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First name: Frank
Last name: Toriello
Organization: We Advocate Thorough Environmental Review
Title: President
Comments: Please accept my comment on the Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System - Draft Environmental Impact Statement - Project 65356.

Thank you.

September 10, 2024

The President The White House

1600 Pennsylvania Avenue, N.W. Washington, DC 20500

Secretary Deb Haaland

U.S. Department of the Interior 1849 C Street, N.W. Washington DC 20240

Secretary Thomas J. Vilsack

United States Department of Agriculture 1400 Independence Avenue SW Washington, D.C. 20250

Chief Randy Moore

U.S. Forest Service

1400 Independence Avenue SW Washington, D.C. 20250

Comment on the Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System - Draft Environmental Impact Statement - Project 65356

Dear Mr. President:

We Advocate Thorough Environmental Review is a grassroots nonprofit 501(c)(3) organization dedicated to protecting the Mount Shasta region waters and other natural attributes for the benefit of current and future generations. In our eleven-plus years as an organization (nine-plus years as a nonprofit) we have focused on protecting our water resources from depletion by extraction and corporate privatization, protecting surface and groundwater from contamination by industrial activity, and protecting the regional environment from other inappropriate and polluting industrial/commercial activities. Our work has clarified for us the following realities:

* The climate crisis is one of the most urgent existential threats to humanity.
* "Environmentalism" in the 21st century cannot exist without addressing economic and social justice issues.
* Achieving social, economic, environmental, and climate justice requires confronting the dysfunctional economic and political systems that are ruining the planet and stonewalling efforts to change.
* Local issues are not strictly local; they are impacted by what happens regionally, statewide, nationally, and globally. And conversely, what we do in our communities can have far-reaching impacts around the globe.
* It is a moral obligation to protect the Mount Shasta region's water and other natural attributes.

We believe in the inherent value of all Life. This planet is our only home and each generation has the responsibility to steward the Earth so the biosphere can regenerate and thrive now and for countless generations to come.

We live in a harrowing time when the effects of the current level of global climate warming are already creating catastrophes worldwide. New York City1 and Washington, D.C.2 are building or heightening sea walls to cope with rising sea levels, while catastrophes linked to global warming, like floods and wildfires, are reported on a near-daily basis. Analyses of the cumulative increase in forest area burned by wildfires since 1984 concluded the area burned by wildfire across the western United States over that period was twice what would have burned had climate change not occurred.

[Image acquired from the Fourth National Climate Assessment, showing difference between acres burned by wildfires with climate change and without]

Climate scientists are increasingly vocal in warning of the danger rapidly approaching:

"We're taking colossal risk with the future of civilization on earth. We're degrading life support systems that we all depend on. We're actually pushing the entire earth system to a point of destabilization; pushing earth outside of the state that has supported civilization since we left the last ice age 10,000 years ago. This requires a transformation to safe and just earth system boundaries for the whole world economy.

Dear friends, scientifically this is not a climate crisis. We are now facing something deeper [mdash] mass extinction, air pollution, undermining ecosystem function. Really putting humanity's future at risk. This is a planetary crisis." (emphasis added)

--Johan Rockstr[ouml]m, speaking at the World Economic Forum, Davos 20234

[Image depicting planetary boundries and boundry transgression]

"For the first time, all nine planetary boundaries have been assessed. Six planetary boundaries are found currently to be transgressed. For all of the boundaries previously identified as transgressed [climate change, biosphere integrity (genetic diversity), land system change, and biogeochemical flows (N and P)], the degree of transgression has increased since 2015."5

"The Earth system scientists and climate scientists are getting seriously nervous. The planet is changing faster than we have expected. Abrupt changes are occurring in a way that is way beyond the realistic expectations in science. Almost five years back, we entered the decisive decade where our choices will determine the future for all generations on Planet Earth. We are starting to see an acceleration of warming over the past fifty years. If we follow this path, we

will crash through 2[deg]C within twenty years and hit 3? by the year 2100 [mdash] caused by us

humans.

There is no 1.5? delivery on the Paris agreement by only phasing out fossil fuels. We also need to come back into the safe operating space of the nature-based biodiversity - all the planetary boundaries of nature."6

"To halt global warming, the emission of carbon dioxide into the atmosphere by human activities such as fossil fuel burning, cement production, and deforestation needs to be brought all the way to zero. The longer it takes to do so, the hotter the world will get. Lack of progress towards decarbonization has created justifiable panic about the climate crisis."7

The United States is a signatory of the Paris Climate Accords of 20158 and the Glasgow Climate Pact of 20219. The Paris Accords have a goal to keep global surface temperature well below 2?, preferably limiting the increase to 1.5?. The Glasgow Pact pledges the US to halt and reverse deforestation and land degradation by 2030. On January 27, 2021, Executive Order 14008 was issued proclaiming:

"The United States and the world face a profound climate crisis. We have a narrow moment to pursue action at home and abroad in order to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents. Domestic action must go hand in hand with United States international leadership, aimed at significantly enhancing global action. Together, we must listen to science and meet the moment."10

EO 14008 called on key stakeholders to determine the best course for conserving thirty percent of US lands and waters by 2030, aligning with the Glasgow Pact. On Earth Day of 2022, Executive Order 1407211 was issued charging the Secretary of the Interior and the Secretary of Agriculture with completing an inventory of old-growth and mature forests on Federal lands. Following the completion of the inventory, the Secretaries were further charged with developing climate-smart management and conservation strategies to address threats to old-growth and mature forests on Bureau of Land Management and National Forest lands. These threats were enumerated as climate impacts, catastrophic wildfires, insect infestation, and disease. The Draft Environmental Impact Statement for the Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System referred to in the comment heading is the initial iteration for compliance with the management directives of EO 14072.

Notably missing from the list of threats to old-growth and mature forests is the removal of forests by humans from logging and land clearance for agricultural or other purposes. Humans have removed almost half of Earth's natural forests so far, with the emissions from this ongoing deforestation producing about 15% of global carbon emissions annually.12 Oceans absorb about 25% of annual carbon emissions,13 while vegetation on land absorbs over 31%, with forests providing the majority of all this sequestration.14,15 However, logging releases 84% of carbon sequestered in trees and the continuing deforestation also reduces the capacity of global forests to act as a carbon sink.

[Chart illustrating the "Fate of Carbon from Harvested Wood"]

Globally, average emissions from permanent deforestation minus CO2 removals through permanent reforestation

and afforestation are estimated at 2.3 GtCO2 annually for the years 2013 - 2022.

Emissions from wood harvest and other forest management less carbon sequestration as the forests regrow was 0.8 GtCO2 per year.17 The 2024 US GHG Inventory disaggregates the carbon sink values (negative emissions) of forest lands from the Land Use, Land Use Change, and Forestry sector (LULUCF). Unfortunately, this reveals the total carbon sink capacity of U.S. forests has been declining since 1990 - an overall decline greater than 18.4% from 1990 to 2022.18

[Chart showing "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022 (MMT CO2 Eq.) LULUCF Sector --Forest Land"]

Although the forests and oceans sequester vast amounts of emitted carbon, decarbonization is required to achieve carbon neutrality. These carbon sinks will be essential to maintain since many economic sectors, like cement, steel and aviation for example, will be difficult to decarbonize. The planetary boundary transgressions mentioned previously have put the Earth at risk of breaching irreversible ecosystem tipping points, with one of the major potential impacts being the conversion of the Amazon forest into a sparsely forested savannah, lowering sequestration.19 Global warming has also adversely affected forests in the western U.S. that have experienced decreased water availability and pronounced warming.20 Even without the intensifying wildfires, the carbon sink in the western forests will continue to weaken without urgent action to reduce human greenhouse gas emissions.

"The sensitivity of productivity trends in US forests to climate change (particularly warming) mirrors observed and projected changes in tropical forests, where heat and water stress have weakened[mdash]and could potentially reverse[mdash]biomass carbon sinks."21

"Many people believe that the amount of carbon sequestered by forests will increase as CO2 concentrations rise. However, an increasing body of research suggests that the fertilization effect is limited by nutrients and air pollution, in addition to the well documented limitations posed by temperature and precipitation. This review suggests that existing forests are not likely to increase sequestration as atmospheric CO2 increases. It is imperative, therefore, that we man- age forests to maximize carbon retention in above- and belowground biomass and conserve soil carbon."22

Globally, it has been found that the largest 1.4% of trees account for an incredible 49.4% of aboveground biomass.23 Intact and/or older U.S. forests have the potential for much more rapid atmospheric CO2 removal rates and biological carbon sequestration.

"Far from plateauing in terms of carbon sequestration (or added wood) at a relatively young age as was long believed, older forests (e.g., >200 years of age without intervention) contain a variety of habitats, typically continue to sequester additional carbon for many decades or even centuries, and sequester significantly more carbon than younger and managed stands."24

"Old-growth forests accumulate carbon for centuries and contain large quantities of it. We expect, however, that much of this carbon, even soil carbon, will move back to the atmosphere if these forests are disturbed. Because old-growth forests steadily accumulate carbon for centuries, they contain vast quantities of it. They will lose much of this carbon to the atmosphere if they are disturbed, so carbon-accounting rules for forests should give credit for leaving old-growth forest intact."25

[Photo of "The Felling of the Mark Twain Tree in 1891, by C.C. Curtis - Johnston Hank (1966)]

It is not just the old-growth trees that are important for removing and storing atmospheric carbon. Younger mature trees are needed and must be protected and allowed to become old-growth to capture the massive potential for carbon sequestration. Mature trees around 80 years of age are just beginning to greatly accelerate

their rate of sequestration.

[Chart showing the Average tree aboveground carbon vs. Tree diameter of a variety of trees]

"A single large tree can add the same amount of carbon to the forest within a year as is contained in a single mid-sized tree of the same species. The relationship between large- diameter trees and overall forest biomass suggests that forests cannot accumulate aboveground carbon (AGC) to their ecological potential without large trees. Overall, as trees grow larger, each additional centimeter of stem diameter corresponds with a progressively larger increase in tree carbon storage. The sharp increase in carbon storage with increasing tree diameter [Figure 6] speaks to the importance of preserving mature and old large trees to keep this carbon stored in the forest ecosystem where it remains for centuries."26

Several "irreplaceable" forest regions have been identified; regions where tremendous amounts of irrecoverable carbon are stored and where trees can reach heights above 70 meters. One of the regions is the Pacific Northwest of North America. In the U.S., the federal government owns much of these forest lands in the western states27 offering the opportunity to steward these forests and significantly address the climate crisis we are facing.

[Map images colorized to show "Irrecoverable carbon in Earth's ecosystems"]

"Effective strategies to reduce the risk of catastrophic climate change will need to locate large irrecoverable carbon reserves that are at risk due to anthropogenic action and prioritize their protection and sustainable management, alongside efforts to phase out fossil fuel emissions and restore degraded ecosystems. All major global climate models that simulate Paris-aligned emissions reductions over the next several decades take for granted that nature's vast carbon stocks will remain stored rather than emitted and that these natural areas will continue to sequester carbon.

Today, as climate change intensifies, efforts to combat it must include protecting lands containing large reserves of irrecoverable carbon. Just as the concept of 'unburnable reserves' refers to the fossil fuels that must stay in the ground to limit global warming to 2[deg]C, ecosystems with high densities or quantities of irrecoverable carbon should be considered 'unconvertible' or 'unexploitable'."28

The Mark Twain Tree was 1,341 years old when it was felled.29

The latest United Nations Environment Programme Emissions Gap Report30 indicates the world is heading for a 2.5-2.9[deg]C temperature rise given the trend of current efforts to address global warming. The report calls upon countries to step up their actions over and above what has been pledged for 2030. Predicted 2030 emissions need to be cut an additional 42% to remain on track for compliance with the Paris Accords 1.5[deg]C goal. Maintaining the possibility of achieving that goal thus requires more ambitious mitigation measures than those currently pledged.

"The recent Intergovernmental Panel on Climate Change report on impacts, mitigation, and adaptation found, and member countries agreed, that maintaining the resilience of biodiversity and ecosystem services at a global scale is "fundamental" for climate mitigation and adaptation, and requires "effective and equitable conservation of approximately 30 to 50% of Earth's land, freshwater and ocean areas, including current near-natural ecosystems." Our key message is that many of the current and proposed forest management actions in the United States are not consistent with climate goals, and that preserving 30 to 50% of lands for their carbon, biodiversity and water is feasible, effective, and necessary for achieving them."31

"As the terrestrial human footprint continues to expand, the amount of native forest that is free from significant damaging human activities is in precipitous decline. There is emerging evidence that the remaining intact forest

supports an exceptional confluence of globally significant environmental values relative to degraded forests, including imperiled biodiversity, carbon sequestration and storage, water provision, indigenous culture and the maintenance of human health. Here we argue that maintaining and, where possible, restoring the integrity of dwindling intact forests is an urgent priority for current global efforts to halt the ongoing biodiversity crisis, slow rapid climate change and achieve sustainability goals. Retaining the integrity of intact forest ecosystems should be a central component of proactive global and national environmental strategies, alongside current efforts aimed at halting deforestation and promoting reforestation."32

The US Forest Service (USFS) often describes its projects as "Forest Restoration". Seeing the maps of the extent of old-growth forest in the conterminous United States from the time of the Landing of the Mayflower to more current times, one wonders what the USFS actually means by restoration.

[Figure showing four images of the continental U.S. between 1620 and 1990 with areas of Old-Growth Forests maped]

Despite calling for an "unprecedented paradigm shift in land management",33 the USFS continues to call for landscape scale thinning as the method of confronting wildfire. This is based on many outmoded models which predict mitigation of fire severity.34 Often, studies touting the efficaciousness of thinning methods, including thinning and burning, include caveats such as:

"However, in extreme weather conditions, such as drought and high winds, fuel treatments may do little to mitigate fire spread or severity."35

There is an accumulating amount of empirical evidence contradicting the USFS' repeated assertions of the benefits of forest thinning.

"As to the effectiveness and likelihood that thinning might have an impact on fire behavior, the area thinned at broad scales to reduce fuels has been found to have little relationship to area burned, which is mostly driven by wind, drought, and warming. A multi-year study of forest treatments such as thinning and prescribed fire across the western U.S. showed that about 1% of U.S. Forest Service treatments experience wildfire each year. The potential effectiveness of treatments lasts only 10-20 years, diminishing annually. Thus, the preemptive actions to reduce fire risk or severity across regions have been largely ineffective.

[H]arvest-related emissions from thinning are much higher than potential reduction in fire emissions. In west coast states, overall harvest-related emissions were about 5 times fire emissions, and California's fire emissions were a few percent of its fossil fuel emissions. In the conterminous 48 states, harvest-related emissions are 7.5 times those from all natural causes. It is understandable that the public wants action to reduce wildfire threats, but false solutions that make the problem worse and increase global warming are counterproductive."36

Some Forest Service personnel have written to warn of the effects of thinning, apparently unheeded. The former head of fire behavior studies at the Forest Service's Pacific Southwest Forest and Range Experiment Station wrote:

"Conversion which opens up the canopy by removal of trees permits freer air movement and more sunlight to reach the ground. The increased solar radiation in turn results in higher temperatures, lower humidity, and lower fuel moisture. The changes in wind, temperature, humidity, air structure, and fuel moisture may result in greater changes in fire behavior and size of control job than does the addition of more fuel in the form of slash. Since the rate of forward spread of fire is largely dependent upon wind velocity, a much faster rate can be expected.

Partial cutting can increase the severity of the fireclimate enough to materially increase the number of days when disastrous crown fires can occur. [T]he moderating effect that a dense stand has on the fireclimate usually results

in slow-burning fires."37

The former Chief of the USDA Forest Service wrote:

"At the other extreme, some say we should build more roads and harvest more timber. The more we cut, they contend, the less there is to burn.

We tried that, and it didn't work. In the 1980's, we harvested up to 12.7 billion board feet of timber annually from our national forests, three to four times more than we harvest today. To support the postwar timber boom, we expanded our forest road system to 380,000 miles, enough to circle the Earth 15 times.

All that timber we harvested, all those roads we built at taxpayer expense did nothing to stop large fires. The soaring timber harvests of the 1980's coincided with some of our worst recent fire seasons. In fact, the 10-year average annual number of acres burned nationwide in the 1980's (4.2 million acres) was higher than in the 1990's (3.6 million acres), when timber harvest was low. There is absolutely no reason to believe that more commercial timber harvest will solve our wildland fire problem."38

Scientists with the USFS involved with Northern Spotted Owls, which prefer dense forest stands with old-growth characteristics, reported:

"Pre-fire nesting/roosting habitat had lower probability of burning at moderate or high severity compared to other forest types under high burning conditions. Our results indicate that northern spotted owl habitat can buffer the negative effects of climate change by enhancing biodiversity and resistance to high-severity fires, which are predicted to increase in frequency and extent with climate change. Within this [Klamath-Siskiyou ecoregion], protecting large blocks of old forests could be an integral component of management plans that successfully maintain variability of forests in this mixed-ownership and mixed-severity fire regime landscape and enhance conservation of many species."39

Furthermore:

"Within the forest types inhabited by California Spotted Owls, high-severity fire occurrence was not higher overall in unmanaged forests and was not associated with the density of pre-fire snags from recent drought in the Creek Fire, contrary to expectations under the fuel reduction hypothesis. Moreover, fuel-reduction logging in California Spotted Owl habitats was associated with higher fire severity in most cases. Other recent research indicates that forests with less environmental protection and more tree removal tend to burn more severely."40

Northern Spotted Owls serve as indicators of forest health. Their existence in the old growth forests is a sign of healthy ecosystem. Their preferred habitat is in old-growth forest but have been reduced to inhabiting mature forests that have developed old-growth characteristics of high canopy cover, multi- layered understory with snags, down wood and herbaceous vegetation providing habitat for their prey. Northern Spotted Owls have been experiencing an accelerating decline in population warranting an uplisting to endangered. A study posits this decline in National Forest populations on an extinction debt resulting from prior logging of large trees.

"Large tree/high canopy cover forest was far more common in owl territories on national parks where large trees have not been logged. Owl populations are declining on all national forest study areas, which contain far less large tree/high canopy cover forest in owl territories than national parks where the owl population is stable. Although logging activities prior to our study led to a deficit of large tree/high canopy forest on national forests, no further declines in this forest type were observed from 1993 to 2011 while owl populations experienced long-term declines over the same period. Together, these inferences suggest that past large tree logging on national forests, which removed key habitat elements for spotted owls, may have created an extinction debt that led to contemporary owl declines long after policies were enacted to protect large trees."41

Analysis of thinning Northern Spotted Owl habitat found it much more deleterious than wildfire.

"Adverse impacts from commercial thinning may be caused by removal of key habitat elements and creation of forests that are more open than those likely to be occupied by spotted owls.

Whether the fire-reduction benefits accrue faster than the adverse impacts of reduced late- successional habitat from thinning remains an untested hypothesis.

Over 40 years, habitat loss would be far greater than with no thinning because, under a "best case" scenario, thinning reduced 3.4 and 6.0 times more dense, late-successional forest than it prevented from burning in high-severity fire in the Klamath and dry Cascades, respectively. Even if rates of fire increase substantially, the requirement that the long-term benefits of commercial thinning clearly outweigh adverse impacts is not attainable with commercial thinning in spotted owl habitat. It is also becoming increasingly recognized that exclusion of high-severity fire may not benefit spotted owls in areas where owls evolved with reoccurring fires in the landscape."42

Northern Spotted Owl habitat is itself resilient in the face of global warming.

"For spotted owls to persist in warming environments, conserving tall, closed-canopy forests that promote cooler microclimates for roosting is critical. While a future climate promises heat events that approach and exceed thermal extremes for a suite of canopy-dwelling species, cooler microclimates provided by forest structure and topography could constitute important refugia in a rapidly changing system."43

In the Analysis of Threats on Lands Managed by the Forest Service and Bureau of Land Management document, projections are made for tree removal volumes through the year 2070 under different scenarios from high warming/high growth to lower warming/moderate growth. All scenarios show a clear trend of increased harvest of mature trees and increased harvest of old-growth trees in western states. These projections attribute increasing volumes to the greater use of bioenergy (Fig. 9).

[Figure showing four charts, "Annual harvested volume of trees (in cubic feet) from old growth and mature forest on Forest Service and Bureau of Land Management land by region until 2070"]

The science is very clear about bioenergy in its two current large-scale usages, i.e. using wood pellets to fuel power plants converted from burning coal and blending corn ethanol into gasoline. Both of these substitutions for fossil fuels produce more CO2 emissions than the fuels they replace when full life cycle assessments are evaluated.

"Due to the inefficiencies of biomass energy, bioenergy power plants emit approximately 65 percent more CO2, per MWH than modern coal plants, and approximately 285 percent more than natural gas combined cycle plants. In the case of forest timber turned into wood pellets for bioenergy use, the IPCC indicates that the process produces higher CO2 emissions than fossil fuels for decades to centuries."44

With regard to corn ethanol:

"We find that the RFS [Renewable Fuel Standard] increased corn prices by 30% and the prices of other crops by 20%, which, in turn, expanded US corn cultivation by 2.8 Mha (8.7%) and total cropland by 2.1 Mha (2.4%) in the years following policy enactment (2008 to 2016). These changes increased annual nationwide fertilizer use by 3 to 8%, increased water quality degradants by 3 to 5%, and caused enough domestic land use change emissions such that the carbon intensity of corn ethanol produced under the RFS is no less than gasoline and likely at least 24% higher."45

It has been argued that bioenergy from wood biomass is carbon neutral since trees regrow, but this is patently untrue because, as stated earlier, the annual emissions of deforestation from logging and land clearance exceed the amount of carbon sequestered by reforestation with no end of the trend in sight. Furthermore, a replanted stand can never catch up and recover the lost sequestration opportunity that the harvested older stand represented. The older stand would have had a faster and accelerating sequestration rate and held more carbon compared to a younger replanted stand, and this relationship would have continued to hold for centuries or longer. The older stand would always have held more sequestered carbon. The carbon debt cannot be repaid.

"Eventual carbon neutrality is not climate neutrality.

Even under the best case where wood displaces coal, regrowth does not remove the excess carbon dioxide emitted by wood for many decades or more, and far longer if the harvested forests are growing today - as most are - and far more if wood displaces other fossil fuels. At that future time wood bioenergy could be said to have achieved carbon neutrality. Until then, wood bioenergy increases the level of carbon dioxide in the atmosphere above what it would have been, accelerating global warming.

But is the climate impact of that additional warming reversed if regrowth finally removes the excess carbon dioxide? Is eventual carbon neutrality the same as climate neutrality?

The answer is "No."

Even temporarily elevated levels of atmospheric carbon dioxide cause irreversible climate damage (IPCC 2022). The excess carbon dioxide from wood bioenergy begins warming the climate immediately upon entering the atmosphere. The harms caused by that additional

warming are not undone even if the carbon debt from wood energy is eventually repaid: The Greenland and Antarctic ice sheets melt faster, sea level rises higher, wildfires become more likely, permafrost thaws faster, and storms intensify more than if the wood had not been burned. Eventual full forest recovery will not replace lost ice, lower sea level, undo climate disasters, put carbon back into permafrost, or bring back homes lost to floods or wildfires. The excess warming from wood bioenergy increases the chances of going beyond various climate tipping points that could lead to runaway climate change: emissions "pathways that overshoot 1.5[deg]C run a greater risk of passing through 'tipping points,' thresholds beyond which certain impacts can no longer be avoided even if temperatures are brought back down later on" (IPCC 2018, 283). Carbon neutrality is not climate neutrality."46

Most disturbing is the reality that the heightened temperature reached due to the excess emissions from burning wood for energy will not begin to dissipate for a millennium or more, dooming a multitude of generations to the consequences of that increased temperature.

"This paper shows that the climate change that takes place due to increases in carbon dioxide concentration is largely irreversible for 1,000 years after emissions stop. Following cessation of emissions, removal of atmospheric carbon dioxide decreases radiative forcing, but is largely compensated by slower loss of heat to the ocean, so that atmospheric temperatures do not drop significantly for at least 1,000 years."47

Clearly, the USFS did not receive the memo.

The plans proposed by the Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System - Draft Environmental Impact Statement are not fit for purpose.

While Executive Order 14072 recognizes that only a small fraction of the world's mature and old-growth forests

remains and calls for conserving and protecting these remaining stands on federal lands, the US Forest Service instead forecasts increasing harvests of these very trees for bioenergy feedstock despite the precipitous decline of the US carbon sink and the greatly increased global warming threat posed by bioenergy. One must question whether the US Forest Service is fit to serve.

"The prevention of deforestation does not only contribute to the reduction of carbon emissions but has large carbon drawdown potential if ecosystems can be allowed to return to maturity.

Improved forest management and restoration to reconnect fragmented forest landscapes contribute a considerable 87 Gt (39%) to the extra carbon drawdown potential.

The dynamic and vulnerable nature of forests underscores the urgency of conserving existing ecosystems to maintain their carbon sink potential and highlights the urgent need to uphold no-deforestation pledges at the 26th UN Climate Change Conference of the Parties (COP26), including public and private-sector commitments to end forest loss as soon as 2025.

Given the positive effect of biological diversity on ecosystem productivity, the magnitude of the estimates presented here can only be achieved in ecosystems that support a natural diversity of species. Indeed, almost half of global forest production can be directly or indirectly attributed to the role of biodiversity, highlighting that the full carbon potential cannot be achieved without a healthy diversity of species."48

Instead of ignoring the repeated and increasingly dire warnings given by climate scientists, the US Forest Service must comply with the directive of EO 14008 and listen to science to meet the moment. It must end its plan for increased levels of deforestation, and it must understand that a new, urgent consideration above and beyond timber production is required of it to address the grave climate

crisis we are living in. As the United Nations Emissions Gap Report asks, the Forest Service must step up its actions over and above what has been pledged for 2030, preferably fulfilling its Glasgow Pact pledge to cease deforestation before 2030 in order to keep the 1.5[deg]C Paris Agreement goal within possible reach.

All of the US National Forests could readily end logging completely since only 2% of the nation's timber supply is sourced from them.49 The shortfall could easily be made up by mandating increased harvest rotation times in Forest Practice Rules. The US Federal Government even owns 31% of US forestland50 allowing it to easily fulfill the preservation of 30% to 50% of forestland agreed upon in the recent Intergovernmental Panel on Climate Change report. Perhaps in the future as temperatures finally begin to slowly fall, the Forest Service will be able to proudly point out the 1,342-year-old tree it had shepherded across the intervening span of time.

Nothing less is acceptable.

Thank you for your concern and attention.

Most respectfully yours,

Frank Toriello President

We Advocate Thorough Environmental Review

1 https://e360.yale.edu/features/new-york-city-climate-plan-sea-level-rise

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5 https://globaia.org/boundaries

6 The Tipping Points of Climate Change [mdash] and Where We Stand | Johan Rockstr[ouml]m | TED https://www.youtube.com/watch?v=Vl6VhCAeEfQ

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10 https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02177.pdf

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17 https://drive.google.com/file/d/1gDztPwVlt_pvrH6vffPWqoHhqhM_mAJI/view

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ATTACHMENT: Comment on Amendments to Land Management Plans for MOG.pdf - this is the same content that is coded in text box; it was also included as an attachment