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Comments: Dear Deputy Chief French and Director Stone-Manning: I have worked on old growth issues in Region 8 for decades. Please accept these comments. I. Any inventory of old growth and mature forest completed by April 2023 will actually be an estimate or a preliminary inventory. Ground-truthed data does not exist for old growth forest nationally and will not be available by April 2023. The July 21, 2022 webinar made this clear. There is neither time nor resources for a ground-truthed inventory of old growth and mature forest in less than a year. In answer to a question about staffing to conduct this inventory, Linda Heath, USFS Director of Inventory, Monitoring, and Assessment indicated that while it wasn't clear exactly how the inventory would be conducted, the inventory would most likely rely on remote sensing, FIA data, and ancillary data.¹ This methodology would inevitably rely on modeling to identify old growth and mature forest. It is not even clear whether this inventory would spatially identify old growth and mature forest. In answer to a written question submitted during the webinar: "[The] EO says "...make the inventory publicly available". Does that mean the inventory will be spatial, on maps or can be viewed and/or mapped by the public.... OR will it be simply statistics such as those derived from Forest Inventory and Analysis?" The answer provided in the "Response to Questions Raised During Public Session" indicated that this had not been decided but also indicated that mapping old growth and mature forest was a planned future stage of the process: "This is not known at this time; we have not yet developed our approach to conducting the inventory. We welcome your input on the inventory phase. We envision a future step including the development of some form of spatial display of relevant information" ². This strongly implies that actual mapping of old growth and mature forest sites will be a future step in the EO process.

In addition, models relating remote sensing data to FIA data are subject to a number of inaccuracies and imprecisions. Relating FIA plot data to sites using remote sensing is in early stages of development and is an evolving technology involving assumptions that create inconsistencies and inaccuracies³. This is not to say that these models are not useful. They can create very useful estimates of old growth and mature forest, and as the data and methodology improve, these models can produce useful assessments of where old growth and mature will be found. However, they are estimates based on modeling vs ground-based inventories and will have errors. These errors will inevitably include errors of both inclusion and exclusion. This is particularly worrisome as an old growth inventory. Areas that would not pass ground surveys as old growth will be included as old growth; and areas that are clearly old growth will not be included as old growth. This is acceptable as an estimate. Errors of inclusion and exclusion may actually increase the accuracy of estimates by evening out different types of errors. However, excluding known old growth areas or excluding areas that would be included using ground-based definitions and criteria would not be acceptable as an "inventory" of old growth. The terminology referring to an "inventory" is generally used for spatially explicit information. For example, in the USFS Region 8 Old Growth Guidance, a spatially specific old growth inventory based on FS Veg stand age data is referred to as a "preliminary inventory" while field verification is referred to as "field inventory".⁴ We encourage the EO team to be spatially specific with model outputs for old growth and mature forest. However, we also urge the team to be clear with the public that the inventory is likely to have significant imprecisions and inaccuracies. A term such as "preliminary" or "initial" inventory should make this clear. This terminology of preliminary or initial would also create the expectation that the inventory of old growth and mature forest would improve over time as models improve and ground verifications also occurs. On the other hand, if statistical data consisting of acreages of old growth and mature forest is envisioned as the product that will be released in April 2023, for clarity to the public, this should be referred to as an old growth and mature forest "estimate". While estimates of old growth and mature forest acreage nationally or by agency unit would be useful, the agencies should be clear that this is an estimate of old growth and mature forest. II. Existing definitions and criteria for old growth should be kept in place until accurate and reliable replacements are available. The EO correctly envisions that inventorying old growth and mature forest and follow up actions to conserve this resource should be a process. We support beginning this process by understanding the current status of old growth and mature forest. The current effort to define and inventory old growth and mature forest is an excellent start to this process. There have been efforts to inventory

and protect of old growth forest in the Southern Region and in the Southern Appalachians, where significant old growth remains, for decades. This new effort to define and inventory old growth for its carbon value should not undermine existing efforts to inventory and protect old growth for its ecological and social values. Region 8 Old Growth Guidance defines existing old growth based on field criteria. The guidance also requires certain steps during Forest Plan and project planning. However, it has never required a systematic inventory of old growth using these definitions and criteria. It also has not required protection of old growth that meets these old growth definitions and criteria. The Region 8 guidance came out in 1997. There have been ongoing efforts for decades to get the agency to conduct inventories and to protect the very limited old growth that remains on national forests in the region.

It remains unclear how definitions and inventories coming out of this EO would impact existing definitions and old growth guidance. Existing progress identifying old growth should be recognized and incorporated as this EO is further developed. Functional definitions of old growth and mature forest based on carbon should be adapted to work with existing provisions for field inventory of existing old growth. Estimates and inventories of old growth based on carbon will lack the accuracy of old growth identified through field inventories. Carbon based models may eventually approach this accuracy and could be increasingly relied on to inventory potential old growth. They could perhaps eventually be relied on as a primary inventory method. However, until that is the case, existing definitions and criteria should be retained. Future direction in the EO should also incorporate existing definitions and inventories as valid information on which to apply EO actions. Direction to protect old growth should apply to existing field-based inventories of old growth as well as inventories derived through new definitions and models.

III. Using both field-based inventories and carbon focused model based inventories

Definitions of old growth were developed by most regions of the Forest Service during the 1980s and 1990s in recognition of the ecological and social value of old growth⁵. The EO effort to define and inventory old growth and mature forest is based on values for carbon and climate change. These should not be in distinct silos of value. Instead, this convergence of old growth values highlights the increasing recognition of the values of old growth for many reasons. In future direction, the administration should move toward meaningful actions that conserve existing old growth and provisions to also conserve mature forest approaching old growth conditions. These directions should include protecting existing old growth that is already defined and has operational criteria for field inventory. The Region 8 old growth guidance came out in 1997, yet Forest Plans that came out after this have not meaningfully protected existing old growth. Nor has there been meaningful progress toward using these definitions and criteria to create Forest inventories of old growth. Instead, Forest Plans have designated old growth networks of "future old growth" while failing to protect existing old growth that actually meets old growth definitions and criteria. Meanwhile project plans identify stands for regeneration that meet these old growth definitions. Directions under the EO could actually protect existing old growth while also moving toward carbon definitions and methodology that would identify broader inventories of old growth and mature forest for protection to assure carbon stores on public lands. Given that inventories or estimates of old growth and mature forest available by April 2023 will at best be preliminary inventories, direction to conserve these irreplaceable forests should start with old growth forests that are already defined with criteria for inventory. Agency units might argue that inventories are too difficult, but this argument does not hold water. Nonprofits have been using Region 8 old growth inventory criteria as a basis for inventories since they came out in 1997. Forests have avoided this responsibility rather than seeing old growth inventory as a responsibility. If they had routinely conducted old growth inventory at the project level, as the R8 Old Growth Guidance envisaged but did not require, we would already be far advanced in Forest level inventories of old growth. Instead, Forests have avoided doing old growth inventories as a part of project level assessment, have avoided admitting old growth exists even when field surveys indicated R8 criteria were met, and when they have admitted stands meet old growth criteria, they have scheduled stands for timber regeneration anyway. There is significant mistrust of the Forest Service relating to old growth issues. Direction to actually protect old growth under this EO following this initial definition framework and inventory would help build trust and credibility in the agency's handling of old growth. In addition, field surveys using Region 8 and other regional definitions could be streamlined and expedited. Field surveys for old growth in Region 8 are usually conducted with the goal of disqualifying stands so that stands proposed for action can go forward for harvest in projects. If the goal were to make old growth surveys inclusive of mature forest approaching old growth conditions, field inventory could be done more quickly and with less focus on details that might technically

disqualify stands that mostly meet old growth criteria. If there were national direction that old growth and mature stands approaching old growth should be identified and protected because of their value for carbon and to address climate change, and if surveys for old growth were an obligation for project planning, this could provide the direction and incentive needed to make quality surveys happen. Perhaps old growth and mature forest definitions and models to inventory these forests could eventually replace field inventories. If inventories using new methodology were confirmed by field studies and became verifiably accurate, that would be desirable. However, that will not be the case by April 2023. But that should not stop administrative direction to protect old growth. In portions of Federal lands, including in Region 8, definitions and criteria are already in place to identify old growth. Until definitions and modeling are in place to inventory old growth accurately using carbon based definitions, existing old growth definitions and criteria should be used to protect old growth as well as mature forest approaching old growth conditions. Thank you for considering these comments.

FOOTNOTES:1
Public_Info_Session_Old_Growth.mp4 on Vimeo2 July 21, 2022-Responses to Questions Raised During Public Session (usda.gov)3 Menlove, James, and Sean P. Healey. 2020. "A Comprehensive Forest Biomass Dataset for the USA Allows Customized Validation of Remotely Sensed Biomass Estimates" *Remote Sensing* 12, no. 24: 4141. <https://doi.org/10.3390/rs122441414> Gaines, G. et al. 1997. *Guidance for conserving and restoring old-growth forest communities on national forests in the Southern Region*. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region, Old-Growth Team. 121 p.5 Freeman, Rick, "The United States Forest Service and the political construction of ecosystem management" (1998). Graduate Student Theses, Dissertations, & Professional Papers. 10551. <https://scholarworks.umt.edu/etd/10551>