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INTRODUCTION

The National Association of Forest Service Retirees (NAFSR) and the Public Lands Foundation (PLF) represent USDA Forest Service and Bureau of Land Management (BLM) retirees with considerable experience across every state who have cared for the nation's forests and grasslands. The Society of American Foresters (SAF) sets the standard in forest management, bringing science, best practice, and the best people together to actively shape the future of America's forests and the profession of forestry.

Our members care deeply about the management and use of the natural resources which make our nation strong. Our members span the entire spectrum of natural resource professionals and researchers. We stay strongly connected to the health of the National Forests and the public lands managed by BLM, the communities they serve, and the capacity of the Forest Service and BLM to meet their responsibilities.

As the Departments outlined in Federal Register Doc. 2022-15185, the agencies have been defining, protecting, and managing old-growth forests since the 1980s. Our members have extensive experience with these efforts and their development through the 1980's to the present. Our members also have working experience from Alaska to Puerto Rico and from Maine to the Pacific Islands, which gives us a deep understanding of the diversity of ecosystems and cultures that need to be considered in developing any definition framework for mature and old-growth forests.

OUR CONCERNS:

From President Biden's Executive Order 14072, Sec. 2: "My Administration will manage forests on Federal lands, which include many mature and old-growth forests, to promote their continued health and resilience; retain and enhance carbon storage; conserve biodiversity; mitigate the risk of wildfires; enhance climate resilience; enable subsistence and cultural uses; provide outdoor recreational opportunities; and promote sustainable local economic development."

We are completely in support of this statement and believe that these goals often involve trade-offs unique to a specific place-based context. In addition, Indigenous cultural practices and knowledge are also grounded in specific places. While we acknowledge that this is an Executive Order, we recommend that this Administration reconsider the developing of a national definition or definition framework for mature and old growth forests, and an inventory by next spring. We can look to the experiences of leading scientists with old growth, for example, Dr. Tom Spies:

"There may never be a single, widely accepted definition of old growth—there are just too many strong opinions from different perspectives including forest ecology, wildlife ecology, recreation, spirituality, economics, sociology," and "The boundaries of what defines old-growth forests are a lot fuzzier than we'd like," Spies explains. "Some young forests have elements of old growth, and old growth often has patches of young forest. Where fire was common in the past, the dominant trees have a wide range of ages." In the end, he comments, "Because we deal with complex ecosystems, we have to be comfortable with flexible terms and some ambiguity." (2003, PNW Science Findings)

Our members are practitioners who have dealt with these complexities, both social and ecological, in a variety of ecosystems, across the country. For that reason, in this section we focus specifically on pragmatic concerns.

General Concerns

By Acreage, Wildfire is the Greatest Threat to Mature and Old-Growth Stands

In addition to damaging mature and old-growth stands, and putting employees, communities and recreationists at risk, uncontrolled wildfires emit carbon and other pollutants into the atmosphere, devastate watersheds, and destroy habitat. We understand that there are good fires and bad fires. Bad fires, are destroying hundreds of thousands of acres, making forest regeneration difficult, releasing carbon into the atmosphere, and killing carbon-sequestering trees. Based on an updated August 1, 2022, Congressional Research Service report, 14.7 million Forest Service acres were burned by wildfire in the five-year period between 2017 and 2021. Of these acres, not all were forested, nor all mature and old growth. On the other hand, for a particular forest or region, the impacts can occur rapidly and be sizeable. For example, wildfire driven by a severe wind event on September 7 and 8, 2020 burned nearly one million acres of forest land in a few days across National Forest System, BLM, Tribal, Oregon State Forest, and private lands. These fires burned across over 470,000 acres of federal forest on five National Forests and three BLM Districts. Approximately 207,300 or 44% of the federal acres burned at high severity leading to stand replacement. While all age classes are included in these totals, using suitable northern spotted owl habitat as a surrogate, it can be conservatively estimated that at least 36% of the area was mature and old growth, pre-fire. (Sources: Oregon Forest Resource Institute report on the 2020 Labor Day Fires, September 2021 and the Willamette NF Rapid Assessment Team Summary and Recommendations for the 2020 Willamette NF Fires, October 30-November 6, 2020)

On the Mendocino National Forest (MNF) two fires, the Ranch Fire in 2018 and the 2020 August Complex, collectively burned 939,311 acres (87.6% of the administrative area) within the Forest. Almost half of those acres (423,850 acres) burned at a high severity classification, meaning 75-100% of the vegetative cover was lost (from the Plasket-Keller August Complex Phase I Environmental Assessment).

Efforts to manage forests, so that fires can be more readily managed, are crucial as the climate changes. Congress and States have highlighted these concerns. Billions of dollars have been authorized to do this work. It is not clear whether this current effort on mature or old growth will assist in protection of living trees, be a distraction, or work to slow down or stop efforts already determined to be vital by the Congress and the States.

2012 Planning Rule Requirements. Ten years ago, many of the same forest groups that are commenting today worked together to develop the 2012 Planning Rule, which stated:

[sect]219.8 (a)(1): The plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity. Ecological integrity was interpreted in the Directives to include the Natural Range of Variation (NRV). Often this was interpreted as the conditions necessary for a diversity of species to survive, which involves both early successional tree species, which require openings to become established, and the plants and animals that depend on those habitats. To create such openings can require cutting in mature stands of trees. Further complicating matters is the fact that forest histories are different, from old farm fields, to logging for railroad ties in the 1800's, to Indigenous burning, such that keeping the diversity of species as determined in NRV may require various kinds of vegetation management, including creating openings mechanically. Another example would be western white pine, which has declined by more than 90% due to fire suppression, timber harvesting in the late 19th and early 20th century, and white pine blister rust. To restore that species, in the interests of biodiversity and climate resilience, will require openings.

Tribal and Indigenous Knowledge and Values.

Since the 2012 Rule, the importance of considering Tribal and Indigenous knowledge, values and practices in federal land management has become more urgent and essential. This is especially significant in terms of burning to create habitat for traditional food and medicine sources. Due to fire suppression and punishment for Native Americans setting fires, buildup of vegetation has occurred in some places such that thinning of trees is necessary prior to reintroducing traditional burning practices. We cannot adequately incorporate this knowledge into plans for mature and old growth protection without engaging with Indigenous people at the local level. Any framework that occurs prior to or outside of that geographic scale of engagement will necessarily be incomplete.

Living Trees Both Sequester and Store Carbon: I Climate Resilience is Fundamental

In drier parts of the country, including parts of the Southwest and Interior West, people are mostly interested in keeping tree cover on the landscape, especially in the case of climate-enhanced droughts. Living trees both sequester and store carbon and provide many ecosystem services. To keep trees alive in dry areas under conditions of climate change may require thinning existing stands. For example, Bradford et al. (2021), studying ponderosa pine across the SW and Interior West found that "substantial reduction in basal area may be necessary to moderate drought-induced mortality." Climate resilience also includes having a variety of tree species across the landscape, which for early successional species, requires openings for seedling establishment.

Living Trees Both Sequester and Store Carbon: II. Managing Native and Non-Native Insects and Diseases

In some places, it is important to intervene by cutting trees to keep insect or diseases from spreading beyond endemic levels and killing trees. For example, southern pine beetle, "High hazard stands should be managed to favor vigorous tree growth and promote natural resistance to beetles." (Alabama Forest Commission); mountain pine beetle "Thinning overly dense stands of trees to reduce competition and promote tree age and species diversity is the most successful forest management strategy to promote tree vigor. Small infestations can be eliminated by quick action by removal of infested trees." (Colorado State Forest Service).

Practitioner Experience-Based Concerns

Agency Capacity and Morale. We are concerned about the workforce capacity of the Forest Service and the BLM at this point in time. Congress provided significant increases in funding for the agencies in the Bipartisan Infrastructure Bill and the Inflation Reduction Act. The Great American Outdoors Act has given them more funding for recreation. Covid and other factors have led to a flood of visitors to Forest Service and BLM land, requiring more management and attention to reduce environmental impacts and to provide a decent level of public service. Baby boomers are retiring by the droves, and it is often difficult to hire due to long-standing problems with the hiring systems, plus the challenges of hiring employees where housing is difficult to obtain (see NFFE housing recommendations, 2022), especially seasonals and entry level staff. Employees and partners are frustrated by employees shifting for temporary assignments and a lack of continuity, which is key to accomplishment of complex projects. Stress and burnout are very real. A new project of this magnitude will touch every location and take staff time away from the vital work of projects including fire suppression, which protect old growth and mature forests, adding to the stress of employees. At the same time, efforts to delineate these areas without using local knowledge via remote sensing datasets could yield maps that are simply incorrect.

Defining mature forests. Defining mature forests will be particularly challenging. For example, are mature forests composed of stands of mature trees, or stands with some mature trees, or stands with any mature trees? Some mature forest definitions suggested have been age and Culmination of Mean Annual Increment (CMAI). Both age and CMAI have similar difficulties in dealing with uneven aged stands. Is it the average age? Based on Trees Per Acre (TPA) or Basal Area (BA)? CMAI has been proposed, and is generally known by various communities, but

in addition to not being meaningful in uneven aged stands, CMAI has an additional problem. The National Forest Management Act 2012 Rule requires plan components, including standards or guidelines, to meet this limitation as described at [sect]219.11 (d)(7):

(7) The regeneration harvest of even-aged stands of trees is limited to stands that generally have reached the culmination of mean annual increment (CMAI) of growth. This requirement would apply only to regeneration harvest of even-aged stands on lands identified as suited for timber production and where timber production is the primary purpose for the harvest. Plan components may allow for exceptions, set out in 16 U.S.C 1604(m), only if such harvest is consistent with the other plan components of the land management plan.

The definition chosen for mature forests may have future implications on timber harvest. For example, if "mature" were to be considered stands that have reached CMAI, and at some future point it was determined that mature forests should not have regeneration harvest, this could severely limit timber harvest opportunities. Such a future policy might be questioned based on statutory requirements of NFMA, MUSYA, the Federal Land Policy and Management Act, and the Oregon and California Act of 1937.

Age, at least different ages for different tree species and conditions, for even-aged stands, may have some value, but it is difficult to assess without boots on the ground and an increment borer. This may make it difficult or impossible to assess without major fieldwork and unlikely by spring 2023 as required.

Generating Meaningful Information in a Short Time Frame. Ground truthing is critical to any inventory. The proposed inventory schedule "within a year" does not allow time for ground-truthing in areas with snow that can occur in September and last through June. By using techniques within that timeframe, the inventory goals may shift from "what is accurate" to "what can be done in the required timeframe." These kinds of exercises can be demoralizing for employees, and little used after the target is met.

After This Effort, How Long Will the Information Be Accurate?

The two wildfire examples provided above (General Concerns) are illustrative of how quickly conditions can change on the ground. Scenarios such as these are being played out across the Western states and point out how quickly the accuracy of the inventory will change. They also show the need to take immediate and aggressive management actions to protect the values that, we believe, the Executive Order is intended to protect.

The above section highlights our concerns with developing a national definition or definition framework for mature and old growth forests, and an inventory by next spring. This is a major task and the implications of proceeding at this time should be carefully considered.

In response to the questions listed in Federal Register Doc. 2022-15185, following are our core beliefs and specific responses to each question.

OUR CORE BELIEFS

Our members believe that any new definitions of "mature" and "old-growth" forests that are developed should begin with the current definitions found in forest plans and resource management plans (RMPs). Mature forests will likely be defined as forests that may become old growth, so the Forest and RMP definitions can also provide a foundation for defining what is mature.

Many Forest Service Regions and BLM state offices used teams of seasoned experts including vegetation ecologists, wildlife biologists, and soil scientists to develop definitions and management guidelines tailored to their unique ecosystems and site conditions. In most cases, scientists from Forest Service Research, USGS,

universities, and SAF members participated on the teams or reviewed the definitions. Most of the definitions in the West were developed collaboratively by local Forest Service leaders and experts with their BLM counterparts, or the BLM concurred and adopted the definitions. In addition, there was public review and comment of the draft definitions. This reflects a solid basis and ongoing dialogue with a broad array of stakeholders through time.

We recommend convening forest stakeholder groups to discuss how well current old-growth definitions are addressing their intended purposes and what major challenges have emerged that need to be resolved.

Compiling this information, first regionally and then nationally, would help identify attributes of mature and old growth forest that are common across regions and provide a basis for addressing the Federal Register questions. We believe this type of effort would garner broader support, since it builds on the existing work completed, with public input, at the Forest/sub-regional level. In addition, incorporation of traditional ecological knowledge and values from Tribes would occur at the local level. Finally, by using this approach old growth and mature forest protection would be incorporated more quickly into ongoing planning and suppression strategies and tactics; possibly as early as the 2023 fire season.

RESPONSES TO THE FIVE QUESTIONS IN FEDERAL REGISTER DOC. 2022-15186

1. 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?

The definition framework needs to be:

- * Able to incorporate diversity in forest types and social values in definitions among Forests and BLM areas.
- * Informed by local traditional ecological knowledge and the values of Indigenous people

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

* The overarching old-growth characteristics, with regard to age of trees and structure of old growth forests, have been adequately described through the forest planning processes on each forest and BLM unit. By examining these, the Forest Service can identify their commonalities.

* On the other hand, as we have described above, there are difficulties with defining mature forest characteristics, especially in uneven-aged stands. Given these difficulties, it is not clear that, for mature forests, any definition can be found that 1) is meaningful 2) adequately takes into account the variety of species, stands, and conditions, including uneven-aged stands, and 3) is practical to measure.

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

While it may be difficult for one definition to reflect those changes, we believe that the use of local definitions under the broader "old growth and mature" umbrella already reflect differences in forest type/composition, site productivity and geography. A decision framework that incorporates local definitions will reflect those differences

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

In our view, a definition does not need to, and perhaps cannot be durable through lengthy periods of time. A definition framework that is based on local definitions, and local conditions and knowledge, can easily reflect changes in climate by revisiting definitions as necessary, or changing management approaches to protection and using the same definitions. Success in protecting mature and old-growth forests as can be assessed and improved using adaptive management in collaboration with stakeholders and informed by then-current research.

5. What, if any, forest characteristics should a definition exclude?

The definition framework for old growth and mature forests should be grounded in science and account for the vast differences found across the U.S. The list below sets out forest characteristics which are relevant to defining old growth forest types at a regional scale, as these attributes can be compared and contrasted to differences in younger forests of the area. However, their measure of relevance between forest types and relative importance within forest types varies so greatly as to make them problematic in the context of a single, universal definition framework for old-growth or mature forests. These characteristics include:

Age

Height

Diameter

Carbon storage capacity or biomass accumulation

Whether a forest has been disturbed by humans

SUMMARY

To quote Dr. Tom Spies again, one of the leading scientists in the study of old-growth in the Pacific Northwest: "There may never be a single, widely accepted definition of old growth[mdash]there are just too many strong opinions from different perspectives including forest ecology, wildlife ecology, recreation, spirituality, economics, sociology,"

We agree and recommend that any definition framework build on the extensive local work and public involvement of the past. We also recommend that definitions for mature forests be developed using similar local processes, including Indigenous knowledge and values. In our view, these efforts will produce actionable knowledge in the quickest timeframe to inform planning for fuel projects under the Bipartisan Infrastructure Bill and the Inflation Reduction Act (IRA), and possibly inform suppression tactics and strategies as soon as the 2023 fire season.

Finally, we ask that the timing of this effort be reconsidered. We are very aware that Forest Service and BLM employees are being pushed to the brink of their capabilities with the current situation, even before the passage of the IRA. We would ask that the Department focus on hiring more people in the next year, doing the work Congress requires in the Bipartisan Infrastructure Bill and the IRA. They know they will be held accountable for those projects, and we have placed them in an untenable situation. There is a real risk of disrupting long-term relationships with partners; being blamed for projects not being accomplished and employees know that. In our view, this effort runs the risk of being distracting and demoralizing to employees. We stand ready to help in any way we can to help the agencies bring more horsepower to bear.

Our recommendation would be to delay this part of the Executive Order and instead focus on section 2d of that order, building partnerships and infrastructure for reforestation. Carbon benefits from appropriate planting on the hundreds of thousands of acres needed after wildfire would lead directly to enhanced carbon removal, as well as improved watershed and wildlife conditions. In our view, this would be a much better investment of taxpayer dollars than additional definitions and inventories.

Thank you for the opportunity to comment on the definition framework, and we look forward to contributing in the future on mature and old-growth policy options.

Steve Ellis

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