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Jamie Barbour, Assistant Director,
Forest Service Ecosystem Management Coordination

Subject: Old-Growth Public Comment re: E.O. 14072

Dear Mr. Barbour

Thank you for the opportunity to provide input on the definitions of old-growth and mature forests on federal lands.

I write from a background of training and experience in Wildlife Ecology and Forestry. I have degrees from Forestry/Wildlife departments at the University of Maine, Orono; Virginia Polytechnic Institute, Blacksburg; and University of Wisconsin, Madison. For the past 30 years I have worked as a biologist for 11 Lake Superior Chippewa Tribes and currently supervise the Environmental Section of the Great Lakes Indian Fish and Wildlife Commission. I am also an Honorary Associate in the U.W.-Madison Department of Forestry and Wildlife Ecology.

Despite my current positions, I submit these comments from my personal perspective not as an employee of GLIFWC nor as an associate of the Department of Forestry and Wildlife Ecology. My family owns and has operated a farm within the exterior boundaries of the Monongahela



17-foot circumference Northern Red Oak on Forest Service lands within the proposed Upper Cheat River Project area.

National Forest in West Virginia for over 50 years. We are surrounded on all sides by National Forest and have been constructively engaged with the Forest on forest management issues since the 1970's. Our farm is dependent on the surrounding National Forest for drinking and livestock water and the native brook trout stream that flows past our front porch is fed by waters originating on the Forest. Over our tenure of this farm we have seen the surrounding National Forest management swing from benign neglect, to rapid fragmentation by road construction, to current efforts to "get-the-cut-out" for "forest health and regeneration". One thing that has been neglected in this portion of the Forest is the tremendous value of older trees and Old-Growth. The Forest has defined a small number of areas, six, within the Monongahela National Forest as Old-growth, all of which are conifer forests. For reasons that are unclear, the Forest has not identified any areas of hardwoods as old growth. We suspect that the small remnant stands of original old-growth and the scattered stands of very old regenerated hardwood old growth may have been excluded from consideration because of undefined concepts of what is hardwood old-growth on the Forest. Using definitions of old-growth that fully consider the services and values of both large and small stands of old-growth would better protect this valuable resource without hampering the timbering goals of the Forest.

Below I answer the five questions posed in the public notice concerning the definition of old-growth. I use the term old-growth throughout because I am unsure if mature forest is any different than old-growth. Here I do not use the term old-growth to mean original virgin forest but to mean forest that has reached an age where **ecological and social benefits are gained primarily because of the advanced age of the forest.**

Old-Growth Definition:

Q1: 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?

- Consider small patch old-growth: In the east in particular, most of the forest was cleared and only small remnants of original forest remain. Those small patches of old-growth are particularly important to preserve because they provide old-growth benefits such as refugia for rare and old-growth dependent species and they provide foci for the recolonization of maturing forest areas.
- Both original and recovered old-growth must be considered: In many regions most of the original forest was cleared but over time the forest has recovered many of its original attributes such as stable relationships between members of the community. In our area of West Virginia many areas were clear-cut more than 100 years ago and have remained relatively undisturbed since that time. Locally, portions of the National Forest that have been undisturbed for more than 100 years should be considered old-growth because those stands have recovered many of the characteristics of original old-growth.
- Small old-growth patches can be knit together with maturing forest: While small patches of old-growth may be of particular importance to preserve, some benefits of old-growth

only accrue when old-growth is maintained in large tracts. For example large patches of old-growth provide many climate, watershed health, and carbon storage benefits. Large tracts also provides habitat for edge sensitive species. When possible, areas of adequate size must be preserved to realize the large-scale benefits of extensive old-growth. When large contiguous areas of old-growth are not available, smaller old-growth patches should be knit together with maturing forest so that large-scale benefits can re realized in the future.

- Community input and values must play a role in locally defining old-growth: One significant value of old-growth is cultural. The cultural value is defined by those that interact with the forest. For example, on the Monongahela National forest a small number of very old oaks are highly regarded and visited by the community in the Horseshoe Run area (one pictured on first page). The importance of those old-growth oaks to the local community must be considered when defining old-growth stands.

Q2: What are the overarching old-growth and mature forest characteristics that belong in a definition framework?

- Advanced age: Old-growth is forest that has reached an age where ecological and social benefits are derived primarily from the advanced age of the forest.
- Old-growth stands often contain a mix of tree ages: Old-growth stands are unlikely to be a monoculture of older trees but contain a mix of older and younger trees. Fully developed old-growth, particularly at a broad scale should show a fine grained mix of older trees interspersed with younger trees that are regenerating due to small patch disturbance such as wind-throw.
- Old-growth stands demonstrate stability and predictability: Due to a maturity of relationships between the trees and the environment and between the trees and other biotic members of the community there is relative stability in the conditions within old-growth. Old-growth forests have mature relationships between community members.

Q3: How can a definition reflect changes based on disturbance and variation in forest type/composition, climate, site productivity and geographic region?

- The definition of old-growth must give heavy weight to local conditions: Because climate, geologic and biotic conditions vary greatly across this nation, a narrow definition of old-growth can not be universally applied. Some regions may never develop extensive old-growth stands because of natural disturbance such as fire. However, even in those highly disturbed regions, topographic or hydrologic variation is likely to result in pockets of undisturbed and older forest. These need to be recognized and preserved for their role as refugia and as foci for recolonization of surrounding disturbed areas.
- Relative maturity and stability of the forest community: The definition of old-growth should not be based simply on age but instead based on the relative maturity of plant

communities within the context of the region.

Q4: How can a definition be durable but also accommodate and reflect changes in climate and forest composition?

- Maturity and stability of relationships within old-growth is more important than what particular species are present: A definition should not be dependent on particular plant species but on the maturity of the relationships between the species present. For example the advanced development of symbiotic relationships between plants or between plants and soil microbes is a good indicator of a mature and stable plant community. Stability and predictability are, for some animal and plant species, a significant benefit of old-growth forest. Because so many habitats are now highly disturbed, communities that demonstrate stability and predictability over many decades or even centuries provide a niche for many rare and threatened species.

Q5: What, if any, forest characteristics should a definition exclude?

- Area: There should not be a minimum area criteria for defining old-growth forest. Some benefits of old-growth forest accrue even at small scales. Heritage trees of cultural significance and refugia for rare small vertebrates, invertebrates and non-vertebrates may occur in small areas of older forest. In fact, in portions of the country that were heavily harvested in the past, there may be no large areas that qualify as old-growth. That situation makes the small remaining areas of old-growth even more valuable for conserving biodiversity and providing foci for recolonization of maturing forest by old-growth dependent species.
- Current fragmentation: Previous activities and management practices have in some cases fragmented older or old-growth forests. That fragmentation should not preclude protection of the fragmented old-growth. Rather management should focus on reducing and eliminating fragmentation so that the benefits of continuous old-growth forest can be realized.
- Average stand age: Average stand age is unlikely to be a good indicator of old-growth. Old-growth may consist of many younger trees but still be ecologically dominated by the few old trees. While average-stand age may be a first indicator that old-growth may occur, it should not be used as a defining criteria.

Although the public notice seemed to be restricted to questions about the definition of old-growth, I below provide some suggestions concerning old-growth inventory because the manner of implementation of old-growth inventory is critical.

Old-Growth Inventory:

Inventory must:

- Use methods that can detect more than average stand age, including both the distribution of tree ages and the community disturbance periodicity.
- Give priority to on-the-ground information over desk-top evidence. If on-the-ground information exists, that information should be used to correct and improve desk-top inventories.
- Have an ultimate goal of on-the-ground inventories to confirm or refute assumptions made from desk-top inventories. Final management decisions such as logging decisions must not take place until on-the-ground verification of desk-top inventories has been conducted.
- Recognize that current forest inventories may be based on incomplete records of previous cutting activity or other disturbance. For example on the Monongahela National Forest stand age is calculated from a "year of origin" value based on historical records. Many of the records are more than 100 years old and of second or third hand origin. In addition, for older stands the "year of origin" has poor spatial resolution and spatial accuracy. In our area we have found small communities of hardwoods over 200 years old in stands classified by the Monongahela National Forest as just 100 years old.
- Use multiple sources of information for identifying old growth stands. Forest stand inventories are one source but other data should be used. For example scattered old-growth trees may not be well recorded by forest stand inventories but advanced Lidar data can detect stem density and canopy height. In some cases private, NGO, or university efforts have identified old-growth stands or communities. That supplemental information should be sought before management decisions are made.

Thank you for the opportunity to comment on this initiative

Sincerely,



Dr. John Coleman PhD