

President Emeritus
William H. Schlesinger

28 August 2022

VIA <https://cara.fs2c.usda.gov>

Randy Moore
Chief
U.S. Forest Service
1400 Independence Ave. SW
Washington DC 20250

Tracy Stone-Manning
Director
Bureau of Land Management
1849 C Street
Washington DC 20240

Re: Request for Information on Federal Old-growth and Mature Forests

Dear Chief Moore and Director Stone-Manning:

We are writing as experts in climate change and natural resource sciences, responding to a comment [request](#) by the U.S. Forest Service and Bureau of Land Management regarding definitions of old-growth and mature forests on Federal land. Your agencies seek this input as part of implementing the recent [Executive Order](#) on Strengthening the Nation's Forests, Communities, and Local Economies. That order recognizes the importance of mature and old-growth forests in limiting climate change and makes their conservation a national policy. It also sets a number of ambitious goals for the Forest Service and BLM, including "to conserve our mature and old-growth forests on Federal lands and restore the health and vibrancy of our Nation's forests by reducing the threat of catastrophic wildfires through ecological treatments that create resilient forest conditions."

As you consider how to define mature and old-growth forests for these and related purposes, we urge you to provide local officials with straightforward tools that will yield reliable and comparable results for the many different forest types on our nation's public lands. For some decisions, for example about mapping and protecting mature and old-growth stands, forest managers will need definitions that are multi-faceted and location specific. They can, nonetheless, be phrased in terms that are readily applied in the field without specialized expertise. The essential metric for climate mitigation is the amount of carbon stored per acre in aboveground live and dead biomass. For purposes of carbon conservation, because mature and older forests accumulate and store the greatest amount of carbon over time, they could be defined as those with relatively high carbon per unit of ground area, *sensu* Law et al., 2021,¹ among stands of similar species composition within an ecoregion (so delimited as to account for major soil and climate influences). Similarly, a benchmark such as medium to high amounts of critical

¹ Law, B.E., Berner, L.T., Buotte, P.C. *et al.* Strategic Forest Reserves can protect biodiversity in the western United States and mitigate climate change. *Commun Earth Environ* 2, 254 (2021). <https://doi.org/10.1038/s43247-021-00326-0>.

Randy Moore and Tracy Stone-Manning

August 28, 2022

Page Two

habitat and species richness can be used to define mature and older forests that are high priority areas to protect for biodiversity purposes. This approach would identify priority mature and older stands to conserve for vital functions within each forest type and region.

Additionally, your agencies should adopt a uniform definition and logging prohibition for large individual mature trees nationwide. These are specimens that provide our most durable above-ground forest carbon storage—even if killed by insects, disease, or fire. They and their carbon could be lost to logging in a variety of ways, even given protection of the most carbon-rich stands (those with high carbon density). Such trees could occur outside stands identified as mature or old-growth, fall to silvicultural treatment of mature stands, and be logged where mature stands are locally abundant. To guard effectively against such avoidable losses of carbon storage, agencies should avoid logging and removal of large mature trees, defined by diameter and height as those that across federal forests hold most of the above-ground carbon density.

The Roadless Rule is a good model for ensuring that when logging is authorized, it does not cause serious losses of carbon. The Forest Service has used that regulation for more than two decades to protect wildlands. It provides local managers with a simple, readily applied prohibition on most logging and associated road-building in unroaded areas over 5,000 acres (and in some cases smaller ones). It has a set of defined exceptions for legal obligations and special considerations, such as fuel management of generally small-diameter trees. And it helps the agency protect some of its—and the public's—most important natural assets from controversial, potentially damaging, and avoidable management impacts.

In summary, straightforward definitions of maturity will support implementation of the executive order in two essential regards. For most ecologically based decision-making, the key areas are those stands with relatively high density of carbon (i.e., tons per acre) and biodiversity per acre (e.g. species richness and critical habitat), for the forest type and ecoregion. And, where logging is authorized in mature stands or younger mixed-aged ones, a simple metric should protect at a minimum the large or old trees that store the most above-ground carbon—just as the Roadless Rule protects wildlands above a minimum size nationally.

Thank you for considering our advice.

Sincerely,

Lead-signatories



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Randy Moore and Tracy Stone-Manning

August 28, 2022

Page Three

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Randy Moore and Tracy Stone-Manning

August 28, 2022

Page Four

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Randy Moore and Tracy Stone-Manning

August 28, 2022

Page Five

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