

Data Submitted (UTC 11): 1/30/2024 11:43:09 PM

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Comments: Dear Secretary Vilsack, et al.,

To meet the Biden administration's stated goals for tackling the climate crisis and the biodiversity crisis, it is imperative that the U.S. Forest Service protects mature and old-growth forests through a substantive, nationwide regulation. Forests, especially mature and old-growth forests, are critical for fighting the climate and biodiversity crises.

Forests are critical carbon sinks-without them, we have no chance of avoiding the worst impacts of climate change (Rogelj et al. 2018). Old-growth and mature forests have stored a great deal of carbon in their trees and soils, most of which is released into the atmosphere if they are logged (Smith et al. 2019).

Globally, deforestation (8-15%) and forest degradation (6-13%) contribute more emissions than the entire transportation network (Houghton and Nassikas 2018). In the U.S., forests are a net carbon sink, and comprise more than 90% of the land sector sequestration capacity and offset about 15% of total US fossil fuel emissions (Ontl et al. 2020). U.S. forests stored 58.7 billion metric tons of carbon in 2020 (Congressional Research Service 2020).

In U.S. forests, overall, soils contain the largest pool of carbon: approximately 53% of total forest carbon in 2020. The next-largest pool is aboveground biomass, with approximately 26% of the total. Each of the other pools stored less than 6% of the total carbon (Congressional Research Service 2020). Soil organic carbon is released into the atmosphere when a forest, especially old forest, is logged (Dean et al. 2017).

Old-growth forests contain some of the highest carbon densities in the world, and much of it is likely irrecoverable after clearing (Goldstein et al., 2020). Tongass National Forest, one of the world's last relatively intact and unlogged temperate rainforests, holds 44% of the total ecosystem carbon of the entire national forest system (DellaSala 2021). The Tongass is also likely to function as a climate refugium due to cooler maritime climate, high amounts of old growth and intact 2 roadless areas (DellaSala 2021). Carbon stocks are also more stable here given the cooler coastal climate (DellaSala 2021).

Forests also enhance climate resilience. Trees buffer below-canopy temperatures from excessive air temperatures outside of the canopy. The forest structure typical of old growth, such as greater canopy heights, biomass, and vertical vegetation structure, can provide more stable microclimates during the growing season, thereby providing thermal refugia for forest-associated organisms (Kim et al. 2022). The complex forest structure and vegetation diversity of old-growth and mature forests could also help slow the negative effects of climate warming on some forest-dependent wildlife species, e.g., by supporting a more diverse arthropod prey community and extending food availability, thereby overcoming phenological mismatches (Kim et al. 2022). Conservation of old-growth and mature forests may be essential for these species to survive climate change.

**** Mature forest must be included in the rule. ****

Prior Administration orders and plans (e.g., Executive Order 14072, the USDA Forest Service Climate Adaptation Plan, and Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management) emphasized the importance of protecting both old-growth and mature forest. Section 2(c)(iii) of Executive Order 14072, for example, directs USDA and DOI to "develop policies, with robust opportunity for public comment, to institutionalize climate-smart management and conservation strategies that address threats to mature and old-growth forests on Federal lands."

The proposed rule, Land Management Plan Direction for Old-Growth Forest Conditions Across the National Forest System #65356, while an important step forward, inexplicably omits mature forest despite these preceding directives. Why was mature forest dropped? Is USFS preparing an additional rule for mature forest? And if so, what is the timeline?

The protection of mature forest is vital for addressing the climate and biodiversity crises. First, there is far more mature forest than old-growth (according to the USFS inventory, 2.5 times as much nationwide). This is especially true in the east, where almost all old-growth forest was logged. According to the USFS inventory, there is 7 times more mature oak-hickory forest than old-growth of that type, 67 times more for maple/beech/birch, and 31 times more for oak/gum/cypress. According to the USFS map viewer, no National Forest polygons east of the Rockies have high amounts of old-growth forest, and the only areas with medium amounts lie along the Appalachians. All other areas have only low amounts of old-growth, but many of these have high amounts of mature forest, which if retained, could reach old-growth status.

Mature forest must be retained throughout the USFS system, especially east of the Rockies where almost no old-growth forest remains. These areas should be allowed to continue to sequester carbon, provide wildlife habitat and recreation opportunities, recharge aquifers, and provide other essential ecosystem services. We urge USFS to add protection of mature forest to all national forest management plans.

Sincerely,

Ted Weber
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