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Director, Ecosystem Management Coordination 201 14th Street SW, Mailstop 1108

Washington, DC 20250[ndash]1124

RE: Official comments to the Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System Draft Environmental Impact Statement

The Indiana Forest Alliance (IFA) is honored to assist in the planning for the future care of our public mature and old-growth forests in the US National Forest System (NFS). These public comments, representing our members and supporters, our staff, and board, are respectfully submitted by the non-profit IFA, founded in 1996 as an environmental organization dedicated to the long-term health and well-being of Indiana[rsquo]s native forests. Our mission is to preserve and restore Indiana[rsquo]s native hardwood forest ecosystem for the enjoyment of all. Thank you for the opportunity to comment on this Draft Environmental Impact Statement (OGDEIS) for the Land Management Plan Direction for Old-Growth Forest Conditions Across the National Forest System (NFS) by the US Forest Service (USFS).

IFA has followed with great interest the developments in this discussion towards the protection of our country[rsquo]s mature and old-growth across our NFS leading up to this OGDEIS in response to Executive Order #14072 (EO14072). Namely;

* April 2022, EO14072 acknowledged the important role of mature and old-growth forests on Federal land stating that they are [ldquo]critical to the health, prosperity, and resilience of our communities.[rdquo]1 Furthermore, in response to their importance, the current administration mandated the Bureau of Land Management (BLM) and the United States Forest Service (USFS) to [ldquo]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.[rdquo]2 Since then, the USFS has issued new publications in an effort to define, inventory, and analyze threats to mature and old-growth forests pursuant to this order.

* December 2023, the USFS proposed to amend all National Forest Management plans that contain mature and old-growth forests. You can view IFA[rsquo]s official public comments for the scoping as an upload from us with these comments,
* January 2024, the USFS published Analysis of Threats to Mature and Old-Growth Forests on Lands Managed

by the Forest Service and Bureau of Land Management.
* June 2024, the USFS released the Draft Environmental Impact Statement for Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System.

It is at this point that we need to highlight a significant change in the language and scope from the original EO14072 to the current OGDEIS that is critical to our comments. The mandate from the administration directly addressed the scope of its order to include both mature and old-growth forest. However, when the OGDEIS was published for comment in June, mature growth was conspicuously missing from the title. At some point after the published threats analysis, it was determined by the agency that policy changes and protection measures would nearly exclude the protection of mature growth from the agency[rsquo]s response to the administration mandates.3 Old-growth forests across the country have exhibited a dramatic and severe decline since pre-colonial times. They have undergone such a decline that in many areas across the eastern continental US, including here in Indiana, literally less than 1% of the original old-growth acreage remains of that prior to European colonial settlement.4 It is without exaggeration to say that our old-growth forests are an endangered forest ecosystem particularly in the Eastern US.5 Without the preservation and protection of mature growth stands, old-growth acreage will never increase significantly in the Eastern national forests nor produce a substantial landscape effect across the system as a whole against climate change and achieve the intended results as stated in EO14072.

The agency in your initial NFS inventory found 47% of forests within the NFS in mature growth.6 However, the OGDEIS states that there is very limited intent to allow these stands to mature into old-growth conditions. It states, [ldquo]Past management [ndash] such as fire suppression, previous vegetation management, and/or reforestation [ndash] and natural succession or regeneration may have created mature forest or species distribution/composition that does not support desired ecological functions and conditions7.[rdquo] We strongly disagree with this contention in most cases. Mature forest stands are meeting the desired ecological functions and conditions for mature growth as clearly stated in EO14072 and this needs to be reflected as by the agency in the final EIS for this plan amendment. The 47% of NFS stands classified as mature must fall under the mandate of conservation and restoration of old-growth forests. The agency must recognize mature forests as recruitment stands for future old growth and accordingly the plan amendment must halt timber extraction from mature stands. Anything otherwise directly goes against the stated purposes in the OGDEIS which are, [ldquo]Demonstrate compliance with Executive Order 14072 to institutionalize climate-smart management and conservation strategies that address threats to mature and old-growth forests on Federal lands,[rdquo] and [ldquo]developing geographically informed adaptive management strategies for the retention of existing and recruitment of future old-growth forests.[rdquo]8 Given that old-growth conditions are so rare and diminished across the landscape, particularly in the Eastern national forests, it is imperative that all 47% of mature stands be recruited for old-growth conditions.

Otherwise, as the varying alternatives presented in this DEIS proposed, none provide for the increase of old-growth except Alternative 2 and it is entirely too vague, giving no quantification of what amount of old growth will be recruited.

Age class identifications by the USFS fail to properly include the full potential range of species[rsquo] lifespans, stopping at 120-140 years of age. To arbitrarily stop at an age that coincides with the merchantability of timber, speaks as though there is no value in forests past this age. Although many tree species can live for centuries, there is no age-class category for anything beyond what is considered harvestable or [ldquo]mature[rdquo]. Many native deciduous tree species exhibit potential life spans from 120 to upwards of 500 years, far beyond ages at which these trees are considered to be mature. The forest conditions at varying ages are unique and change over time. A forest ecosystem is a very dynamic system. Further refined definitions for varied age classes from 100 years and upwards need to be completed and studied before definitive prediction standards can be created.

The forests across the NFS are extremely diverse and varied with complex and diverse make-up of floral, faunal and fungal species, ecosystem functions, geological, hydrological and cultural features, and microclimates. This is most evident in the Central Hardwoods Region.

When IFA attended the in-person information sessions on this plan amendment in July in the Shawnee National Forest (SNF) sponsored by the USFS, officials from the agency repeatedly referenced the extreme diversity of old-growth conditions of Eastern deciduous hardwood forests and a need for site specific management applications when addressing their conservation. Also, officials at this meeting, the Analysis of Threats to Mature and Old-Growth Forests on Lands Managed by the Forest Service and Bureau of Land Management and the OGDEIS, all acknowledged that old-growth forests have not been properly evaluated in Regions 8 and 9 due to a lack of inventory data and complete definitions.9 The OGDEIS states, [ldquo]Currently in Region 9 there are no regional old-growth narrative definitions or criteria for units to tier to for field applications, and most units have either a narrative definition without quantitative criteria or a narrative definition and an age threshold. While the region is currently working with the Northern Research Station to develop operational definitions, they are not expected to be available until completion of the Adaptive Strategy for Old-Growth Forest Conservation (NOGA-FW-OBJ01).[rdquo]10 These definitions need to recognize that beyond specific features, e.g., minimum basal area, number of large trees, snags, or age thresholds, research on old growth forests in the Eastern U.S. consistently identifies the lack of human disturbance for an extended period of time, typically 80 to 100 or more years, as a precursor to old growth conditions. Consistent definitions that recognize this lack of disturbance have to be created, and complete inventories must be conducted before a Forest Management plan can be modified to address the care and maintenance of these stands and a strategic path created for growing and encouraging old-growth conditions in the Eastern US. A moratorium MUST take place for all projects until an independent inventory can be completed, otherwise many projects will proceed forward from planning to implementation that are clearly NOT in compliance with EO14072 (emphasis added).

For example, two such USFS projects in the Eastern US that contain mature and old-growth that are in the Hoosier National Forest (HNF) and fall into this category include the proposed Buffalo Springs Restoration Project (BS project) and the Houston South Vegetation Management and Restoration Project (HS project). While we recognize that your national agency has released this OGDEIS that addresses a proposed amendment to all national forest management plans to conserve mature and old-growth forests, at the local level, these two Projects which have not undergone the analysis and public comment required under the National Environmental Policy Act (NEPA) until more than two years after EO 14072 was issued and many months after the NOI was issued for the plan amendment, will inappropriately lock in management practices in the HNF for over 30,000 acres or approximately 15% of the HNF for the next 20-25 years with activities that retard the development of old-growth conditions. By implementing human disturbance through management activities which involve logging, repeated prescribed burning, construction of roads and scraping of skidder trails and fire lanes, and application of herbicides on thousands of acres of mature forest stands, these Projects are restarting the clock in these stands. The mature and old-growth in these projects will not reach old-growth conditions, according to definitions widely accepted in most research on Eastern old growth forests, for 80 or more years if the projects are allowed to proceed. All protections that will be provided by this plan amendment will be effectively stripped away.

In addition, these planned treatments were conceived without the substantial body of knowledge on climate and forest science that has emerged in the last 15 years, much less with the benefit of the analysis or direction charted in this OGDEIS. Accordingly, we respectfully request that these projects be held in abeyance until further analysis and modification can ensure their compliance with the pending national forest plan amendment.

We agree with the importance of monitoring and necessary research for our Eastern forests as is seen in this letter to Secretary Vilsack from 8 US Senators that states, [ldquo]This amendment must also incorporate strong monitoring, accountability, and adaptation measures to ensure that old-growth forests are appropriately stewarded over time. Monitoring of these forests must also account for the climate benefit these forests provide

by assessing the amount of carbon they capture and sequester.[rdquo]11 No agency is capable of conducting a fair and unbiased self-examination. Proper study must be completed by independent third parties, using the best available science.

On April 25, 2024, the HNF issued a Final Supplemental Environmental Assessment (SEA), Draft Decision Notice (DN) and Finding of No Significant Impact (FONSI) for the HS project. Six months earlier, in joint written comments, IFA, Monroe County, Hoosier Environmental Council and the Friends of Lake Monroe raised substantive concerns that activities of the HS project as outlined in the Draft Supplemental Environmental Assessment (DSEA) contradict the objectives of EO 14072 outlined in the April 2023 French memorandum to regional foresters to protect mature and old-growth forest conditions.12 We further outlined these concerns again in

Pre-decision Objections to the SEA filed on June 10, 2024 and in a September 6 letter to Chris French, Forest Service Deputy Chief, et al. For our pre-decisional objections meeting regarding the HS project the above groups presented the following proposal to the USFS HNF and MIke Chaveas, Supervisor of HNF and SNF:

1. Form an advisory committee (including objectors) to work collaboratively with HNF on project implementation and oversight.
2. Reduce total project area to 1/4 of original project size

--Remove proposed Deam Wilderness expansion area North of Maumee Boy Scout Camp from project.

1. Monitor for stream sediment and erosion before, during and after treatments in treatment areas and downstream of treatment areas and in control sites. Monitoring should be performed by an independent third party.
2. Work with an advisory committee to increase monitoring and evaluation of BMP[rsquo]s to ensure they are being followed and share results with the public.
3. No broadcast of herbicides.
4. Monitor and maintain the duff layer on all prescribed burns.
5. Follow all US Fish and Wildlife guidelines for bats including the latest draft[rdquo] guidelines for northern long-eared and tri colored bats and exclusion of locations detected in audio surveillance.
6. No timbering in stands that are greater than 99 years old.
7. Conduct threatened and endangered species inventories in stands before burning or timber harvest.
8. No timber harvest on slopes greater than 35%.
9. Specify what watershed improvement projects will be done.
10. Put these agreements into the Record of Decision.

With the exception of some collaborative monitoring, the Agency would not accept any of these points or make any counter offers including any offers to reduce proposed logging or other management activities in substantial acres of stands a century or more in age. Should a moratorium be put in place for the HS project pending a final decision on the proposed old-growth amendment, IFA is prepared to continue working with the USFS HNF on the above points.13

Under the HS project some 13,500 acres of mixed mesophytic hardwood forest that has never been prone to natural fires, will be burned repeatedly, 4,370 of these acres will be subjected to timber harvests and 1,970 acres to herbicide applications to artificially enhance oak species dominance. According to the stand data for this project, over 48% of the forest that will undergo vegetative treatment is 100 years of age or older, 34% over 110 years, and 15% over 120. In fact, many of the dates of origin for the stands to be logged are in the 19th century with one stand of 30 acres as old as 1807! Yet despite many public comments urging the protection of mature

and old growth stands, none of the proposed treatments or acreages involved were modified in any way from the 2018 Scoping Notice for this project to reflect the directive of EO14072 to conserve mature and old-growth forest or the objectives of the proposed nationwide amendment of national forest plans to implement that directive. In the HNF, this plan amendment should protect the abundant mature hardwood forest in the HS area as old-growth recruitment stands. It should also conserve old-growth conditions that are evident in tracts to be logged. The project is clearly contravening both of these objectives.

Although the forests in the BS Project area are somewhat younger than forests in the HS project, an examination of stand data reveals that more than half of the mature and older forests that exist in the BS project area are proposed to be logged. On September 12, 2024, the HNF issued a Final Environmental Assessment (SEA), Draft Decision Notice (DN) and Finding of No Significant Impact (FONSI) for the BS project. Clearly, the local management of the HNF is attempting to [ldquo]lock-in[rdquo] these projects before the old-growth amendment is implemented in its Forest Management Plan. A moratorium must be established on these projects and other similar projects in the NFS until such time as the proposed amendment to the outdated Forest Management Plans to protect mature and old growth stands can be completed. Doing otherwise, allowing these projects to proceed as is, is directly in violation of EO14072 and poses a serious threat to mature and old-growth forests in the NFS for decades into the future.

The report, Analysis of Threats to Mature and Old-Growth Forests on Lands Managed by the Forest Service and Bureau of Land Management, states, [ldquo]From 1950 through 1990, tree cutting was the number one disturbance, removing substantial areas of mature and old-growth forests; however, this is no longer the case as agency policy has since changed significantly.[rdquo]14 However, actual forest management practices today include the same treatments that were applied up to 1990. Prior to 1990 an intended goal of timber management and timber extraction was economical. Even though the intended purpose and need today is identified as addressing forest health by the USFS on nearly every proposed forest management project, there are no significant changes in the timber management practices actually employed. Simply calling something by another name, without making any substantive changes, does not change or prevent the adverse impacts of that activity. The only significant difference in these USFS projects from the previous era to those currently is the size and scope. The HS and the BS projects are the largest proposed timber extraction projects ever proposed in the history of the HNF.

Seemingly to legitimize today[rsquo]s [ldquo]vegetative treatments[rdquo] that are actually the same as yesterday[rsquo]s [ldquo]logging[rdquo] the Forest Service is incorrectly stating that logging is no longer a significant threat to mature and old-growth forests. The introductory report for the Threats Analysis states, [ldquo]Tree cutting (any removal of trees) is currently a relatively minor threat despite having been a major disturbance historically.[rdquo]15 If no changes in tree cutting practices have been conducted by the agency when previously they were a threat, how can they not be a threat today? The USFS presents Alternative 2 as their preferred alternative, claiming that commercial logging is an ecological management tool in old-growth forests. The incongruence of this claim with current practices by the agency is obvious. There is absolutely no ecological equivalent to a timber sale. Even in the most catastrophic natural disturbance, there is no set of circumstances whereby the larger trees are removed entirely from the forest.

Furthermore, beyond removing just the larger trees, the HS and BS projects will use the same commercial shelterwood cutting that has been in use for decades to remove the entire forest canopy from at least 36 stands of hardwood forests that are 100 to 150 years old. Uneven-aged, multi-story conditions, complex vertical structures and diverse compositions of native tree species in these stands will be converted to even aged stands of pole timber oak. Any ideas that such logging will enhance the health, resilience, biodiversity, structure or function of these stands as mature or old growth forests are not credible. In fact by applying these timber extraction management practices, any stand that is classified as mature or old-growth are effectively taken back from those classifications by at least 90-140 years and no longer afforded the protection as an old-growth age class, the exact opposite from the stated goals of this Draft Environmental Impact Statement (DEIS)..

The DEIS should clearly state that its purpose is to examine the impacts of amending forest plans to conserve and restore more old growth forests throughout the NFS. A check of the internet for the definition of old growth forest immediately finds the following statement by Wikipedia:

[ldquo]Old Growth Forest, also known as [ldquo]virgin forest[rdquo] is a forest that has developed over a long period of time without disturbance. The Food and Agriculture Organization (FAO) of the United Nations defines old growth forests, which it calls primary forests, as naturally regenerated forests of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. One-third (34 percent) of the world's forests are primary forests.[rdquo]

. . .

[ldquo]A forest regenerated after a severe disturbance, such as wildfire, insect infestation, or harvesting, is often called second-growth or [lsquo]regeneration[rsquo] until enough time passes for the effects of the disturbance to be no longer evident Hardwood forests of the eastern United States can develop old growth characteristics in 150 to 500 years.[rdquo]16

The lack of human disturbance prevails in other sources as well. In the 2017 Forest Sustainability Audit of Indiana[rsquo]s State Forests by the Forest Stewardship Council, the Indiana Division of Forestry stated [ldquo]Type 2 Old Growth Forest[rdquo], that which recovers from human disturbance, has dominant canopy trees with a mean age exceeding 150 years on mesic sites and 175 years on drier sites. The IDOF further defined such old growth as follows:

[ldquo]Developing Old Growth (a.k.a. [ldquo]Type 2 Old Growth[rdquo]): 20 acres of forest that that have been logged >80 years ago and retain significant old growth structure and functions. Additionally, developing old growth stands have had little or no human-caused understory or groundstory disturbance within the previous 80-100 years, depending on site quality. Examples of understory/groundstory disturbance could include, but are not limited to prescribed fire and grazing.[rdquo]17

And in Old-Growth Forest of the Central Hardwoods Region, Purdue forester, George Parker states:

[ldquo]Mesic odd-growth deciduous forests are defined here as those with overstory canopy trees older than 150 years and with little or no understory disturbance (human caused) during the past eighty to 100 years.[rdquo]18

Additionally, in Characteristics of Old-growth Mixed Mesophytic Forests, biologist William Martin states:

[ldquo]Existing old-growth forests and forests recommended for management for old-growth development should not show evidence of recent logging and other human activities.[rdquo]19

As well as in An Old-Growth Definition for Dry and Dry-Mesic Oak-Pine Forests, ecologist David White and research forester F. Thomas Loyd of the USFS state:

[ldquo]We consider oak-pine stands that have minimal evidence of post settlement human disturbance and contain pines exceeding 100 to 125 years to be approaching, if not already functioning as, old growth. . . . In general, we recommend that most stands with pines and oaks that exceed 100 to 125 years and have experienced little recent human disturbance, be considered to be in the early stages of old growth.[rdquo]20

Today[rsquo]s logging in the NFS by the USFS appears to be motivated by the proceeds from the sale of the timber from our public forests and budgetary funds from the US govt for wildfire prevention, with an attempt to cloak this intent behind a veil of ecological justifications. There is no other way of putting it. The agency is

allowed to keep the money from the commercial sale of timber, yet bill the taxpayers for its expenses. This approach should also be halted to ensure that the agency[rsquo]s analysis of the purposes and needs for [ldquo]vegetative treatments[rdquo] and [ldquo]ecological restorations[rdquo] are based on an objective assessment and application of the latest research to site specific conditions, and constrained by an understanding that genuine compliance with EO 14072 will necessitate a substantial reduction in the agency[rsquo]s present logging program.

The OGDEIS blanketly mischaracterizes the whole Eastern deciduous forests as an historic oak-hickory dominated forest and identifies a process of mesophication as a detriment to the future of old-growth. We fundamentally reject the tenet that the natural ecological process of forest succession in the Eastern US is detrimental to the future of old growth Eastern hardwood forests. The DEIS states, [ldquo]Structure and composition of old-growth forests in the eastern United States are threatened by mesophication, a process characterized by the transition of oak, hickory, and other frequent-fire deciduous forests to shade-tolerant, late successional species-dominated forests.[rdquo]21 This fails to recognize the rich diversity of a variety of dominant and co-dominant tree species that characterize the upper canopy both historically and currently in the majority of these Eastern forests. Forests in the Eastern US are a rich mosaic of many different forest types and more aptly are mixed mesophytic rather than just an

oak-hickory dominated forest ecosystem. The fact that tulip poplar, beech, sugar maple, black walnut, and various ashes, elms, gums and other species have long been present and in many cases have dominated old growth stands in the Central Hardwoods Region attests to this reality.

For example, the HNF claims that the BS project area in Southern Indiana was historically dominated by Quercus alba. One of the major goals of the project is to eradicate the shade tolerant species such as beech and maple that are outcompeting the oaks.22 In actuality, the project will replace the more mixed mesophytic hardwood forest ecosystem that existed throughout the BS project area before the European-American settlement of southern Indiana according to the original U.S. Government Land Surveys. These surveys were undertaken at the beginning of the 1800s to create the boundaries of townships and dispense land to settlers. Researchers at Indiana University[rsquo]s Historical Landscapes Laboratory have compiled the data from those surveys stored in the Indiana Archives.23 This data includes the section corner trees ([ldquo]monuments[rdquo]), witness trees, and other trees and vegetation identified by surveyor teams who surveyed the Buffalo Springs area from 1804 through 1807.

IFA has examined 120 of those surveys that spanned a rectangle approximately 12 miles long from east to west and 10 miles across from north to south across nearly all of the BS proposed project area. Of the 576 trees identified in those surveys by federal government surveyors to describe the forest of this area, 248, or 43%, were identified as beech. Oaks made up 119 trees, or 21%, of those identified. Maples made up 67 trees, or 12%, of those identified.

Poplars and hickories each comprised 6% of the trees identified (35 poplars and 34 hickories) and gums comprised 5% of the trees (27). Black walnut, butternut, white ash, ash, mulberry, dogwood, redbud, chestnut, elm, sassafras, sycamore and ironwood made up the remaining 7% of trees identified. Thus, based on the government[rsquo]s actual survey data from the relevant time period, oaks and hickories comprised only 27% of the trees in the project area, or just over one fourth of all trees identified in these surveys. More than twice as many beeches and maples were found (315) than oaks and hickories (153). These data indicate that oaks and hickories were significant and played a role in the old-growth forests within the project area, but they were by no means the most numerous of the large trees present. The results of these surveys are shown in the pie chart below.

[Pie Chart of tree species]

Rather than an oak-hickory predominant forest, these surveys indicate the pre-colonial settlement forest in the BS area was a more diverse, mixed mesophytic hardwood forest. As a result, the USFS HNF has not remotely satisfied its duty to coherently explain the basis for the underlying [ldquo]need[rdquo] to justify the goal of [ldquo]improving the sustainability of the oak-hickory ecosystems[rdquo] in this project. The work of biologist E. Lucy Braun from 1950 remains the definitive foundational work identifying forest types in the eastern US. This was affirmed and updated by James Dyer, 2006, Revisiting the Deciduous Forests of Eastern North America.24

In fact, instead of being the dominant component of most healthy, natural Eastern hardwood forests, the current dominance of oak in the canopy of many Eastern hardwood forests has been recognized by researchers as an artifact of human disturbance and stressed environments. In [ldquo]Fire and the Development of Oak Forests,[rdquo] fire researcher Mark Abrams states,

[ldquo]After European settlement, a regime of recurring logging and fire through the 1800s associated with charcoal iron production (Pearse 1876) and other activities (e.g., land clearing and producing timbers for coal mines) perpetuated or even increased oak dominance in the mid Atlantic region (Table 2). In New Jersey, cutting trees for charcoal favored oak and birch (Russell 1980). Former white oak-white pine forests in central Pennsylvania became dominated almost exclusively by white oak and black oak after clear cutting and burning in the 1800s (Abrams and Nowacki 1992).

Conclusions

. . . Indian burning practices and other disturbance factors may have elevated oak dominance in certain presettlement forests. Further increases in oak occurred after European settlement, whose activities included fire exclusion in tall grass prairie and southeastern pine forests; logging and burning of northern pine-hemlock forests; and the charcoal iron industry, land clearing and the chestnut blight in the mid-Atlantic region. Thus, the postsettlement distribution of oak greatly exceeded that of the pre-settlement era in various regions of eastern North America. However, the evidence indicates that oak is not a typical dominant in late successional forests, and its stability is probably limited to sites of extreme edaphic or climatic conditions or areas that are periodically burned.[rdquo]25

In addition, the agency must take a hard look at the impacts of prescribed burns in Eastern National Forests on mature and old-growth because the individual National Forests are failing to do so at the project level and most are operating under outdated Management Plans that did not meaningfully examine the impacts of prescribed fire. Yet widespread prescribed burning on unprecedented scales is being proposed by the USFS in the HNF and throughout the NFS during all seasons of the year without studies or inventories of the numerous species of invertebrates, amphibians, reptiles, small mammals, bats, and ground and shrub nesting birds that did not evolve in fire dependent forest ecosystems and will be harmed by these burns. Many of these are declining and/or listed as rare, threatened or endangered species across much of the Central Hardwoods Region..

Despite agency claims that the carbon released from prescribed burns is negligible, there is also no attempt by the USFS that we are aware of to estimate or model the release of carbon from prescribed burns. Even though prescribed fire is cited as a form of [ldquo]nutrient release[rdquo] that can fuel plant growth, there have been virtually no adequately scaled studies of the impacts on water quality of nitrate and phosphorus release by prescribed burns routinely being proposed over projects of landscape scale sizes, i.e., 5,000 to 15,000 acres that cover the entire watersheds of streams and lakes. While the USFS extolls the values of its projects in promoting forest health and biodiversity, it engages in no discussion in these projects or in this DEIS of how prescribed fire is designed to dry out moist conditions in forest duff layers and markedly reduce the existence and resilience of

most native tree species in mixed mesophytic hardwood forests that are facing added stresses from climate change. If this OGEIS is to assess the management needed to help mature and old-growth forests, including those in Eastern National Forests, remain resilient to the stresses of climate change, surely it must examine management practices such as prescribed burning that are designed to weaken the health and resilience of most Eastern hardwood trees.

The discussion of definitions for old-growth Eastern deciduous forests of Region 9 in Mature and Old-Growth Forests: Definition, Identification, and Inventory states, [ldquo]Tree age, size, and carbon storage capacity differ dramatically across old-growth and mature forest types depending on species, local ecosystems, site conditions, and more. Despite these challenges, a common understanding of which forests are old-growth or mature, and the extent of these forests on lands managed by the BLM and Forest Service, is the foundation for assessing the status, condition, and restoration needs to mitigate the effects of climate change.[ldquo]26 A mature or old-growth stand, is a complex ecosystem with a broad network of species interacting beneficially for the individual, and for the system as a whole. As an example, endangered bat species rely on the karst features for hibernaculum and specific bat trees for summer roosts. Also, the moisture intake from the life in mature and old-growth stands is dependent on the deep hummus and canopy and root systems that the older trees in a forested area provide over time. Also in nearby canopied areas ambient temperatures are consistently lower further helping to retain moisture.27 Many mature and old-growth stands across the NFS provide these benefits sustaining a greater biodiversity and a longevity to their life cycles. If forest management continues to extract the largest trees and codominant trees around them and the understory is burned on 2-5 year cycles by [ldquo]prescribed fire[rdquo], these benefits are lost. Such management to transform Eastern mesophytic hardwood forests into much drier, xeric oak forests reduces their absorption of precipitation and protection of our precious water resources.

As originally described by Braun 1950 and later by Dyer 2006 both current and historical mature and old-growth stands in Indiana and much of the midwest are Mesophytic. Forest management, like the methods proposed to be employed in the HS and BS projects in the HNF, under the guise of increasing climate resilience and promoting forest health, will on the contrary, proliferate the negative effects of climate change and global warming rather than mitigating their destructive impacts to our region[rsquo]s forests. Targeting shade loving species like maple and beech in order to propagate unnatural domination by oaks is the exact opposite of what is needed in mature and old-growth in the HNF. Mesophication is a process, not a disease that must be treated in an already predominantly mixed mesophytic forest. It is a part of natural succession that has happened in our mature and old-growth in much of the Central Hardwoods Region for millenia. Site specific strategies have to be utilized with appropriate site specific research; otherwise, not only are our mature and old-growth trees in danger but so is our whole Central Hardwoods Region ecosystem.

If mature and old-growth amendments of the national forest management plans for the Eastern forests do not:

1. Include mature growth protections that encourage recruitment of future secondary old-growth,
2. Conduct site specific regional research for old-growth stands of 100+ years to fill the void of scientific data that currently characterizes mature and old-growth forests in our Eastern US,
3. Discontinue all plans to timber and apply unnatural fire regimes on mature and old-growth stands which sets back the time clock for old-growth regeneration by 80 or more years, and

1. Collaborate with third-party research in the conservation and ecological restoration scientific community,

the intended goals of this OGDEIS will not be reached and a failure of compliance with EO14072 will occur. Rather than strengthening, perhaps our best climate change mitigation tool, our mature and old-growth forests, and practicing sound management based on the principles outlined in these comments, future NFS forest management will be complicit in contributing to nothing less than the potential extinction of an endangered forest ecosystem.

Again, we at the Indiana Forest Alliance extend our gratitude to the Forest Service, the Biden Administration and the National Environmental Policy Act for this opportunity and look forward to collaborating with the Forest Service to protect our Nation[rsquo]s treasured old-growth forests.

Respectfully submitted,

Steven Stewart

Hoosier National Forest Director Indiana Forest Alliance

1https://www.federalregister.gov/documents/2022/04/27/2022-09138/strengthening-the-nations-forests-communities-and-local-economies

2 ibid.

3https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/MOG-Threats-Intro.pdf

4https://www.in.gov/dnr/nature-preserves/old-growth-forests/

5 Foster DR, Donahue B, Kittredge DB, Fallon-Lambert K, Hunter M, et al.. (2010) Wildlands and woodlands: A forest vision for New England. Cambridge, MA: Harvard University Press.

6 Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System Draft Environmental Impact Statement, pg. S-5. File uploaded.

7 Ibid pg S-5.

8 Ibid, pg S-6.

9https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/MOG-Threats-Intro.pdf

10 Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System Draft Environmental Impact Statement, pg. 101.

11 https://www.wyden.senate.gov/imo/media/doc/wyden_letter_to_usda_on_nationwide_old_growth_amendmentpdf.pdf, pg 2. File uploaded.

12https://www.fs.usda.gov/sites/default/files/mature-old-growth-guidance-regional-foresters.pdf

13 This information is from data transmitted by the HNF to IFA by email on August 1, 2024. IFA will provide the data upon request.

14https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/MOG-Threats-Intro.pdf, pg 4.

15 Ibid, pg 1.

16https://en.wikipedia.org/wiki/Old-growth_forest

17 SCS Global Services Report, FOREST MANAGEMENT AND STUMP-TO-FOREST GATE CHAIN-OF-CUSTODY SURVEILLANCE EVALUATION REPORT, Indiana Department of Natural Resources, Division of Forestry, State Forest Properties, SCS Contact: Brendan Grady, Director, Forest Management Certification, 1-512-452-8000, bgrady@scsglobalservices.com, 7-9 November, 2017, Go to: http://info.fsc.org/ for Section A of the Audit report, p. 22.

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20 White, D.L., Loyd, F.T., An Old-Growth Definition for Dry and Dry-Mesic Oak-Pine Forests, USDA Forest Service, Southern Research Station, General Technical Report SRS-23, Sept. 1998, p. 29.

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27 De Frenne, P., Zellweger, F., Rodriguez-Sanchez, F., Scheffers, B. R., Hylander, K., Luoto, M., Vellend, M., Verheyen, K., Lenoir, J. 2019. Global buffering of temperatures under forest canopies. Nat. Ecol. Evol. 3:744[ndash]749.

ATTACHMENT: Indiana Forest Alliance OG DEIS Plan Amendment comments.pdf - this is the same content that is coded in text box; it was originally only included as an attachment

ATTACHMENT: De_Frenne_al_2019_NEE.pdf - Global buffering of temperatures under forest canopies - paper results show that forests function as a thermal insulator, cooling the understory when ambient temperatures are hot and warming when ambient temperatures are cold.

ATTACHMENT: Old Growth Mature Forest comments_IFA Final_Feb 2 2024 (2).pdf - letter sent to USFS on

February 2nd, with similar comments to those above

ATTACHMENT: WildlandsandWoodlandsaVisionfortheNewEnglandLandscape.pdf - booklet detailing Wildlands and Woodlands mission and threats to New England forests

ATTACHMENT: wyden_letter_to_usda_on_nationwide_old_growth_amendmentpdf.pdf - April 2024 letter from Ron Wyden to FS regarding NOGA