



February 2, 2024

The Honorable Thomas Vilsack
United States Department of Agriculture\ Secretary of Agriculture.
1400 Independence Ave., S.W.
Washington, D.C. 20250Dear Secretary Vilsack:

On behalf of our staff, board and 5000 members and supporters of the Indiana Forest Alliance (IFA), we extend our gratitude for the opportunity to provide input on the Scoping Notice (hereafter called Notice of Intent or NOI) for the Environmental Impact Statement (EIS) proposed to amend forest management plans across the National Forest System (NFS) to protect mature and old growth forests (MOG) on national forest lands. This NOI was published in the Federal Register on December 20, 2023. We, along with members of the worldwide scientific community, and our current national administration, recognize the ecological importance of MOG to mitigate the harmful effects from climate change and all associated stressors to our forests. MOG forests have unique characteristics and a litany of benefits to human kind and the planet's ecosystem. These benefits, also known as "ecological services", include: increased carbon sequestration and nitrogen fixation in the soil, protection of valuable water resources, control of floods, creation of nutrient rich topsoil, spiritual and recreational value, improvement of air quality, and valuable habitat for a wide range of flora and fauna including a long list of threatened and endangered species.

In Indiana we lost most of our MOG forests from the massive deforestation of the 19th century that occurred due to the primary cultural views of our forests for their immediate economic value as timber products or as a barrier to development. Time has taught us the folly of our ways to an extent. We are fortunate to have saved some of these stands through the creation of the Hoosier National Forest (HNF), State Forests and Parks acquired by the Indiana Department of Natural Resources (DNR) and through the actions of many independent land trusts and private property owners. Still, at 4.8 million acres, our forest land in the state is less than one fourth what it was prior to the mass clearing by Euro-American settlement of the Midwest. Further, this NOI fails to recognize that the proposed EIS should acknowledge that the Midwest's MOG forests are still suffering alarming and ongoing losses at the hands of urban and commercial development and timber extraction on both public and private land.

We will divide our comments into four primary points:

- 1)** A geographically adapted approach must be taken to restoring old growth forests in the national forest system (NFS) Such an approach will not use prescribed fire as a predominant management tool in the central hardwoods region.
- 2)** Old growth forests have not been disturbed by human activities for a long period of time.
- 3)** Mature forests must be protected to restore viable levels of old growth in the NFS.
- 4)** Monitoring is crucially important to restoring and maintaining old growth forests across the NFS.

1) A geographically adapted approach must be taken to restoring old growth forests in the national forest system. We strongly agree with this approach as well as the Adaptive Strategy for Old-Growth Forest Conservation outlined on page 88047 of the NOI and the two-year timeframe for its adoption. The following background behind this strategy is explained in the NOI:

The analysis found that tree cutting is now a relatively minor threat compared to climate amplified disturbances such as wildfire, insects and disease. However, past management practices, including timber harvest and fire suppression, contributed to current vulnerabilities in the distribution, abundance, and resilience of old-growth forest characteristics.

...

The amendment establishes a set of national plan components and direction for geographically informed adaptive implementation strategies that promote the long-term persistence, distribution, and recruitment of old-growth forest conditions across the National Forest System.

...

It also recognizes that there are significant ecosystem and geographic differences that would require the development of geographically informed adaptive management strategies, in collaboration with the public and through consultation with Tribes and Alaska Native Corporations. (pg. 88043)

It is precisely this need for different strategies that is imperative for the various regions of the US Forest Service (USFS) lands based on the types of forest and climate in different geographic regions within the US. In Region 9, where the HNF, Shawnee and Wayne National Forests are, tree cutting is not a minor threat to MOG and wildfire is not the predominant threat. In fact, it is quite the opposite.

Not only was deforestation devastating to the existence of MOG central hardwood forests during the 19th and 20th centuries, these forests are still typically viewed by land managing agencies more as a commercial commodity than a vital ecosystem and mitigator of climate change that needs to be protected. This can be seen in the language of the USDA Resource Bulletin NRS-

45, "Indiana's Forests 2008" which discussed the Indiana Department of Natural Resources' inventory of forests done in cooperation with the Forest Inventory and Analysis program of the US Forest Service. In the opening abstract, the report states, "Seventy-six percent of forest land consists of sawtimber, 16 percent contains pole timber, and 8 percent contains sapling/seedlings." (pg. 2) Rather than framing the classifications of forest type in terms of age, size, or overall ecosystem qualities, this report refers to forests in Indiana largely as timber and growing stock, i.e., a commercial commodity. The state's Continuous Forest Inventory discussed in this report is a joint effort of the two largest public land managing agencies in Indiana. The report did not reflect significant concerns for conservation, carbon storage, climate change or biodiversity by these agencies when it was published. Furthermore, the same lack of concern for MOG forests on public land can still be readily seen today by the increasing amounts of timbering on the state forests and unprecedented timbering proposed in HNF projects in recent years. In fact, while the labels for their tree cutting projects have changed from "logging" to "ecological restoration," these agencies are still using the same methods in today's projects from shelterwood and clearcutting to thinning, midstory removal and single and group tree selection as the earlier projects that were more transparently labeled as logging or timber harvest. And nearly all of these projects are cutting forests that are predominantly mature hardwood stands within Indiana's acutely limited supply of public land.

The same preoccupation on silviculture that is removing mature hardwood forests and preventing the return of old growth forest in the HNF is also occurring in the Shawnee National Forest of Illinois, the Wayne National Forest of Ohio, the Allegheny National Forest of Pennsylvania, the Monongahela National Forest of West Virginia, the Daniel Boone National Forest of Kentucky, and many other national forests in the Eastern US. The proposed EIS must recognize that tree cutting is a far greater threat to the presence of mature forest and existence of any old growth forest in national forests throughout the central hardwoods region of the US than fire.

Furthermore, the EIS needs to recognize that due to the wetter climate where Central Hardwood forests exist, they are not wildfire prone. In fact, there is no study or research on forests in Indiana that suggests fire was a significant agent of natural disturbance in the state within the last 500 years. Those promoting fire as a significant natural disturbance agent, including the USFS, point to fires that Native Americans set in forests in eastern North America to help clear small areas for farming. However, the fact that people used fire to clear some areas of hardwood forest does not mean that fire was a significant "natural disturbance agent" in this forest. In fact, a study of fire in the one area of Indiana's hardwood forests often relied upon by promoters of prescribed fire to assert the importance of fire as a natural disturbance agent, the oak barrens of south-central Indiana along the Ohio River, states:

It is likely that anthropogenic ignitions were the primary source of fire in the Barrens region because of the extremely low frequency of lightning caused

fires (Schroeder and Buck, 1970) due largely to heavy rains that accompany storms in this region.¹ . . .

There is little evidence that historic fire events corresponded to droughts. This is evidenced by few fire years directly corresponding to drought conditions and significant changes in the fire regime being unrelated to PDSI variability.²

PDSI stands for Palmer Drought Severity Index and provides an estimate of relative soil moisture indicating level of drought in an area.

As has been documented elsewhere (Guyette and Dey, 1995, 1997, 2000; Guyette et al., 2002), the sequence and abrupt changes in the frequency of fire at the study site suggest that a strong relationship exists between fire frequency and human population density, settlement and migration.³

This study examined fire rings in 27 post oaks in Perry County's Boone Creek Barrens within the HNF to discern the frequency of fires in this area over a 345-year period (1654 to 1999). Not surprisingly, given the record of human presence in the Ohio Valley region, this study found that the vast majority of anthropogenic ignitions, i.e., human-caused fires were started by European settlers and their descendants, *not* by Native Americans.

There were four fires recorded (as fire scars on tree rings) in the Boone Creek Barrens from the 1650s through the 1680s, a time when the Osage and Quapaw Indians are thought by researchers to have inhabited the Ohio Valley. However, these Native Americans reportedly moved out of the Ohio Valley into the Missouri and Arkansas regions after European settlement had begun to the east. The study cites the findings of other researchers on this subject stating, "*Their migration out of the Ohio River Valley in the latter half of the 1600s may have been a retreat from Iroquois invaders, who had recently acquired European firearms (Baird, 1980). Waldman (1985) reported the Ohio River Valley having the lowest Native American population density in Eastern North America at the time of contact.*"⁴

The near absence of Native Americans living in the Ohio Valley Barrens region is supported by the study's fire ring analysis which found no fire scars in trees in the Barrens for 108 years from 1693 to 1801. In contrast, after 1800 when settlers began arriving in significant numbers in the area, there were 14 years from 1801 to 1900 with fire scars. The frequency of fires from farmers

¹ GUYETTE, RICHARD P., DEY, DANIEL C., and STAMBAUGH, MICHAEL C., Fire and Human History of a Barren-Forest Mosaic in Southern Indiana, Source: The American Midland Naturalist, 149(1); pages 21-34, Published by: University of Notre Dame. Quote is from page 22. URL: [https://doi.org/10.1674/0003-0031\(2003\)149\[0s021:FAHHOA\] 2.0.CO;2](https://doi.org/10.1674/0003-0031(2003)149[0s021:FAHHOA] 2.0.CO;2)

² Ibid, pages 26 & 27.

³ Ibid, page 27.

⁴ Ibid, page 28.

routinely using fire to clear ground for farming and grazing reached a peak from 1888 to 1929 when the average interval between fires was a mere 2.1 years. In fact, there were 15 fires in the area in the first thirty years of the twentieth century before an era of fire suppression started in 1930. Prescribed fire was brought back to Boone Creek Barrens in the 1980s to maintain the open forest and grass condition and prevent canopy closure from eliminating the Barrens.

The important fact from the Boone Creek Barrens study that should be accounted for in the EIS regarding an asserted need for fire, is that the fires being suppressed in the central hardwoods region *were not naturally occurring fires*, but rather human-caused ignition events. Suppressing such fires does not harm the health or ecological resilience of old growth central hardwood forests.

Other research corroborates this study's findings that most fires in eastern North American hardwood forests for the last several centuries were caused by humans, not nature. Indeed, in their study of pollen logs documenting forests and Native American occupation over a 10,000-year period at the Cliff Pond Palace site in Kentucky's Daniel Boone National Forest, researchers working with the USFS state,

The Cliff Palace Pond story is a fascinating one. It describes changes in the natural environment and changes in peoples' lifeways. It shows how people increasingly manipulated the environment to suit their needs through the use of fire.⁵

Researchers have also found that human use of fire changed the composition of eastern hardwood forests often favoring the emergence of oak species over other native species that were dominating these forests. In "Fire and the Development of Oak Forests," fire researcher Mark Abrams states,

Fire and human activity have affected the past and present ecology of oak forests. . . .

In one of the few such studies in North America, fire history was evaluated on a pre-settlement oak from Mettler's Woods in central New Jersey (Buell et al. 1954). Six fire scars in the tree were produced between 1641 and 1711, at a mean fire interval of 14 years. These fires were attributed to Indian activity in the area. . . . Other accounts of precolonial fires in southern New England and the mid-Atlantic region have been reviewed by Day (1953), Russell (1983), Lorimer (1985), and Patterson and Sassaman (1988). Although this subject is controversial,

⁵ Delcourt, Paul A. and Hazel R., Ison, Cecil R., Sharp, William E., and Henderson, A. Gwynn, FORESTS, FOREST FIRES AND THEIR MAKERS, Kentucky Archaeological Survey, Education Series Number Four Lexington, Kentucky 1999, Prepared in cooperation with the U.S. Department of Agriculture, Forest Service.

eyewitness accounts and charcoal studies suggest that Indians were responsible for increasing fire frequency above the low numbers that would have been caused by lightning. . . .

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).

. . .

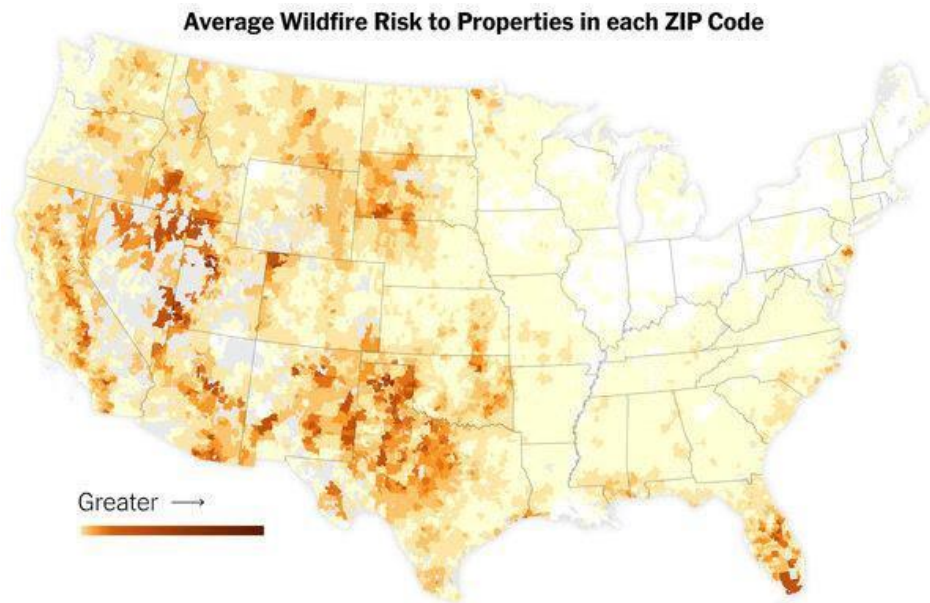
Conclusions

Paleoecological studies indicate that oak domination of eastern forests occurred during warmer and drier climatic periods at the beginning of the Holocene Epoch and that these conditions are thought to have increased the incidence of fire. Indian burning practices and other disturbance factors may have elevated oak dominance in certain pre-settlement 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 post-settlement 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.*⁶ (Emphasis added.)

While prescribed fire helps maintain Barrens communities and rare species of forbs and grasses found in them, this alone does not justify controlled burning of large swaths of forests in the Eastern US where fire is not a significant agent of natural disturbance. There is simply no data or research indicating that the moist conditions that predominated in deeper old growth hardwood forests that covered vast areas of the Eastern North America at the beginning of Euro-American settlement, are conducive to regular burning from lightning strikes.

The map below of areas prone to fire disturbance in the U.S. demonstrates that national forests in Ohio, Indiana and Illinois are in the heart of the region *least prone to fire* in the entire nation. National forests in New England, Pennsylvania, Virginia, West Virginia, Kentucky, Michigan and Wisconsin are also not in states prone to wild fires relative to southern and western states.

⁶ Abrams, Marc D., Fire and the Development of Oak Forests, Bioscience; May 1992; 42, 5; Research Library Core pages. 346 - 353.



New York Times, May 17, 2022, Source: First Street Foundation

The proposed EIS needs to recognize these fundamental geographic differences in the significance of fire as a natural disturbance agent in forest ecosystems. While fire was used by Native Americans, there were tens of millions of acres of old-growth hardwood forests in the Eastern US where fire was not a significant natural disturbance agent in pre-European settlement of America and is still not a significant natural disturbance agent today. USFS proposals that have proliferated in the HNF and other eastern national forests to use prescribed fire as a management tool to restore the ecological health of forests ecosystems where fire is not a significant natural disturbance agent are not supported by the scientific record and must be reassessed in this EIS.

Furthermore, the EIS must take a hard look at the impacts of prescribed burns in Eastern national forests because the USFS is refusing to do so at the project level and most of the national forests 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 these national forests 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 will be harmed by these burns. Many of these species are listed rare, threatened or endangered species. Despite agency claims that the carbon released from prescribed burns is negligible, there has 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 “nutrient release” that can fuel plant growth, there have been virtually no adequately scaled studies of the impacts on water quality of nitrate and phosphorous 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 Forest Service extolls the values of its projects in

promoting forest health and biodiversity, it engages in no discussion in these projects of how the 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 EIS 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.

2. Old growth forests have not been disturbed by human activities for a long period of time. Humans cannot manufacture them. What is the USFS attempting to do? By focusing only on features of old growth forests instead of what old growth forests actually are, the NOI is disturbingly vague. *The EIS should clearly state that it's purpose is to examine the impacts of amending forest plans to conserve and restore more old growth forests throughout the NFS.* As written, the NOI potentially appears to be engaging in a 'smoke and mirror' exercise. We strongly object to authorizing the agency's logging agenda to continue under the title of "vegetative management" projects that arbitrarily claim to be restoring the natural ecosystem or improving the ecological health of older forests but are actually eliminating existing old growth forests and preventing more old growth forests from ever emerging within the national forests.

At the core of our concerns is the recognition that old growth forests are by definition, forests where there has been no human disturbance or, in the Eastern US, no such disturbance for a very long time after extensive forest clearing began in the eighteenth and nineteenth centuries. NOWHERE in the NOI or in other documents it references including a preliminary inventory of mature and old-growth forests within the NFS completed in April 2023⁷ is this lack of disturbance recognized as a key component of old growth forest conditions. The lack of disturbance is not only from catastrophic events that completely level forests, but also from more subtle events such as selective logging, burning and livestock grazing that were common practices in eastern forests throughout the nineteenth and early twentieth centuries.

A check of the internet for the definition of old growth forest immediately finds the following statement by Wikipedia⁸:

Old Growth Forest, also known as "virgin forest" 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

⁷ See Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory of Lands Managed by the Forest Service and Bureau of Land Management, Fulfillment of Executive Order 14072, Section 2 (b), Forest Service, U.S. Department of Agriculture, April 2023|FS-1215a

⁸ https://en.wikipedia.org/wiki/Old-growth_forest

disturbed. One-third (34 percent) of the world's forests are primary forests.⁹ . . .

A forest regenerated after a severe disturbance, such as wildfire, insect infestation, or harvesting, is often called second-growth or 'regeneration' *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.*¹⁰ (emphasis added)

In the 2017 Forest Sustainability Audit of Indiana's State Forests by the Forest Stewardship Council, the Indiana Division of Forestry stated that "Type 2 Old Growth Forest", 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:

Developing Old Growth (a.k.a. "Type 2 Old Growth"): 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 previous 80-100 years, depending on site quality. Examples of understory/groundstory disturbance could include, but are not limited to, prescribed fire and grazing.*¹¹ (emphasis added)

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

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.*¹² (emphasis added)

In Characteristics of Old-growth Mixed Mesophytic Forests, biologist William Martin states,

⁹ *Ibid*. Citing The state of the World's Forests 2020. In brief – Forests, biodiversity and people. Rome: FAO. 2020. p 9.

¹⁰ https://en.wikipedia.org/wiki/Old-growth_forest

¹¹ 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.

¹² Parker, G.R., Old-Growth Forests of the Central Hardwood Region, Department of Forestry and Natural Resources, Purdue University, West Lafayette IN 47907, Originally published in the *Natural Areas Journal* 1989. 9(1): 5-11.

Existing old-growth forests and forests recommended for management for old-growth development *should not show evidence of recent logging and other human activities.*¹³

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:

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.¹⁴ (emphasis added)

The EIS, Forest Plan Amendment and an updated Inventory for MOG Forests must contain a definition for secondary old growth that has recovered from past human or catastrophic natural disturbance which emphasizes the lack of disturbance by human activities in such forests for an extended period (at least 80 years). Such lack of disturbance is the primary condition for secondary old growth forests. Without enforcing this condition, the objective of restoring more old growth in eastern national forests will be rendered meaningless.

The EIS must also ensure that Forest Plan Amendment will protect MOG forests from salvage logging or other active management activities regardless of whether natural process such as insects and disease, major wind events, fires or other catastrophic disturbances knock them down. Such disturbances are part of nature and usually provide early successional habitat with significant horizontal structure from new down woody debris as well as forest regeneration without the soil disruption and compaction of logging activities. Barring only the need to protect public safety, unless old growth and mature forests are allowed to respond to such disturbances without human intervention and recover naturally from them, the objectives of maintaining existing old growth and restoring more old growth forest across the NFS will be continually thwarted.

The EIS also needs to recognize that ensuring the health and resilience of MOG forests means that the USFS needs to protect tracts of forests large enough for these forests to thrive within functioning forest ecosystems. In the East, particularly the lower Midwestern states, public lands are very limited and native forest ecosystems have been so severely fragmented that the best, if not only, chances for restoring viable representation of old growth forest on the landscape lie in

¹³ Martin, W.H., Characteristics of Old-growth Mixed Mesophytic Forests, Division of Natural Areas, Eastern Kentucky University, Richmond Kentucky 40475, Originally published in the *Natural Areas Journal* 1992. 12(3): 127-135.

¹⁴ 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.

the national forests. Martin, who also served as Commissioner of Natural Resources for the state of Kentucky states, perhaps prophetically, in the 1992 paper cited above,

In the case of national forests, each forest needs to be considered separately. In general, consideration should be given to protecting entire slopes and watersheds as old growth and ensuring that there are old growth corridors connecting designated areas. Old-growth forests of any type are not a percent of a compartment and a series of isolated stands. The locations and connections of old growth must be viewed at the level desired, not by compartment and district.

. . . With the focus on old growth throughout our eastern forests, it is a safe bet that significant portions of twenty first-century national forests will be designated as old growth.

3. Mature forests must be protected to restore viable levels of old growth in the NFS.

There is one documented tract of virgin forest of 88 acres, the Pioneer Mothers Memorial Forest preserved in the HNF. The extent of secondary forest that has returned to the old growth condition is small yet unclear based on the definition of old growth forest provided for national forests in Region Nine on pages 45-46 in the preliminary Inventory of MOG. While the 2006 Land and Resource Management Plan (Management Plan) for the HNF does not indicate how many acres of old growth forest were in the HNF, it does indicate that approximately 48% of HNF acres were considered to be “mature” (i.e. in stands that are 80 years or older) as of 2006.¹⁵ Two facts are clear: 1) significant portions of the HNF and other national forests in the central hardwood region are mature forest; and 2) the need to restore more old growth forest beyond the near negligible levels that exist across this region is acute.

That need cannot begin to be met unless there is a basic change made in the direction of management in the HNF and other national forests in the Central Hardwoods Region away from logging and other active management to one of conserving mature forest. The EIS must recognize this necessity.

The two most recent vegetation management projects proposed in the HNF illustrates this current direction of the USFS. They are the Buffalo Springs Restoration Project and Houston South Vegetation Management and Restoration Project. Regardless of their names, these are the largest logging projects proposed in the history of the HNF. In the Buffalo Springs Project, some 5,124 acres will receive silvicultural treatments, 771 acres will receive herbicide spot treatments to kill trees that compete with oaks (and likely thousands of additional acres will require repeated broadcast treatments to eliminate nonnative invasive plant eruptions from the logging), up to 15,100 acres will be burned repeatedly, and some 17.2 miles of road construction will occur accompanied by hundreds of miles of skidder trails and fire lanes to

¹⁵ Land and Resource Management Plan Hoosier National Forest, USDA, Forest Service, Eastern Region, January 2006. See Fig B.2 Existing and Decade 15 Age Class Projections, p. B-19. See also the discussion on p.B-18.

accommodate the logging and burning. In the Houston South Project, 4,375 acres will receive silvicultural treatments, 1,970 acres will receive herbicide spot treatments (with likely thousands of additional acres requiring broadcast treatments), 13,500 acres will be burned repeatedly, and 16.4 miles of road construction will occur accompanied by hundreds of miles of skidder trails and fire lanes to accommodate the logging and burning.

Except for the burning, all activities in these projects will occur in Prescription Area 2.8 which at 91,080 acres, comprises 45 percent of all national forest acres in the HNF. HNF staff have said repeatedly in their official response to public comments on these projects that under the direction of the 2006 HNF Management Plan, they intend to undertake these same project activities on all 2.8 acres in the HNF. The Management Plan also authorizes these same active management activities to occur on an additional 19,529 acres of Prescription Areas 3.3 and 7.1, meaning that up to 110,605 acres, or more than 54% of all HNF acres can be subjected to commercial logging, timber stand improvement, herbicide application and burning activities that are designed to reduce forest stand ages, reduce forest vegetation layers, reduce logs and woody debris, kill native trees that compete with oak and artificially subvert natural ecological processes such as forest succession, all of which will retard the succession of mature forest to old growth forest.

In the Buffalo Springs Project, logging operations will occur on 49% of the 10,500 national forest acres in the project area. Only 1,561 (14.9%) of the 10,500 acres of national forest in the project area are in age classes of native hardwoods that are 100 years and older. Yet logging operations will occur on 799 or more than 51% of those 1,561 acres. The midstory and canopy layers of hardwood forest will be removed entirely in shelterwood cutting on 212 of those acres reducing forests a century or older to an even aged stand of saplings and pole timbers comprised of much fewer native hardwood species than are in those stands today. Many more silvicultural treatments including more shelterwood cutting is planned for the 2,275 acres of forest in the project area (22% of project acres) that are between 80 and 99 years old.

According to the Draft Environmental Assessment, the Buffalo Springs Restoration Project is necessary to restore the native oak-hickory ecosystem to the area. Shelterwood cuts are proposed to stop the natural conversion of oak-hickory stands back to stands dominated by the beach-maple forest type and other mesic tree species. Fourteen percent of the project area is currently considered to be beach-maple forest type and 59% is oak-hickory type but saplings and poles in oak-hickory stands are mostly beach, red maple, tulip poplar, sassafras, hornbeam, and other mesic species. Yet a thorough examination of the 120 original Government Land Surveys done in the deep forests throughout the project area before American settlers arrived, clearly demonstrates that while oaks and hickories were present, they were by no means the most numerous of the large trees documented in the area. These surveys span a rectangle 12 miles long from east to west and 10 miles across from north to south. Of the 576 trees identified in those surveys by federal government surveyors, 248 trees, 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's actual survey data from the relevant time period, all oak and hickory species combined comprised only 26% of the trees identified in the project area. More than twice as many beeches and maples were recorded (315) as oaks and hickories (153).¹⁶ The oak-hickory forest type was not the dominant forest type in the project area in pre-settlement times.

Houston South Project documents made available to the public do not provide the stand data to for silvicultural treatment areas to assess the exact impacts of silvicultural treatments on older forests in the area of this project. However, according to a Draft Supplemental Environmental Assessment, 60% of the 10,071 acres of national forest in the project area are hardwoods equal to or exceeding 80 years old, 35% are hardwoods equal to or exceeding 100 years old and 7.5% are hardwoods equal to or exceeding 120 years old. Given only 479 acres of the 4,375 acres in silvicultural treatments are targeting younger pine or pine oak stands, it is reasonable to assume that a large number of silvicultural treatments, including likely all of 703 acres of proposed shelterwood cuts, will occur in mature and possibly old growth forest.

One of the primary stated justifications for the Houston South Vegetation Management and Restoration Project is also the purported need to restore the original oak-hickory forest ecosystem in the area. Yet a preliminary review of Government Land Surveys in the Houston South Project area indicates that approximately 50% of the forest type in the area was not oak-hickory.

Documents for the Buffalo Springs and Houston South Projects also cite the need to thin mature forests to address threats from diseases and insect pests thereby making forests more resilient. Yet the project documents rarely identify disease or insect infestations in the areas of silvicultural treatments or even in the entire project areas. Furthermore, forests thin themselves naturally on a continual basis. Diseases and insect pests are forms of natural disturbance that have existed in forests likely from the beginning of their existence. As forest age, mortality of aging trees from diseases and other causes increases, and the ecosystem benefits from gap openings, regeneration, snags, logs and down woody debris that result. Succession from the drier oak-hickory forest type back to beech-maple along with poplar, ash, elm, basswood, walnut, cherry, gum, and many other native hardwood species along with a reduced but still significant presence of oak and hickory in mixed mesophytic hardwood forests is an expected and natural ecological process in the HNF that has been going on as the insult of human impacts subside, not an ecological problem to put in a straitjacket.

The logging and prescribed burning proposed in these projects as well as the Union Town North and South Projects and many other recent projects in the HNF and other national forests in the

¹⁶ Researchers at Indiana University's Historical Landscapes Laboratory have compiled the data from those surveys stored in the Indiana Archives. This data includes the section corner trees ("monuments"), witness trees, and other trees and vegetation identified by surveyor teams who surveyed the Buffalo Springs area from 1804 through 1807. These data can be found at: <https://storymaps.arcgis.com/stories/5fecb88a73d43caa70377e77a932c15>

central hardwoods region are vegetative treatments being justified almost universally on ecological grounds. Close examination reveals that these ecological grounds are often arbitrary or not supported by the scientific record, yet such grounds are the primary criteria for vegetative treatments in MOG forests in the NOI.

Particularly for the HNF and other eastern national forests, the EIS must clearly include the protection of mature forests from most current vegetative management projects. Without protections to prevent human disturbance from disrupting the natural processes in mature forests, no old growth forests, and the conditions undisturbed by human activities in them, can return to national forests where they are largely absent.

More broadly, the EIS must take a hard look at the ecological grounds for vegetative management projects in MOG forests to ensure that such projects do not subvert the basic objectives of maintaining and restoring old growth forests across the landscape of our national forests. The Forest Plan Amendment must ensure that all such projects are supported by relevant data from the site including historic records that document actual forest types as well as the existence and frequency of natural fires in project areas in the presettlement era of the eighteenth and nineteenth centuries (before the onslaught of modern human disturbance).

The four standards proposed on page 88047 in the NOI are vague and contain loopholes that could cripple the intent of the four Desired Conditions and one Guideline described on pages 88047 and 88048 to conserve and create more old growth forest conditions. Standard 2. (a) does not indicate whether more or less of the items in i. through xi. will be sought by management activities. Standard 2. (b) v. allows for an exception to meeting Standard 2. (a) “in cases where it is determined that the direction in this amendment is not relevant or beneficial to a particular forest ecosystem type.” Standard 3. authorizes ecologically appropriate timber harvest in old growth conditions. Thus in the HNF, managers can decide that the need to perpetuate the oak-hickory forest type in an old growth forest, even if historical records indicate that type was not prevalent in presettlement times within the old growth forest area, can justify the use of shelterwood cutting to eliminate the old growth forest, a condition that is rare in HNF, defeating the purpose of the plan amendment. Or under the guise of ecologically appropriate harvest, managers can thin trees to increase the growth or number of large trees or girdle trees to increase the number of standing snags in 2. (a) i., cut trees to increase the amount of horizontal structure in 2. (a) ii., or increase the types of disturbances or cut more patches and larger patch sizes in 2. (a) iv. All of these management activities will eliminate old growth forests if they are carried out to any significant degree in them and prevent mature forests from becoming old growth forests for many more decades. The EIS must revise these standards to provide the teeth necessary to maintain and promote old growth conditions in the NFS, particularly in the HNF and other Eastern national forests.

The “Adaptive Strategy for Old-Growth Forest Conservation” discussed on page 88047 does not define the size of the landscape discussed in the sole Objective proposed for the Plan Amendment on that page to prioritize only one landscape at the unit level to exhibit a measurable increase in old growth desired conditions within 10 years. We assume the unit level

is the level of a national forest. We believe this Objective is too conservative for Executive Order 14072 and the Plan Amendment to have significant meaning. In the HNF, depending on the size of the landscape, this could mean that managers need only manage the existing 12,953-acre Charles Deam Wilderness to increase such conditions, leaving most of the oldest mature hardwood forests open for business-as-usual logging for economic benefits and preventing the needed restoration of more old growth forest across the HNF.

We are also concerned about provision (b) of the Guideline for the Plan Amendment proposed on page 88048, which will authorize activities to “retain and promote the development of resilient old-growth conditions adjacent to existing old growth forest conditions, including for the purposes of reducing fire hazard, altering potential fire spread or fire severity, or reducing potential insect or disease outbreak that may spread to adjacent old-growth forest.” In the HNF and other national forests within the Central Hardwoods Region, this language will likely be used to authorize vegetation removal, disruption of the forest floor, and prescribed burning to reduce alleged fuel loads and fire hazards in forests that are not prone to wild fires. Or to cut down mature forests on the basis that they might harbor an insect or disease outbreak in the future. Unless the USFS is required to provide more credible, substantive grounds that demonstrate that forests in project areas are actually prone to wildfires or link its management activities to site specific data documenting occurrences of the specific insect or disease outbreaks in proposed project areas that are serious enough to warrant the actions proposed, there are few mature forests in the HNF that will not be subject to unnecessary active management under this guideline that will diminish their development of old growth conditions.

While we approve of any plan to conserve and restore more old growth forest in the NFS, the complex approach, seeming cross purposes and high potential for the clashing of contradictory policies in the NOI may make the protection of MOG forests difficult to achieve by the Plan Amendment. For the HNF and other national forests in states in the Central Hardwoods Region with limited public land and whose recreational and ecological values far outweigh their timber values to surrounding communities, there is another option that you have already set out in your Memorandum 1077-004. That would be to utilize Section 1604(k) of the National Forest Management Act to set aside national forest lands as “not suitable for timber production” if the Forest Service finds in revisions to Management Plans that the desired conditions in those forests are instead to “integrate climate resilience,” “optimize carbon stewardship,” and “conserve and expand mature and old growth forests”.¹⁷ We urge the EIS to consider use of U.S.C. 1604 (k) as an option to achieve the purposes of Executive Order 14072.

4. Monitoring is crucially important to restoring and maintaining old growth forests across the NFS. IFA supports the Plan Monitoring provisions and the two-year time frame for their implementation proposed on page 88048. We believe the proposed National Old-Growth Monitoring Network is needed to accomplish the following objectives:

¹⁷ See <https://www.usda.gov/sites/default/files/documents/sm-1077-004-climate-resilience-carbon-stewardship.pdf>, June 23, 2022. Subparagraph b. (4) of Section 2. p 5.

- a. Inform the continued implementation of the Plan Amendment and evaluate its effectiveness in maintaining and restoring more old growth forests in the NFS so that changes can be made as necessary to achieve the Plan Amendment's purpose and Executive Order 14072.
- b. Inventory life. Most Eastern North American species evolved for millennia in old growth forests. Inventories of old growth forests across the NFS will be of crucial importance for establishing a baseline to assess the effects of climate change on biodiversity.
- c. Study ecological processes. There is much that scientists do not yet understand about old-growth forests particularly about such forests in the Eastern US given that so little old growth forest survived the clearing of the Eastern half of the country in the nineteenth and twentieth centuries. IFA has been finding new species and state records for bees and other invertebrates in its surveys within the HNF demonstrating this reality. Old-growth reserves will provide control areas for testing hypotheses about younger successional forests, studying regeneration, species diversity, reproductive success and population trends for forest dependent species, forest resistance to diseases and insect pests, nutrient cycling including carbon storage and uptake, soil creation, water retention, water quality and many other qualities and ecological processes and comparing them with the same aspects and processes in actively managed forests.
- d. Monitor the movement of people and their impacts. As the population moving to the wildland-urban interface and utilizing the NFS for recreation continually increases, old growth reserves will increasingly need to be monitored and protected from overuse.

We do disagree with the tenet of the proposed question b for the monitoring program on page 88048 which asks:

b. Question: Are vegetation management activities within old growth forest promoting the desired composition, structure, pattern, and ecological conditions?

i. Indicator: Changes in composition, structure, and patterns related to desired ecological conditions in areas affected by vegetation management.

Other than the removal of nonnative invasive plants, we do not believe that vegetative management activities should be undertaken to achieve "desired composition, structure, pattern or ecological conditions" in old growth forest. They are valued by people in today's increasingly artificial world, because they are part of something larger that people do not create or manage. The desired conditions are whatever conditions exist in them. In Characteristics of Old-growth Mixed Mesophytic Forests, biologist William Martin answers a similar question:

Should old-growth forests be actively managed to obtain a desired future condition and favor the most desirable tree and wildlife species?

Continued stand manipulation such as periodic thinnings to favor certain species, removal of dead or diseased trees, or any other intermediate

silvicultural treatment is neither necessary nor desirable. Such “management” violates the principle of designating ecosystems that are supposed to operate without human interference. Repeated entry also leads to disturbed soil, destruction of soil macropores, artificial forest structure and composition, and significant modification of wildlife habitat.

Martin concludes this article defining the old growth characteristics with the following observation:

Management of old-growth forests for the above described characteristics will require an entirely new way of thinking about resource management. No particular species is favored because of its commercial importance; uneven-aged forest is the desired condition; natural disturbance is expected and desired; trees and other forest life live, grow old and die in the forest, contributing to the accumulation and recycling of logs, snags, soil litter, and organic matter. Such forests are neither “overmature,” “senescent,” nor “decadent.” Management of old growth truly differs from other forest management because there is more emphasis on the amount and status of dead material and the multitude of activities associated with it; the living members take care of themselves.¹⁸

Indiana Forest Alliance appreciates your consideration of these comments and looks forward to working with you to protect and conserve mature and old growth forests throughout our national forests.

Respectfully,



Jeffrey Stant, Executive Director



Steven Stewart, Hoosier National Forest Program Director

¹⁸ Martin, W.H., Characteristics of Old-growth Mixed Mesophytic Forests, Division of Natural Areas, Eastern Kentucky University, Richmond Kentucky 40475, Originally published in the *Natural Areas Journal* 1992. 12(3): 127-135.

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