



Forest Carbon Coalition

Advancing nature's climate solutions

August 12th, 2022

Sent by electronic and regular mail

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Cc: Linda Heath, Deborah McGlothlin, Roy Barbour

RE: Request for Information – Federal Old-growth and Mature Forests

Dear Secretary Vilsack, Secretary Haaland, Mr. French, and Ms. Sanchez:

Thank you for the opportunity to comment on the USDA-USDI initiative on protecting mature and old growth forests on federal lands. On June 13th, the Forest Carbon Coalition submitted a letter to you signed by 76 individuals and affiliated organizations providing some initial recommendations with respect to mature/old growth forest definitions, what added value your new inventory process can create, key threats to these forests, and what policies should be implemented to reduce these threats. A copy of the letter is attached. Please include it in the administrative record as responsive to this RFI.

In addition to those recommendations, please find below some additional input that addresses questions listed in the Federal Register notice of July 15th (FR Vol. 87, No. 135):

- What criteria are needed for a universal definition framework that motivates mature and old-growth forest conservation and can be used for planning and adaptive management?

A universal definition framework for mature and old-growth forest conservation that can be used for planning and adaptive management could be one motivated by restoring a well-distributed network of older successional stages at a landscape scale that mimics the natural distribution prior to large scale human disturbance. The definitions of mature and old growth forest used for purposes of the inventory should be derived from the descriptions of older successional stages for each forest type well-described by existing research and most useful from a biodiversity conservation standpoint.

For example, in western Washington, researchers have described the stages of succession in natural Douglas-fir forests as disturbance and legacy creation, cohort establishment, biomass

accumulation/competitive exclusion, maturation, vertical diversification, horizontal diversification, and pioneer cohort loss (climax).¹ For this forest type, the mature and old growth forests included in the inventory could be defined in terms of the latter five stages of succession. As another example, succession in North Carolina piedmont forests has been described in terms of dominant vegetation: horseweed, asters, grass scrub, young pines, mature pines, and climax oak-hickory forest.² The last two stages could provide a focus for the definitions and inventory here.

Coupled with information on the historic extent of these successional stages at a landscape scale (all ownerships), the federal government can use the information generated by this new inventory to quantify and set ecologically-derived targets to replenish the deficit of older successional stages in each major forest type or plant community (alliance) caused by their historic loss to agriculture, industrial logging, and development and best achieve EO 14702's goals related to biodiversity, carbon storage, climate resilience and diversification of rural communities. In our prior letter, we suggested establishing late successional reserves (LSRs) on all units of the federal forest system via nationwide forest plan amendments and a minor regulatory addition to CFR 219(a)ii to operationalize this entire approach.

- What are the overarching old-growth and mature forest characteristics that belong in a definition framework?

For most forest communities present on the federal forest system, older successional stages have already been well described in terms of a number of key attributes, and the present inventory should build on rather than replicate this previous work. For example, Forest Service Region 8 identifies six key old growth attributes associated with 16 forest types that exist on lands it manages: (i) a relatively high density of large trees for the species and site; (ii) a wide variation in tree sizes and spacing; (iii) large accumulations of large-sized dead standing and fallen trees; (iv) decadence in the form of broken or deformed tops or boles; (v) multiple canopy layers, and (vi) canopy gaps and understory patchiness.³ Mature forests are considered forests that do not currently exhibit the full suite of these characteristics but have the potential to develop the characteristics in a reasonable length of time if left unmanaged. Most regions have similar assessments, inventories, and definitions that could be adopted and it is unclear if any of these should be revisited in the context of this current effort.

- How can a definition reflect changes based on disturbance and variation in forest type/composition, climate, site productivity and geographic region?

Existing definitions and inventories of forest successional stages already incorporate these considerations since they are tailored to different forest types with different climate regimes, site productivity, and geography. Natural disturbances simply reset the successional clock on a given stand, and in many cases still preserve a substantial portion of biological legacy that developed during the mature and old growth stage. For example, high-intensity wildfires in the West often create healthy complex early seral habitat rich in standing dead trees, downed wood, and other legacies that provide

¹ Van Pelt, R. 2007. Identifying Mature and Old Growth Forests in Western Washington. Olympia, WA: Washington State Department of Natural Resources.

² See Office of the Duke Forest, 2022. Forest Succession. Available online at: <https://dukeforest.duke.edu/forest-environment/forest-succession/>.

³ USDA Forest Service, Region 8, 1997. Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region.

ideal habitat for many at-risk species.⁴ Because disturbance does not necessarily mean loss of all mature or old growth components, we recommend not changing the designation of any inventoried mature and old growth stand if it is affected. Instead of dropping these stands out of the inventory it may be better to simply classify them as “post disturbance” mature/old growth stands as a way to recognize the importance of the biological legacies they contain.

- How can a definition be durable but also accommodate and reflect changes in climate and forest composition?

Climate-induced range shifts of tree species on federal forests are already underway in both eastern and western regions of the country, including Alaska.⁵ In addition, nearly all federal forestlands are experiencing the effects of extreme weather events that are altering forest composition, structure, and growth. So at some point in the future, what mature and old growth forests look like in regions where forests are expanding, contracting, or staying put may certainly change. But in the time scale relevant for this mature and old growth inventory and subsequent policy development there is nothing that needs to be altered in the present definitions of older successional stages to accommodate these longer-term climatic changes.

- What, if any, forest characteristics should a definition exclude?

Excluding any forest characteristic does not make sense at this stage in the process. But it is important for the inventory to classify inventoried stands into various categories useful from a climate, biodiversity, or socioeconomic standpoint. For example, the inventory should clearly delineate between natural and human-altered stands. It is important to know which stands have evolved naturally, and which stands have been planted and managed for future tree crops since biodiversity, carbon storage, and climate resilience are generally much greater in the former. The inventory should also classify stands into various levels of forest degradation, such as those used in the Forest Landscape Integrity Index published by Grantham et al. (2021).⁶ This will aid in the development of policy mechanisms that can be aimed not just at restoring the extent of late successional forests back to historic levels, but their ecological integrity as well.

Thank you for the opportunity to comment. We look forward to a continuing engagement with you as the federal policy and mature and old growth forests evolves. If you have any questions or need clarification about any of the points raised here, don't hesitate to contact me.

⁴ Hanson, C., 2015. Large, intense fires are good for wildlife. The Union News, guest editorial, May 15th, 2015. Available online at: <https://www.theunion.com/news/twi/chad-hanson-large-intense-fires-are-good-for-wildlife/>.

⁵ See, e.g. Wood, C., 2010. Study Suggests Tree Ranges Are Already Shifting Due to Climate Change. Research Review 11: Autumn 2010. Newton Square, PA: USDA Forest Service, Northern Research Station; Bell, D.M., Bradford, J.B., Lauenroth, K., 2014. Early indicators of change: divergent climate envelopes between tree life stages imply range shifts in the western United States. *Global Ecology and Biogeography* 23: 168-180.

⁶ Grantham, H.S., Duncan, A., Evans, T.D., et al. (2021). Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity. *Nature Communications* <https://doi.org/10.1038/s41467-020-19493-3>. Forest landscape integrity scores range from 0 (lowest integrity) to 10 (highest). The authors discretized this range to define three broad illustrative categories: low (≤ 6.0); medium (>6.0 and <9.6); and high integrity (≥ 9.6). Factors considered were degree of fragmentation, human stressors, and protection status.

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Attached: June 13th submission to members of the USDA/USDI mature/old growth team.



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Cc: Linda Heath, Deborah McGlothlin, Roy Barbour

RE: Best practices for protecting mature and old-growth forests on federal lands

Dear Secretary Vilsack, Secretary Haaland, Mr. French, and Ms. Sanchez:

President Biden signed Executive Order 14072 to advance a science-based strategy for conserving US forests for their climate, biodiversity, and community benefits. As part of that strategy, the USDA and USDI have been tasked with completing an inventory of mature and old-growth forests on federal lands and developing policies to reduce threats. The EO also calls for a robust public input process as those policies are developed. With that in mind, the undersigned organizations and individuals are writing to express their interest in engaging with USDA and USDI staff to help define what forests should be

included in the inventory, what added value this new inventory process can create, key threats to these forests, and what policies should be implemented to reduce these threats. Below are a few initial recommendations we hope will be addressed during both the inventory and policy development phases of your work:

Defining mature and old-growth forests

One of the most acceptable and trackable definitions of mature forests are those that have reached their maximum growth potential, or culmination of mean annual increment (CMAI). This is also the age at which carbon sequestration is maximized. The age at which this happens varies considerably and can range from 40 to 130 years depending on the species and site-specific factors (1). Defining mature forests in this way will help protect the communities of wildlife, fish and plants that have evolved to depend on mature stands of different types in different places with different maturity ages. Old-growth forests are those that have aged enough to acquire telltale characteristics, such as large, old trees, snags, downed logs in multiple stages of decay, multi-storied canopies and a large diversity of ecological niches and species that depend on these niches (2).

Building on existing inventories and concentrate on gaps

While we applaud efforts to inventory mature and old-growth forests we also want to be sure that the USDA and USDI are not reinventing the wheel and ignoring the many rigorous ground based, aerial, and satellite inventories that already exist. For example, Wild Heritage, collaborating with Griffith University in Australia and the Woodwell Climate Research Center, has completed an inventory already. In addition, the extent of these forests, their integrity, and their management status has been well documented in a number of regional, national and global studies. We hope that the USDA and USDI will use this opportunity to add value to rather than replace those inventories, such as by improving their spatial resolution or addressing forest types that have not been well-studied. Most of the publications associated with these inventories specify next steps for improving their accuracy and expanding their scope (3,4). The USDA and USDI should partner with these independent researchers to implement those recommendations.

Moratorium on federal projects that destroy or degrade mature and old-growth forests

Mature and old-growth forests represent just a fraction of the nation's forested landscape and their historical extent— we already know this. According to your 2017 Forest Resources of the United States mature forests of 100 years in age and up represent just 66.5 million out of 514.4 million acres across all ownerships in the US (5). This share (13%) is far below the historical extent of mature and old-growth, which typically represented the spatial majority of most forest types (6).

Given this, we ask that you mirror what the Administration did for oil and gas drilling on public lands (EO 140008) and place a moratorium on federal projects that would log mature and old growth forests until long term management plans can be put in place to ensure recovery of these endangered ecosystems. We ask that this moratorium also halt post-fire logging proposals in mature and old-growth forests that recently experienced wildland fire, given the well-documented high biodiversity and carbon storage in such post-fire habitat. Many of the signatories to this letter are now compiling information on such federal projects on national forest and BLM managed lands and we look forward to meeting with you soon to review urgent priorities.

Late successional reserves on all federal forestlands

The federal strategy for protecting mature and old growth forests should not stop at what now exists but rather should seek to restore the extent of these forests back to their natural abundance and distribution on the landscape. Forest plans should designate and manage late successional reserves (LSRs) – much like they do in the Pacific Northwest – for development and maintenance of late successional forest conditions in perpetuity. These reserves can be strategically located to maximize their contribution to carbon storage and biodiversity goals (7). The Chief of the Forest Service and Director of the Bureau of Land Management can issue interim national directives to accomplish this now, followed by amendments to planning regulations to ensure that LSRs are a required component of forest plans as they are revised over the next decade (8).

Logging will not protect mature and old-growth forests from wildfires

We are concerned that the USDA and USDI are continuing to embrace false narratives and allocate billions of taxpayer dollars to commercial logging projects that increase, rather than decrease wildfire risk. Protecting mature and old growth forests from wildfires means no commercial logging in and around these stands because such logging puts more flammable slash on the ground, opens up canopies to the hot sun, increases wind speeds that fan the flames, and increases human access, which is by far the number one cause for most ignitions. The most comprehensive study of western wildfires ever conducted consistently found that fire severity and rate of spread is far greater in logged areas and timber plantations than the unmanaged areas where most mature and old growth stands exist (9).

In Oregon's recent megafires, it was the timber plantations, mostly found on private lands, and not mature and old growth forests on federal lands that burned most intensely and presented the biggest risks to nearby communities (10). Moreover, "thinning" kills far more trees than it prevents from being killed in mature and old-growth forests, and thinning results in far higher carbon emissions per acre than wildfire alone (11). As such, the policies you select for protecting mature and old growth forests should not include commercial logging in these stands but rather a range of activities – like decommissioning roads and removing invasive species – to minimize risks from large-scale fires.

Comprehensive evaluation of threats

Lastly, we want to make sure that the full range of threats to mature and old growth forests are addressed in this process. Logging, grazing, mining, oil and gas development, roads, infrastructure, invasive species, off road vehicle use, fire suppression and timber poaching are some of the human activities of most concern. In addition, edge effects caused by logging and development on adjacent parcels of state and privately held lands should be considered in the evaluation of threats, which can be mitigated through financial incentives, changes to right of way agreements, or land acquisition to help establish buffer zones around mature and old growth stands you identify and propose for protection (12).

Thank you for the opportunity to share our concerns and recommendations with you. We look forward to engaging with you over the next year as this critically important process unfolds.

Sincerely,



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6. See, e.g. Wimberly, M.C., Spies, T.A., Long, C.J., Whilock, C.W., 2000. Simulating historical variability in the amount of old forests in the Oregon Coast Range. *Conservation Biology* 14(1): 167-180; D'Amato, A., Catanzaro, P., 2007. Restoring Old-Growth Characteristics. Amherst, MA: University of Massachusetts and the Nature Conservancy.

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8. For example, CFR 219(a)ii can be succinctly modified to read "...the plan must include plan components to maintain or restore: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities; (iii) The diversity of native tree species similar to that existing in the plan area, and [new language] (iv) *Late successional forests back to their historical distribution and extent.*"

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