small mammals. Large trees also provide refuge and microclimates for countless invertebrates, epiphytes, herpetofauna, and rare plants. In riparian areas, mature and old growth trees provide shade and bank stability, and when they fall into streams, hiding cover for aquatic species, and retain sediment for spawning and habitat for aquatic species. Numerous scientists have reported on the species richness and biodiversity of MOG. For example, Buotte et al. (2020)<sup>26</sup> reports that “these forests currently have high above- and below ground carbon density, high tree species richness, and a high proportion of critical habitat for endangered vertebrate species, indicating a strong potential to support biodiversity into the future and promote ecosystem resilience to climate change”. They further state that “high-carbon-priority forests contain the highest proportional area of terrestrial vertebrate habitat for species listed as threatened or endangered by the U.S. Fish and Wildlife Service, as well as the highest proportion of habitat designated as critical for threatened or endangered species survival.”

MOG can act as climate refugia for fish and wildlife species. DellaSala (2023)<sup>27</sup> states that “MOG provides cooler temperatures than surrounding logged areas, thereby acting as climate refugia (Frey et al. 2016, Betts et al. 2017, Lombaerde et al. 2021, Wolf et al. 2021, De Frenne et al. 2021, Kim et al. 2022).”

We particularly note that logging large old firs, which the FS targets in eastern forests in Oregon, has been implemented under the guise of protecting old growth ponderosa pine. Yet, these large firs support restoring historic large tree deficits, have accumulated substantial carbon stocks, and have fire-resistant properties over time. Despite claims of large firs outcompeting large pines and that logging is needed to reduce competition, there is little, large tree overlap between species at the FIA plot level (Mildrexler et al. 2020<sup>28</sup>, 2023<sup>29</sup>). Large old firs are more available to wildlife species since they have softer wood and provide immediate benefits. All large trees (>20 in dbh) regardless of species need protection for climate

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<sup>26</sup> Buotte, P. C., B. E. Law, W. J. Ripple, and L. T. Berner. 2020. Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. *Ecological Applications* 30(2): e02039. 10.1002/eap.2039.

<sup>27</sup> DellaSala, D. 2023. Protecting large trees and mature old-growth forests (MOG) from logging is climate smart forestry: comments on advanced notice for proposed rulemaking (36CFS Part 200) submitted by Dr. Dominick A. DellaSala, Chief Scientist, Wild Heritage, A project of Earth Island Institute, submitted June 25, 2023.

<sup>28</sup> Mildrexler et al. 2020. Ibid.

<sup>29</sup> Mildrexler, D.J., L.T. Berner, B.E. Law, and R.A. Birdsey, and W.R. Moomaw. 2023. Protect large trees for climate mitigation, biodiversity, and forest resilience. <https://doi.org/10.1111/csp2.12944>.

and biodiversity benefits. In addition, MOG trees have special characteristics such as brooming from mistletoe, or cavities from insects and fungi, which provide important habitats for wildlife species. Despite the claims on the “evils” of insects and disease by the FS, they provide important components for diverse habitats for wildlife in MOG.

**MOG Trees are a Water Quantity, Quality, and Security Solution.** MOG trees are extremely important to provide high quality water compared to managed stands. Roadless areas, MOG and wilderness provide most of the high quality and sustained flow for drinking water and quality habitats for ESA-listed species. DellaSala (2023)<sup>30</sup> states that “Along with IRAs (DellaSala et al. 2011), MOG provide the highest quality drinking water on the national forest system (Brooks et al. 2002, DellaSala et al. 2022).” MOG trees build up soil depth, cycle nutrients, filter water and alleviate pollution, release oxygen, and provide wildlife habitats at far greater levels and quality than managed forests.

Buotte et al. (2020)<sup>31</sup> summarizes the importance of MOG for water quantity and quality from numerous scientific reports: “Intact forests are particularly important for watershed protection by regulating soil permeability, overland flow, and erosion (DellaSala et al. 2011, Creed et al. 2016, Moomaw et al. 2019). Across the United States, National Forests are the largest source of drinking water (Furniss et al. 2010). In the Pacific Northwest, conversion of old-growth forests to plantations reduced summer stream flow by an average of 50% (Perry and Jones 2017). Preserving intact forests would provide the greatest benefit to watershed protection and clean water supply (DellaSala et al. 2011). Unfortunately, the area of forest interior (defined as forest area per land area) is declining faster than the total area of forest in the United States (Riitters and Wickham 2012). Remaining primary and intact forests need to be identified and incorporated in land management policies.” In other words, intact and unmanaged landscapes are critical for water supplies, especially with a warm and dry climate.

Harvest prohibition of MOG preserves streamflow and summer flows and downstream drinking water has better water quality and quantity. One study evaluated the long-term impact of forest harvest on summer low flow deficits in the Oregon Coast Range<sup>32</sup>. The study found streamflow was 50% lower in a 40–43-year-old plantation relative to 110-year-old forest. Summer low flow deficits persisted over six months or more each year. Thus, logging prohibition of MOG will also provide better habitat for aquatic species and meet downstream water supply needs for human communities.

Retention of water in the stream and riparian zone can also provide a natural fuel break, with higher water content of riparian vegetation. The wider riparian zones serve as wildlife refugia during wildfires.

**Beaver protection.** The JSC and Broads urge the FS to evaluate mechanisms to prohibit hunting and trapping of beaver on federal public lands. This would allow beavers to expand within their historic range, increasing wetlands and associated riparian vegetation. The pools created by beaver dams are rearing habitat for native anadromous and resident fish species throughout Oregon. Streams and riparian zones have high biodiversity, and the ponds and wet meadows created by beaver dams expand riparian habitats. The expanded wetlands created by beavers increase the size and abundance of natural firebreaks and is an effective wildfire risk reduction strategy.

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<sup>30</sup> DellaSala, D. 2023. Ibid.

<sup>31</sup> Buotte, P. C., B. E. Law, W. J. Ripple, and L. T. Berner. 2020. Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. *Ecological Applications* 30(2): e02039. 10.1002/eap.2039.

<sup>32</sup> Segura, C., K. Bladon, J. Hatten, J. Jones, C. Hale, and G. Ice. Long-term effects of forest harvesting on summer low flow deficits in the Coast Range of Oregon. *Journal Of Hydrology*, Volume 585, June 2020, 124749.

Expansion of beaver-managed habitat increases carbon capture and storage, which mitigates climate impacts. Climate change reduces snowpack, with more winter precipitation falling as rain, which can cause downstream flooding. Beaver dams store high stream flow, slowly releasing water and extending seasonal streamflow. The newly created wetlands become net carbon sinks once a minimum of 55% vegetation cover occurs as above and below ground biomass expands, a change that usually occurs within two to five years.<sup>33</sup>

Currently beaver hunting and trapping is managed by state fish and wildlife agencies. Given the benefits of beaver dams for water retention, vegetation growth, and carbon sequestration, we urge the FS to explore the opportunity to incorporate this strategy into rulemaking for forest management. Western Watersheds Projects submitted a letter to the Biden Administration on Feb 27, 2023, signed by 250 scientists and environmental groups, requesting an executive order that would close all federally managed public lands in the United States to beaver hunting and trapping; a copy was sent to Secretary to Agriculture Tom Vilsack.<sup>34</sup>

**Eliminate Post-fire Logging.** Post-fire logging (salvage logging) reduces carbon storage, impairs forest regeneration after wildfire, and does not reduce the risk of future fires. Donato et al. (2006)<sup>35</sup> reported that post-fire logging is detrimental to long-term forest development, wildlife habitat, and other ecosystem functions. After wildfires, most of the carbon is preserved and natural recovery can occur without the disturbance of logging fragile soils.

Even severe wildfires do not release much of the carbon present when a forest burns. Research of two large wildfires in California's Sierra Nevada showed most carbon stores in trees before the blazes was still there afterward (Harmon et al. 2022).<sup>36</sup> In trees killed by wildfire, the carbon is released slowly over decades or even centuries—*if the forests are not subjected to postfire logging (emphasis added)*.

Post-fire logging should be excluded from MOG forests that experience wildfire. Where public hazards exist from dead burned trees, such as along hiking trails, trees should be felled in place, off the trail, and left to slowly release carbon over decades. Without the disturbance of post-fire logging, natural regeneration occurs.

**MOG Trees are a Wildfire Solution.** Wildfire is an integral disturbance to western forests and can occur in low, medium, and high severity. We concur that with a warming climate, the scale of wildfire has

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<sup>33</sup> Valach et al (2021). Productive wetlands restored for carbon sequestration quickly become net CO<sub>2</sub> sinks with site-level factors driving uptake variability. PLoS ONE 16(3)

<sup>34</sup><https://www.westernwatersheds.org/wp-content/uploads/2023/02/Biden-Beaver-Letter.pdf>

<sup>35</sup> Donato, D. C., 1 \* J. B. Fontaine, 2 J. L. Campbell, 1 W. D. Robinson, 2 J. B. Kauffman, 3 B. E. Law. Post-Wildfire Logging Hinders Regeneration and Increases Fire Risk D. C. Donato, 1 \* J. B. Fontaine, 2 J. L. Campbell, 1 W. D. Robinson, 2 J. B. Kauffman, 3 B. E. Law 1 1 Department of Forest Science, Oregon State University, Corvallis, OR 97331, USA. 2 Department of Fisheries and Wildlife, Oregon State University, Corvallis, OR 97331, USA. 3 Institute of Pacific Islands Forestry, USDA Forest Service, Pacific Southwest Research Station, 60 Nowelo Street, Hilo, HI 96720, USA. Science Express [www.sciencexpress.org](http://www.sciencexpress.org) / 5 January 2006 / Page 1 / 10.1126/science.1122855

<sup>36</sup> Harmon, Mark E, Chad T. Hanson, and Dominick A. DellaSala Combustion of Aboveground Wood from Live Trees in Megafires, CA, USA Forests 2022, 13, 391. <https://doi.org/10.3390/f13030391> <https://www.mdpi.com/journal/forests>

increased. However, we disagree with the FS management policies to lower risk by harvesting MOG trees as new science reports that these forests are well suited to survive most wildfires.

Climate and weather conditions drive all large wildfires. Most fire ignitions do not turn into large severe blazes unless hot, dry, and windy conditions prevail. The FS alleges that fire suppression between the 1940s and 1980s led to increased fuel loading and denser forests that deviated from the historical past. During this period, most fires burned little of the landscape, and were quickly suppressed. This was a cooler and wetter period due to factors such as the Pacific Decadal Oscillation. With current CO<sub>2</sub> emissions exceeding 420 ppm and still climbing, and a warming climate, there is more drought, higher temperatures, lower humidity, and higher average wind speeds, leading to extreme fire weather events. In these ecosystems, thinning and hazardous fuel treatments are unlikely to significantly affect fire behavior, because fuels are abundant and fires typically occur under extreme weather conditions (i.e., during severe drought). Forest management activities to reduce fuel loading should prioritize thinning and fuel treatment at high-risk locations such as the wildland-urban interface to protect communities.

Despite the increasing amount of large, high severity fires, they have been part of history during past warm and dry weather cycles. In 1910, Ed Pulaski became a hero during the Big Burn. That fire consumed over three million acres in three different western states in 36 hours. In other words, long before the FS declared that overstocked forest stands must be reduced, during historic hot, dry, windy conditions, large areas of forests burned with high severity and covered large areas.

Despite the increasing amount of large, high severity fires, they have been part of history during previous warm and dry weather cycles. Keeley and Syphard (2021)<sup>37</sup> studied large fires in a historical context by examining records of large fire events in California back to as early as 1860. They note that drought is normally associated with large fire events. Despite the large fires in recent years, they found that “there have been other periods with even greater numbers of large fires, e.g., 1929 had the second greatest number of large fires. In fact, the 1920’s decade stands out as one with many large fires ... Earlier records show fires of similar size in the nineteenth and early twentieth century. Lengthy droughts, as measured by the Palmer Drought Severity Index (PDSI), were associated with the peaks in large fires in both the 1920s and the early twenty first century”.

In 1929, at the beginning of the Dust Bowl era, an astounding 50 million acres burned across the West (Figure 2). Today, officials declare that a season total of 10 million acres is a “record year”. Figure 2 shows that large fires burned much greater land area in the 1920s during the Dust Bowl days.

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<sup>37</sup> Keeley, J.E. and A.D. Syphard. 2021. Large California wildfires: 2020 fires in historical context. *Fire Ecology* 17:22. <https://doi.org/10.1186/s42408-021-00110-7>.

## TOTAL U.S. WILDFIRE ACRES 1926-2017

Source: National Interagency Fire Center, nifc.gov

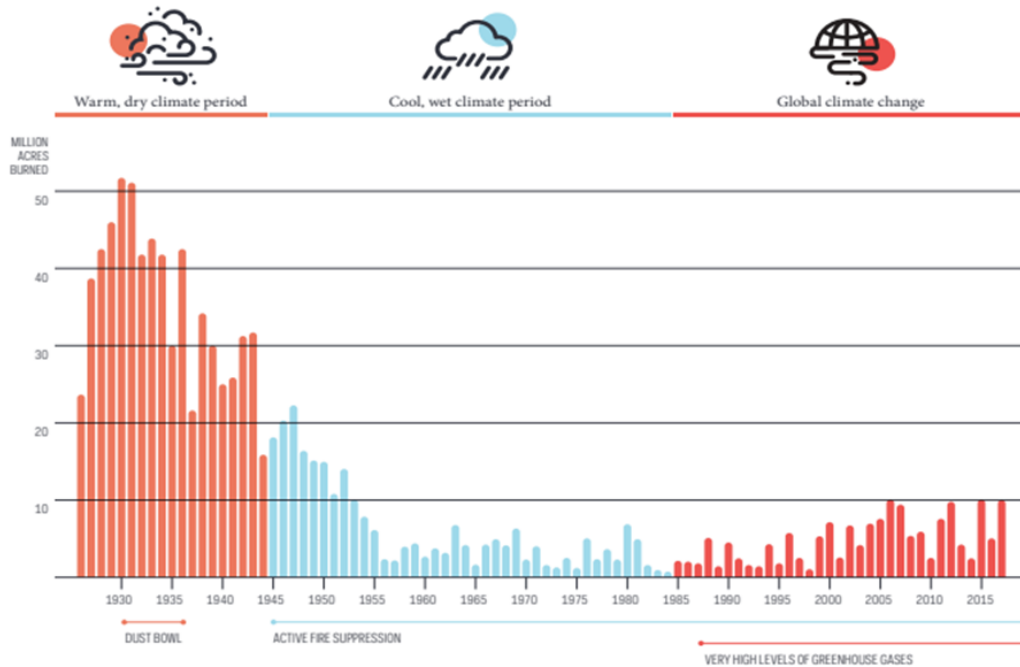


Figure 2. The West experienced drought from the 1900s to the 1930s, which led to wildfires burning tens of millions of acres. A cool, wet period from the 1940s to 1980s led to far less wildfires in the landscape. Since the late 1980s, climate change has caused hotter, drier conditions, causing an increase in wildfires. Source National Interagency Fire Center.

The wildfire statistics show that there were fewer large blazes between the 1940s and 1980s. This was one of the wettest periods in centuries. It was so snowy and cold that glaciers in the Pacific Northwest grew more than ever since the Little Ice Age. Beginning in the late 1980s, with increased carbon emissions, the climate became hotter and drier with more drought conditions. With increased hotter, drier conditions, large wildfires have occurred more frequently across the west.

Furthermore, thinning forests as “treatments” for forest “resiliency” and “restoration” for limiting wildfires (of which projects always include MOG in harvest prescriptions) are a shot in the dark. It is impossible to predict where wildfires will burn in the vast landscape of western forests. Schoennagel et al. (2017)<sup>38</sup> and Barnett et al. (2016)<sup>39</sup> showed that less than 1% of thinned areas encounter wildfire each year, which means that most thinning treatments are ineffective at influencing wildfires.

Oregon’s wildfires are not major sources of carbon emissions. Oregon State University scientists estimated that between 2011–2015, forest fires averaged 4% of Oregon’s total carbon emissions each

<sup>38</sup> Schoennagel, Tania, Jennifer K. Balch, Hannah Brenkert-Smith, Philip E. Dennison, Brian J. Harvey, Meg A. Krawchuk, Nathan Mietkiewicz, et al. 2017. “Adapt to More Wildfire in Western North American Forests as Climate Changes.” *Proceedings of the National Academy of Sciences* 114 (18): 4582–90. <https://doi.org/10.1073/pnas.1617464114>.

<sup>39</sup> Barnett, Kevin, Carol Miller, and Tyron J. Venn. 2016. “Using Risk Analysis to Reveal Opportunities for the Management of Unplanned Ignitions in Wilderness.” *Journal of Forestry* 114 (6): 610–18. <https://doi.org/10.5849/jof.15-111>.

year, while timber harvest contributed 35% (Figure 3). Forests store most of their carbon even after severe wildfires, so long as these areas are not salvage logged.

### Percent carbon dioxide emissions by sector in Oregon 2011-2015

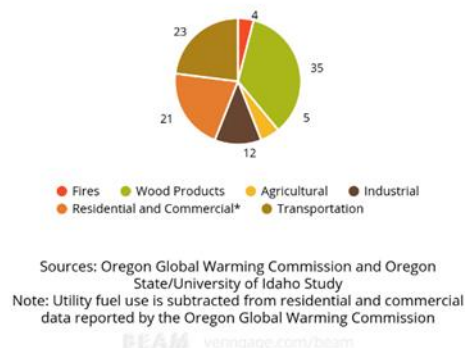


Figure 3. Annual Oregon carbon emissions, 2011-2015 (Law et al. 2018).

Furthermore, Harris et al. (2014)<sup>40</sup> reported that most of the carbon loss in the western US is due to timber harvest (66%), while fire was only (15%), and insect damage (13%).

Not all wildfires are “bad” (similar to the FS perceptions about disease and insects) and in fact have important ecosystem functions for restoration and wildlife habitats (Hutto et al. 2016<sup>41</sup>, DellaSala 2020<sup>42</sup>, Harmon et al. 2022<sup>43</sup>). For example, Hutto et al. (2016) reported that “First, many plant and animal species use, and have sometimes evolved to depend on, severely burned forest conditions for their persistence. Second, evidence from fire history studies also suggests that a complex mosaic of severely burned conifer patches was common historically in the West. Third, to maintain ecological integrity in forests born of mixed-severity fire, land managers will have to accept some severe fire and maintain the integrity of its aftermath. Lastly, public education messages surrounding fire could be modified so that people better understand, and support management designed to maintain ecologically appropriate sizes and distributions of severe fire and the complex early seral forest conditions it creates.”

DellaSala (2020)<sup>44</sup> reports that “In our region, and much of the West, wildfires burn in a mixed pattern of severity effects on plant communities. The largest wildfires are not uniform conflagrations – rather they burn in a mosaic pattern of mixed severity effects (unburned, low, moderate, high severity burn patches). On the landscape scale, this pattern has been referred to as “pyrodiversity” and it is responsible for Oregon’s extraordinary levels of biodiversity present in wildfire burn mosaics. Most notably, the high

<sup>40</sup> Harris N.L., S.C. Hagen, S.S. Saatchi, T.R.H. Pearson, C.W. Woodall, G.M. Domke, B.H. Braswell, B.F. Walters, S. Brown, W. Salas, A. Fore, and Y. Yu. 2014. Carbon Balance Manage (2016) 11:24. DOI 10.1186/s13021-016-0066-5.

<sup>41</sup> Hutto, R. L., R. E. Keane, R. L. Sherriff, C. T. Rota, L. A. Eby, and V. A. Saab. 2016. Toward a more ecologically informed view of severe forest fires. *Ecosphere* 7(2): e01255. 10.1002/ecs2.1255.

<sup>42</sup> DellaSala, D. 2020. Senate Interim Committee on Wildfire Prevention and Recovery. January 14, 2020, hearing and public testimony. Geos Institute. 40 pp.

<sup>43</sup> Harmon, M.E.; Hanson, C.T.; DellaSala, D.A. Combustion of aboveground wood from live trees in megafires, CA, USA. *Forests* 2022, 13, 391. <https://doi.org/10.3390/f13030391>.

<sup>44</sup> DellaSala, D. 2020. *Ibid*.

severity burn patches where most trees are killed (known as “complex early seral forests,” snag forests, or charcoal forests) are as bio-diverse as patches of old-growth forests.”

DellaSala (2020)<sup>45</sup> also states that “Active management is often proclaimed as a panacea for reducing wildfire-human conflicts, yet it is seldom even defined. Active management can mean about anything – clearcut logging, salvage logging, high-grade logging, fuels reduction, prescribed fire, thinning, road building, etc. And while degraded forests like plantations can benefit from ecologically appropriate thinning and other restorative actions (snag creation, down logs, road obliteration, weed removals), in most cases thinning – even if done properly – will not encounter a fire during the short period (10-15 years) of when fuels are lowest... The Oregon landscape is so vast and efforts to spend billions of dollars on thinning are not likely to be effective nor will they make us safer. This is because we do not know exactly where wildfires will occur, and thinned forests will just grow back quickly in many cases. In fact, the largest empirical dataset ever assembled by researchers recently documented the low co-occurrence of wildfires and thinned sites. Some 99% of thousands of acres of fuels treatments on federal lands did not encounter a wildfire when fuels were lowest. Further, these same researchers found that despite the emphasis on the so-called WUI, codified in the Healthy Forest Restoration Act of 2003, most fuel treatments were being conducted outside this zone and in the backcountry where they will do nothing to protect homes.”

As pointed out above, wildfires produce far less carbon emissions on protected lands compared to lands with more management (Figure 3). The more managed lands have a greater risk of fire severity. Bradley et al. (2016)<sup>46</sup> documented that climate change and extreme weather events combines with more heavily managed industrial forests to produce more mega wildfire events (Figure 4).

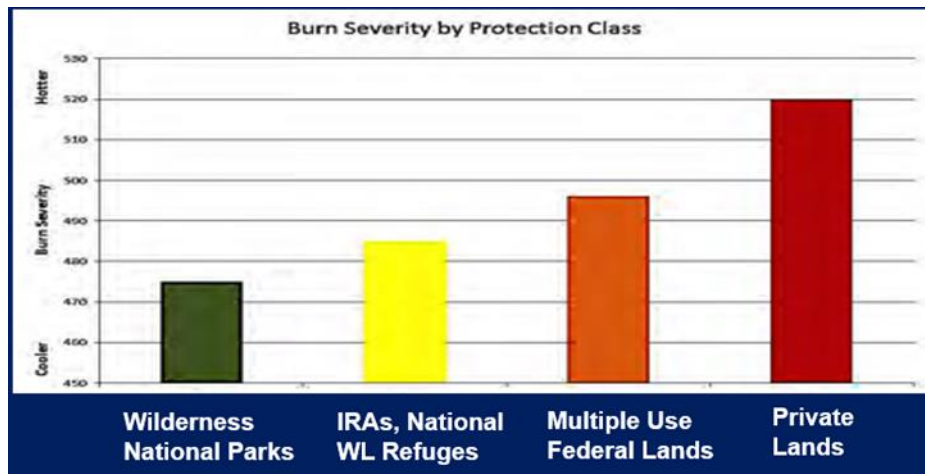


Figure 4. A comparison of burn severity across land protection class. The higher the level of protection from management, the less the burn severity (Data from Bradley et al. 2016).

The authors further reported that data over a three-decade period, from 1984-2016, showed that 1,500 wildfires greater than 1,000 acres that covered over 23 million acres in western and Great Plains states had a much higher burn severity in managed versus unmanaged forests. The authors, after averaging out effects of elevation and climate, show that “forests with higher levels of protection had lower severity

<sup>45</sup> DellaSala, D. 2020. Ibid.

<sup>46</sup> Bradley, C. M., C. T. Hanson, and D. A. DellaSala. 2016. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States? *Ecosphere* 7(10): e01492. 10.1002/ecs2.1492.



values even though they are generally identified as having the highest overall levels of biomass and fuel loading.” They also state “a need for managers and policymakers to rethink current forest and fire management direction, particularly proposals that seek to weaken forest protections or suspend environmental laws ostensibly to facilitate a more extensive and industrial forest–fire management regime.”

The authors recommend that “allowing wildfires to burn under safe conditions is an effective restoration tool for achieving landscape heterogeneity and biodiversity conservation objectives in regions where high levels of biodiversity are associated with mixed-intensity fires. Managers concerned about fires can close and decommission roads that contribute to human-caused fire ignitions and treat fire-prone tree plantations where fires have been shown to burn uncharacteristically severe (Odion et al. 2004). Prioritizing fuel treatments to flammable vegetation adjacent to homes along with specific measures that reduce fire risks to home structures are precautionary steps for allowing more fires to proceed safely in the backcountry (Moritz 2014, DellaSala et al. 2015, Moritz and Knowles 2016).”

We are concerned that the FS supports scientific studies that push the current paradigm that timber harvest will save the forests by reducing over stocked stands, while conveniently cutting MOG. The FS ignores and even disparages papers referenced by climate and other scientists who question the dominant paradigm and recommend saving MOG and establishing forest reserves to store carbon. The FS also has ignored the well conducted research by Dr. Jack Cohen, who advocates for protecting communities by hardening homes and smart landscaping rather than spending astronomical funds on fighting wildfires, often in remote landscapes (where many timber harvest projects are proposed in Oregon).

The FS also uses the paradigm of harvesting low elevation ponderosa pine to achieve “park-like stands” and “increase wildfire resilience.” However, it is wrong to apply the same strategy to other tree communities in the forest, including larch, subalpine fir, Douglas fir, and others, which naturally have longer fire-free intervals and were seldom open and park-like. Species like lodgepole pine have a shorter life span and rely on wildfire to replace stands. Their serotinous cones require wildfire to open the seed cones to produce new trees.

We concur that some proposed actions in the “Wildfire Crisis Strategy” in central and eastern Oregon forests such as prescribed and managed fire, cutting small diameter trees *near communities and structures*, and decommissioning roads may help restore ecological integrity and reduce wildfire risk. However, research shows that logging MOG to save them from wildfire emits roughly three times more carbon per acre than wildfire alone and that thinning and other fuel reduction activities can increase fire severity by exposing, warming, and drying the forest microclimate.

Dr. Jack Cohen, retired FS scientist, notes that “Fire agencies primarily use wildfire suppression tactics for protecting communities from wildfires. But as we see from current extreme wildfire conditions in California, Oregon, and Washington, fire suppression can quickly become overwhelmed and ineffective” (Cohen and Strohmaier 2020)<sup>47</sup>. The authors advocate for a defense strategy that starts in communities instead of in the forests, working from the home and moving outward. He explains that there are not sufficient firefighters to extinguish the thousands of tiny spot fires that can rapidly erupt in worst-case scenarios in hot, dry, and windy conditions. WUI firefighting can overwhelm FS resources. Working with researchers at the IBHS fire lab, Dr. Cohen demonstrated that a properly constructed and landscaped home with gravel landscaping surrounding a fire-resistant siding home with a fire-resistant roof in a wind-

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<sup>47</sup> Cohen, J., and D. Strohmaier. 2020. Community destruction during extreme wildfires is a home ignition problem. Wildfire Today. <https://wildfiretoday.com/2020/09/21/community-destruction-during-extreme-wildfires-is-a-home-ignition-problem/>.

driven shower of embers did not burn. Forest management for wildfire protection is most effective in the 60-100 foot zone from structures, “defensible space”: the home outward strategy (Bevington, 2021).<sup>48</sup>

Another author explained that a future with more extreme and uncontrollable wildfires is unavoidable. Anderson (2022)<sup>49</sup>. The author explains that “the process of “fire hardening” homes and buildings and the surrounding 100 feet is more important for structure survival than controlling wildfires or altering vegetation beyond 100 feet. What is more, fire hardening is cheap, given the odds and cost of fire damage. Public dollars go to fighting wildfires and altering distant forests, not to fire-hardening structures...homeowners are not voluntarily fire hardening, mainly because of market disincentives and a collective misconception of the wildfire problem.” We conclude that the wildfire crisis strategy must include both funding home hardening and risk reduction in WUI near wildfire susceptible communities.

**Recommendations.** We urge the FS to adopt the following strategies in the proposed plan amendment to best manage the forest for climate resilience, biodiversity, and conserving water resources. Our comments focus on permanent protection for mature and old growth forests, conserving lands to meet EO 14072 and the Biden Administration 30x30 goal, and the correct and inclusive use of science. The following are recommended standards for the proposed forest plan amendment to protect mature and old growth trees and forests.

- Halt all timber harvest of mature and old-growth trees, those older than 80 years or larger than 20-inch dbh.
- Develop and implement enforceable *standards*, not guidelines, for all national forests to ensure mature and old growth trees are protected, to maximize carbon storage, restore biodiversity, and improve water quality. Standards should include 1) no logging or thinning in old growth areas, 2) minimum dbh and size limits to protect MOG such as the former interim 1995 Eastside Screens in eastern Oregon and Washington in mature stands, 3) minimum basal retention for any harvested mature forest stands, and 4) no timber harvest in riparian buffers equivalent to INFISH standards.
- Require that enforceable standards and forest conditions be monitored and reported in a periodic and timely manner. Failure to implement standards and failure to monitor and report results must result in no future projects until this failure is corrected.
- Expand and increase the number of designated old growth, wilderness, inventoried roadless, and research natural areas to retain the natural character and meet 30X30 and 50X50 land protections. Protect all remaining uninventoried roadless areas and incorporate them into inventoried areas.
- Create forest strategic reserves as recommended by Drs. DellaSala, Law, and Mildrexler and many climate scientists to meet 30X30 and 50X50 land protections and reconnect fragmented landscapes. Strategic forest reserves must be left alone with no active management, roads, or timber harvest, and allow natural conditions to occur.
- Use Traditional Ecological Knowledge and restore fire to the landscape by letting wildfires burn and prescribed burns as appropriate.
- All forest planning areas must include an analysis of carbon accounting to evaluate the costs and benefits of proposed projects for each alternative. These must include evaluations for timber

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<sup>48</sup> Bevington, Douglas. Working from the Home Outward: Lessons from California for Federal Wildfire Policy. Compiled by D. Bevington, PhD, Forest Program Director, Environment Now. May 5, 2021.

<sup>49</sup> Anderson, K. 2022. Uncontainable wildfires are inevitable. Community destruction is not: Five policy shifts could help communities harden their homes against fire danger. Sightline Institute. <https://www.sightline.org/2022/11/16/uncontainable-wildfires-are-inevitable-community-destruction-is-not/>

harvest, thinning, road construction and maintenance, and livestock grazing management activities.

- Protect all MOG in Wild and Scenic designated rivers, and in all riparian areas, wetlands, seeps, and springs to restore water quantity and quality. Designate minimum buffers widths for complete protection of riparian areas for Category 1, 2, 3, and 4 streams using INFISH buffer widths as an example from the Pacific Northwest.
- Eliminate and decommission all unnecessary roads and require that all forests meet Forest Plan standards for minimum road densities within 5 years. No roads in old growth areas. Require all forests develop and implement road density standards before any harvest can occur.
- Focus timber harvest and thinning in areas close to WUI at ecologically sustainable levels.
- Support funding for home hardening to assist residents in high wildfire risk communities.
- Acknowledge and incorporate an understanding that wildfire, disease, insects, and fungi are natural ecosystem components and required for a healthy forest.
- Eliminate all post wildfire salvage logging. No timber harvest along roads to create “fuel breaks.”
- Support healthy fish and wildlife habitats and populations and retain life history components such as down and dead trees, trees with cavities and other wildlife features, migration routes, access to water, and other requirements.

**SUMMARY.** The Juniper Chapter of the Sierra Club and the Bitterbrush Broads and Bros chapter of the Great Old Broads for Wilderness, appreciate the opportunity to comment on the proposed land management direction for old growth forests. Our comments focus on permanent protection for mature and old growth forests and the need to conserve federal public lands to meet the Biden Administration 30x30 and 50X50 goals.

Sincerely,

/s/ Mary Fleischmann, Leader  
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Great Old Broads for Wilderness  
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