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Comments:

Old growth and mature forests have several characteristics that I would suggest be part of their definitions:1. Be considered in view of their rarity, that there is a high priority to protect and have good stewardship of this ecological state.

2. The definition will vary depending on the ecosystem and site characteristics. I will suggest that scientific assessments of current plant, animal and microbial biodiversity, soil and hydrological characteristics and other characteristics be highly prioritized, especially the maturity, health of the forest trees and with attention to areas of dynamic disturbance that enables new tree growths. Besides these features, I suggest also include acknowledging and incorporating cultural values and knowledge of indigenous peoples. Together, the data can be aggregated to define old growth and mature forests relevant for a given ecosystem and a given site area. As an example, 21" diameter trees was used as an important indicator of old growth and mature forests in Oregon for years until this assessment was eliminated in 2020. Generally, I would suggest that old growth and mature forests definitions also take into account areas that are close in biological state to the adopted definition for the area so that these areas can be also recruited to add to the acreage and stability of the existing identified old growth and mature lands.

3. With the massive effects of climate change and habitat loss underway, I strongly recommend that old growth and mature forests be strongly protected as they may serve as vitally critical refugia based on their complex ecosystem stability and ability to have some mechanisms available to allow them to better withstand the intense pressures of climate effects such as drought, floods, temperature extremes, pests and wildfires. These refugia can shield and buy time for species to be able to live while our human species hopefully tackles climate change by diverse means and restores critical lower and safer levels of greenhouse gases in the atmosphere.

4. Old growth and mature forests are typically strong as durable sinks for carbon sequestration, and should be highly valued for these roles in combating climate change. I agree with the following from the recent IPCC and believe it is highly applicable to old growth and mature forests:

"By restoring degraded ecosystems and effectively and equitably conserving 30 to 50% of Earth's land, freshwater and ocean habitats, society can benefit from nature's capacity to absorb and store carbon. "

— The Intergovernmental Panel on Climate Change, 2022