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Comments: As a local environmental organization focused on promoting science and conservation-based environmental policy, Indiana Phenology has an interest in supporting responsible land management and conservation practices to public and private land in order to preserve Indiana's forest ecosystems for future generations. Indiana has 4.8 million acres of forest land (~20% of Indiana land base) with up to 85% of it privately owned. 4.7 million acres of this land has been classified as timberland by the Indiana DNR Division of Forestry. With this in mind, Indiana Phenology submits the following comments on the creation of a definition of "Old Growth Forests" that will aid in the preservation, restoration and responsible use of diverse, mature and functional forest ecosystems:

We urge the federal agencies to prioritize the input of knowledgeable forest ecologists, naturalists and conservationists when creating a universal definition framework for mature and old-growth forests on federally managed lands and to frame the definition of old growth and mature forests in ecological rather than economic terms.

We urge the agencies to ensure that the definition framework accommodates a wide range of variation in forest composition. As an organization focused on understanding local ecosystems, Indiana Phenology understands the importance of local knowledge when developing a conservation plan. It is important that the old growth and mature forest definition framework is not one-size-fits-all and must make sense when applied at a local level. For example, within the National Forest Region 9, there are multiple growing zones and a variety of different forest ecosystem types from Southern to Northern Indiana and North through Minnesota. Indiana forests are classified as 98% hardwood with 71% of the oak-hickory type. Currently, the Indiana Division of Forestry has identified only 2709 acres of old growth hardwood forest with trees 150-200 years old and older (~ 0.06% of Indiana forest land). The lion's share of Federally owned forest in Indiana is the Hoosier National Forest, 204,000 acres of forest land in South Central Indiana at the Southern border of National Forest Region 9. It was purchased in the mid-1930s as eroding hilly regions no longer productive for agriculture and were initially replanted in pine and later in hardwood. Current goals for conservation include restoring oak-hickory forests and promoting sustainability. Much of this forest is less than 100 years old, however, a good portion of this forest is reaching a mature state with diverse and functional ecosystems and is well worth preserving and further maturation. The definition framework should be able to include this type of forest.

Finally, because the definition of old growth and mature forests will be used to preserve and restore these forests, as well as, govern their use, we urge the agencies to ensure that the definition encompasses all the components that make up these mature and functional ecosystems. For example, functional forest ecosystems include rich microbial systems that contribute to forest health and stress resilience. These microorganisms rely on dead and rotting materials for their existence and return nutrients and structure to forest soils. Root associated bacteria aid in supplying nutrients to other organisms through processes like nitrogen fixation from the air. Underground mycorrhizal networks facilitate communication or transfer of signaling compounds and nutrients between trees/flora of like or different species that aid in response to environmental stressors and help promote the health and growth of less mature trees/flora. Components like these and their impact on mature forest ecosystems should be considered when crafting a definition of old growth and mature forests.

About Indiana Phenology: Indiana Phenology is a local non-profit organization striving to document seasonal change in native plants and animals across Indiana through our programs and volunteer citizen scientist network. This observation data illustrates the impact of environmental change such as a warming climate on our local ecosystems.

Supporting Links:

Indiana's Old Growth Forests

<https://www.in.gov/dnr/forestry/files/indianaoldgrowthforests.pdf>

Looking at History: Hoosier National Forest Region, 1600-1950

<http://npshistory.com/publications/usfs/region/9/hoosier/history/sec1.htm>

Hoosier National Forest Web Page

<https://www.fs.usda.gov/hoosier>

Indiana DNR Forest Facts

<https://www.in.gov/dnr/forestry/forest-facts/>