

Data Submitted (UTC 11): 4/5/2022 12:25:21 AM

First name: Steven

Last name: Krichbaum

Organization:

Title:

Comments:

USDA Forest Service

George Washington National Forest?ATTN: Reviewing Officer Joby Timm, Forest Supervisor

5162 Valleypointe Parkway ?Roanoke, VA 24019

540-265-5100

objections-southern-georgewashington-jefferson@fs.fed.us

<https://cara.ecosystem-management.org/Public/CommentInput?Project=52953>

jay.martin2@usda.gov

warmsprings@fs.fed.us edward.a.baker@usda.gov, sara.hivick@usda.gov

subject: Potts Creek Vegetation Project

Pursuant to 36 C.F.R. § 218, this letter and attachments are a formal objection to the Potts Creek Vegetation Project Draft DN, FONSI, EA and supporting documents. Responsible official: District Ranger Theresa Tanner, reviewing officer is Joby Timm, Forest Supervisor; proposed project to be implemented on the GWNF James River RD [36 C.F.R. § 218.8(d)(4)]. As per 36 CFR 218.8(d): I, Steven Krichbaum, am the Objector; address and phone number as above. Legal notice published February 17, 2022.

Clear Statement of Objection as required by 36 CFR 218.8(d)(5) - (6)

For the reasons provided and explained in more detail below, the Objector listed above Objects to the USFS's proposed Potts Creek ("PC") project: The project's Environmental Assessment and BE/BA do not satisfy the legal requirements of NEPA, the project violates the USFS's 2014 Forest Plan for the GW National Forest, the draft DN and FONSI are arbitrary and capricious, the decision to implement this project as currently configured is unreasonable and threatens to violate "Federal, State, or local law or requirements imposed for the protection of the environment", e.g., the Administrative Procedures Act, National Environmental Policy Act, Endangered Species Act, and National Forest Management Act.

Introduction:

The project at issue in this Objection, the Potts Creek Vegetation Project, is a major federal action with a significant impact on the environment.

The remnant temperate mixed and deciduous forests on the public lands of the Appalachians offer a unique opportunity for ecological recovery, an opportunity certainly unmatched in the East, perhaps anywhere in the world. The wild old-growth forests that not long ago naturally blanketed this region have been extirpated, devastated, and dismembered. In 300 years, less than the life span of many a tree, we have gone from pockets of human development occurring in a matrix of natural landscape to natural areas - habitat fragments - eking out a living in a sea of human development. Now, in today's world, islands of habitat like the George Washington National Forest have paradoxically become the floral and faunal source pools of the region.

Potts Creek and adjacent GWNF lands provide some of the most rugged and remote land still left in the Eastern USA. With ever increasing population and development pressures, places to escape to the "sounds of silence" and bask in nature's song are increasingly rare in our landscape. Places to be treasured, they are where the wild things are. These sanctuaries are our natural heritage and a vital necessity for sustaining the health of not only ourselves, but also all that we call home.

The project area includes the Potts Creek Potential Wilderness Area (PWA), also known as the Toms Knob Virginia Mountain Treasure (VMT) area; wherein almost 3000 acres of burning and dozer lines are proposed. It also includes a portion of the Frozen Knob Key Natural Heritage Area (a regionally significant tract of old-age/old-growth forest) with 239 acres of proposed burning there.

Here too are rare and sensitive habitats and populations and tracts of old -age forest. Here are endemic species such as the Roughhead Shiner, "endangered" Bat habitat, and quality habitat for Black Bears and small site-sensitive taxa.

The Potts Creek Vegetation Project area is located near Covington in Allegheny County, Virginia on the James River - Warm Springs Ranger District of the George Washington National Forest (GWNF). The project area covers approximately 38,763 acres, of which 18,233 acres is National Forest. See Appendix A, Vicinity Map. The Potts Creek project area NF is largely comprised of lands that have been allocated to Forest Plan Management Prescription Area (MPA) 13 - Mosaics of Wildlife Habitat (16,090 acres, ca. 89% of NF acreage in the PA - see EA table 1). A total of 7 other MPA's exist marginally within the project area on National Forest System (NFS) lands (Table 1). The Forest Service proposes the following activities:

- *Vegetation treatments including 551 acres of regeneration, 682 acres of thinning, and 4,952 acres of prescribed burning ?

- *Construction of 8.2 miles of temporary roads ?

- *Other ancillary wildlife habitat improvement projects.

- *334 acres commercially thinned for desirable species

- *"Create and maintain a primarily contiguous acres area of up to 348 acres of mid-to-late open woodlands."

- *Regenerate by timber harvest 25 units of hardwood dominated stands totaling approximately 551 acres. The proposed regeneration method is coppice with reserves. Coppice with reserves is an even-aged regeneration method in which reserve trees result in 15 to 25 square feet of basal area per acre.

- *"Implement prescribed burns, totaling 4,952 acres in seven separate burn blocks. Additionally, non- commercial mechanical fuels treatment would take place on approximately 10.4 miles of Wildland Urban Interface (WUI) Hazard Fuels Reduction line." 60% of the burning is proposed in Toms Knob Mountain Treasure - 3.2 miles of new dozer line.

- *"Construct approximately 25 acres of permanent wildlife clearings." ? ?

I am filing this Objection because I believe that the Draft Decision to implement the Potts Creek proposed project and associated project documents violate the National Environmental Policy Act (NEPA), 42 U.S.C. §4331 et seq., the National Forest Management Act (NFMA), 16 U.S.C. §1600 et seq., the Endangered Species Act (ESA), 16 U.S.C. § 1530 et seq., and the Administrative Procedure Act (APA), 5 U.S.C. §§ 701 et seq., and their implementing regulations.

Objector observes, enjoys, and appreciates native wildlife, water and aquatic habitat quality, and terrestrial habitat quality, and expects to continue to do so in the future, including in the project area. Objector's professional and recreational activities are directly affected by the USFS' failure to perform their lawful duty to protect and conserve these ecosystems

The aesthetic, recreational, scientific, spiritual, and educational interests of the Objector have been and will be adversely affected and irreparably injured if the agency implements the Project. These are actual, concrete injuries caused by USFS' failure to comply with mandatory duties under the NFMA, NEPA, ESA, and the APA. ? The purpose of NEPA is to take a "hard look" before an irreversible action is carried out. The Forest Service has failed to take a hard look and make reasoned, fact-based determinations in the effects analysis for the Potts Creek Project.

42 U.S.C. 4331. (b) In order to carry out the policy set forth in this chapter, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may-

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

"NEPA is a procedural statute that does not mandate particular results but simply provides the necessary process to ensure that federal agencies take a hard look at the environmental consequences of their actions." High Sierra Hikers Ass'n v. Blackwell, 390 F.3d 630, 639-40 (9th Cir. 2004) (internal citations and quotation

marks omitted); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332,351 (1989) (stating that NEPA "prohibits uninformed-rather than unwise-agency action").

40 C.F.R. § 1508.9. An EA is a "concise public document" that "briefly provide[s] sufficient evidence and analysis for determining whether to prepare an environmental impact statement."

Here, the agency does not provide sufficient evidence for determining whether to prepare an EIS and neither the decision-maker nor the public are adequately and properly informed.

The wildlife, communities, and ecosystems of concern are not just needless details. Particularly when their sustained yields (as required by the Forest Plan; 16 U.S.C. § 1604(e)(1)) at the PA are at risk and evidence is not provided that they were adequately considered.

Some "presently unquantified environmental amenities and values" (e.g., those associated with site sensitive wildlife) have not been "given appropriate consideration in decision-making" here (see 42 U.S.C. 4332. (B)).?

Alternatives

See "Purpose & Need for project", "Restoration", "Roads", "Alternatives", "Age-Classes - Ecological Legacy - Old forest", "Old Age Stands - Old Growth", "Climate change - Proforestation - Carbon sequestration", "Carbon Sequestration - Stagnation - Tree Growth - Forest Vigor - Old Forests", "Old Growth and Special Areas", "Roadless/Unroaded Tracts/Blocks/Areas - PWAs - VMTs", and "Potential for SIGNIFICANT IMPACTS - Such as to unroaded blocks/PWAs/SBAs/Box Turtles/Interior forest" sections of DEA comment letter (incorporated by reference). The agency's "Response to Comments" sweeps these issues/concerns (about, e.g., alternative development, age classes, old age stands, old growth, old forest associated communities/taxa, habitat complexity, forest diversity, canopy ecology, uncertainty, carbon sequestration, proforestation, 30X30 goal, climate-smart management, edge effects, harm to ecological integrity of Frozen Knob) under the rug and it fails to fully and fairly respond; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference. It is difficult to believe that an "expert agency" can't come up with any way to manage this area of National Forest except by one action alternative.

Feasible alternatives obviously include: No logging of old age stands, no road building, nor ground disturbing activities (burning, dozer work) in PWA/VMT and old growth tracts.

The Forest Service has largely ignored viable alternatives for providing functional early seral habitat (see comments on the Draft EA, "Alternatives" Section). But even in proposing "coppice w/ reserves" and "thinning" cuts across the project area, the Forest Service could have considered alternatives and chosen a different total acreage and/or distribution of harvest areas, following the language in the Forest Plan and FEIS.

The bottom line is that the Forest Service has proposed management that will eliminate or preclude the development of interior forest tracts in the project area and fail to meet various Objectives of the Forest Plan. The Forest Service in the Final EA and Response to Comments has erroneously presented management for both early seral and interior forest habitats within the project as an "either/or" scenario.

"For this project, no additional alternatives were generated from comments submitted . . ." Here, the FS has improperly refused to identify issues.

The information in the EA does not "provide[] the decision-maker with the information necessary to make a reasoned choice between the alternatives" (EA-11). Here, there is no reasoned choice as there are no action alternatives developed.

The FS should prioritize areas that are most degraded, where the greatest level of agreement and support is likely. These include:

- a. Low-diversity stands that would benefit from treatment to restore a diversity of structure and tree species, e.g., early or mid-successional stands that were logged relatively recently. And focus on sites where non-native invasive species are making major inroads.
- b. Use existing road access: Focus on areas with existing roads that do not require new road construction.
- c. Avoid steep slopes on highly erodible soils: Analyze GIS data as a "first filter" to help avoid ground-based logging in areas with steep slopes and high erosion-hazard soil types, which risk erosion and sedimentation of creeks and rivers. The Forest Plan prohibits ground-based logging on sustained slopes of 35% or greater. Plan at 4-13; see also Virginia's Forestry Best Management Practices for Water Quality: Technical Manual 2011 at 46. Proposed "skid roads" and "skid trails" in the project area may be "full-bench skid roads," cut deeply into steep hillsides and resulting in a wide range of issues including slope instability and non-native species invasions. There is no indication that skid road construction would be any different in the PC project. This bears heavily on all of the above issues with regard to landslides, erosion, and sedimentation, as well as issues related to listed aquatic species.

Alternative for more developing more "openings" instead of all the proposed logging should be examined. "There are approximately 8 acres of existing wildlife openings in the entire project area (located near the Children's Forest). Most of the existing clearings were initially created as a result of past timber sale activities and efforts with cooperative groups. These openings are managed biannually and are maintained as pollinator and grass forb habitat. The desired condition for MPA 13 is to have 5% in long term or permanently open condition, which equates to roughly 1,020 acres (given that there is 16,090 acres of MPA 13 in the project area [but 5% of 16, 090 is 805 acres]). Currently, the existing 8 acres is a major departure from the desired condition outlined in the Forest Plan."

Layering effective management activities in these activity areas and avoiding other significant sites would move the Forest in a meaningful way towards desired conditions, while also addressing higher priorities first. In addition, this could offer efficiencies in planning and implementation.

A key consideration under NEPA is whether the "selection and discussion of alternatives fosters informed decision-making and informed public participation." NEPA requires the Forest Service to "evaluate a reasonable range of alternatives to the proposed action, to allow the decision-makers and the public to evaluate different ways of accomplishing an agency goal." The Forest Service must engage in a rigorous analysis which provides a clear basis for choice among options by the decision-maker and the public (40 C.F.R. § 1502.14). This consideration and choice among options has not occurred here.

The Forest Service Must Identify and Analyze Alternatives that Result in Less Intensive Methods to Create ESH. The Forest Service has not properly considered some important factors including 1) the role natural disturbances and climate change stressors have had (and will have) in creating early successional habitats on the GWNF; 2) the quality of the mid and late successional habitats that will be logged and the species diversity within these areas; 3) the broader landscape when calculating the amount of harvests needed to create more young forests; 4) baseline population data for MIS and Regional Forester Sensitive Species within the project area; and 5) the importance of late successional stands in sequestering carbon and combatting climate disruption.

The Forest Service must identify a range of reasonable alternatives that reduce the amount of ESH created through timber harvests.

The FS expresses concern over the purported "lack of early successional habitat within the project area", but fails to properly consider its presence due to natural processes and on private lands.

The Forest Service Needs to Fully and Fairly Consider the Role Natural Disturbances and Climate Change Stressors and Private Lands Are Having on the Provision of ESH

See "Purpose & Need for project", "Anthropogenic Habitat & Forest Fragmentation/Fracturization/Perforation - Edge Effects", "ESH - Existing conditions on the project area - Natural disturbances", "Logging, Thinning - Canopy opening - Mosaic", "Age-Classes - Ecological Legacy - Old forest", "Old Age Stands - Old Growth", "Climate change - Proforestation - Carbon sequestration", "Carbon Sequestration - Stagnation - Tree Growth - Forest Vigor - Old Forests", "Old Growth and Special Areas", "Burning", and "Roadless/Unroaded Tracts/Blocks/Areas - PWAs - VMTs" sections of DEA comment letter (incorporated by reference). The agency's "Response to Comments" sweeps these issues/concerns (about, e.g., age classes, old age stands, old growth, old forest associated communities/taxa, habitat complexity, forest diversity, natural esh, canopy ecology, uncertainty, ecological legacy, natural disturbance, edge effects, the broader landscape, esh on private lands) under the rug and it fails to fully and fairly respond; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference.

20% of the NF acreage in the project area is young, not even mature, let alone old growth.

The Forest Service needs to examine the role of natural disturbances and climate change stressors and their relationship to active management approaches in the creation of early seral forests.

Natural disturbances can be abiotic (e.g., fire, drought, wind, snow, and ice) and biotic (e.g., insects and pathogens). (Seidl, R. et al. 2017. Forest disturbances under climate change. Nat Clim Chang.

Doi:10.1038/nclimate3303 (providing a global synthesis of climate change effects on natural disturbances)). The spatial extent and magnitude of these disturbances can vary, ranging from small gap scale events to catastrophic events such as tornadoes or major storms. Climate change is altering the frequency, intensity, duration, and timing of disturbances. (Dale, V. et al. 2001. Climate Change and Forest Disturbances: Climate change can affect forests by altering the frequency, intensity, duration, and timing of fire, drought, introduced species, insect and pathogen outbreaks, hurricanes, windstorms, ice storms, or landslides. BioScience. Vol. 51. Pg. 723-734) Disturbance change is expected to be among the most profound impacts that climate change will have on forest ecosystems in the future. Warmer and drier conditions facilitate fire, drought and insect disturbances, while warmer and wetter conditions increase disturbances from wind and pathogens.

Before rushing to create more ESH through silvicultural treatments, the Forest Service needs to meaningfully consider the role natural disturbances fueled by climate change stressors play in creating early forest habitat.

Surface geologic processes (known to occur here, e.g., mass wasting or landslides, flooding, erosion, etc.) are an important part of the natural disturbance regime and can affect the Forest in varying degrees every year. There needs to be a discussion of how canopy gaps contribute to young forests and how the natural disturbance regime (fire, storms, etc.) may be having a greater impact on forests in recent years and in the decades to come due to climate change. Moreover, post-disturbance forests have high loads of coarse woody debris which provides legacy habitat features and complex soil development, while canopy gaps created by regeneration harvests are devoid of such complexity.

It is not apparent that the FS has site-specific wildlife population data (such as population monitoring data & inventories for focal species) that validate the claimed "need" for these proposed actions to supposedly benefit "early successional species" and other taxa. The agency has not clearly and fully disclosed and analyzed this fundamental basis for the project's rationale.

Departure analysis is simply departure from what the FS wants; in an ecological sense it is arbitrary. "Across the project area, there is a departure of 2,137 acres of early successional habitat and 11,873 of late open

conditions." Just circular logic based upon arbitrary numbers.

Table 2 in the EA shows "Desired, existing, and departure of stage and structural conditions by ecosystem group for the Potts Creek project area".

Table 2 is false. It supposedly represents numbers "for the Potts Creek project area". But it does not - over 20,000 acres of conditions on private lands are totally absent.

The PC project area is 38,763 acres, of which 18,233 acres are NF lands. Over 20,000 ACRES of private lands are providing/influencing conditions within the project area and the NF lands - these have improperly not received a hard look by the FS planners, making for not-well-reasoned decision-making for the Potts Creek proposal.

The "Scope of the Environmental Assessment" is inadequate and improper - a well-reasoned decision is obviated.

These conditions on private lands impact ecosystems in the PA both on and off NF lands - their effects and influences cross imaginary ownership lines.

On the 20,000 acres on private lands, they can be even-aged managed for timber and pulp; and be incompatible with managing for interior forest. So, private lands in the project area may be able to meet the Purpose and Need of the project area with regard to early seral and young forest habitat.

At EA-33: "Very little early successional forest is present in the project area, with less than 1% of forest stands currently in the 0-20 year age class (Table 5)."

This misleading and inaccurate statement is not the full and fair consideration required by NEPA, nor does it accurately describe the existing condition. This unreasonable abuse of discretion does not make for a well-informed and well-reasoned decision.

At EA-34: "Fire monitoring data shows the Easter Complex Fire burned approximately 1100 acres in the Potts Creek project area. Canopy gap analysis utilizing remote sensing data and aerial imagery indicates that approximately 2 acres of early successional forest in the 0-10 age class was created within the project area as a result of the fire, along with 110 acres of mid to late open conditions. While some understory plant diversity increased, along with midstory mortality and a trend towards open woodland conditions, only negligible changes in the overall age class and forest structure were observed. "

And yet this agency proposes to burn thousands of acres, that by their admission does not result in the desired conditions.

Issues and concerns regarding ash were explicitly raised in comments and ignored by the agency - see the "response to comments" document.

The Forest Service should discuss the role of the National Forest within the broader landscape and how the conditions of the broader landscape may influence the sustainability of resources and ecosystems within the planning area. It is important to include information about the structural classes of private and state-owned forest land across the broader landscape - at the very least within the PC project area boundaries. When viewed through the lens of this broader landscape, there is arguably much less need to use regeneration harvests to create thousands of more acres of young forests within the National Forest boundaries, particularly if many of these existing young forests occur either as inholdings or in proximity to National Forest boundaries.

Furthermore, many plants and animals may have opportunity to thrive across the broader landscape, but those that are rare or that require special conditions may be better protected or find refuge on parts of the landscape more common within the National Forest lands and special/unique habitats found there. Examples may include the Indiana Bat and Northern Long-eared Bat (NLB), which depend on larger more mature trees for roosting. Therefore, there may be an even greater need for additional late-age and old growth forest to compensate for the lack of these habitats across the broader landscape (such as on private lands in and around the delineated project area).

"Landscape" is defined as "a defined area irrespective of ownership or other artificial boundaries, such as spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area"(36 C.F.R. § 219.19). Thus, the broader landscape includes non-federal lands outside the National Forest boundaries. The National Forest may need to compensate for degraded conditions on the broader landscape or to mitigate the effects of external stressors to "contribute to maintaining a viable population of the species [such as the aforementioned Bats] within its range." (36 CFR § 219.9(b)(2)(iii)).

EA: "The project area is dominated by late successional closed-canopy structure with limited acreage of early or late open forest canopy conditions in the project area."

The Final EA fails to properly acknowledge and fully fairly consider/analyse/disclose that past, present, and future logging on private land in the PC project area will provide a continuing input of early seral habitat for wildlife. These lands provide structural diversity and vertical structure within forested communities that provides habitat for associated terrestrial species that require various forest age/structural stages.

The EA also discloses no site-specific population monitoring data for esh-dependent taxa within the project area; there's some Forest-wide or county-wide data. The evidence in support of the "need" to fabricate more esh is not disclosed; a programmatic non-site-specific "desire" is not evidence in support of a well- reasoned site-specific decision. MA 13 is a "wildlife management" area ("Mosaics of habitat") so actual wildlife populations should be the driving force here.

There is no disclosure and analysis of site-specific information on the wildlife populations you claim are in need of habitat manipulations. NOTHING in the DEA on the state of population status/trend of esh-dependent taxa here, such as the Towhee ("Data from the GWJNF point count data for eastern towhee indicate an overall stable trend on the GWJNFs") or any other MIS.

The FS simply does not have the requisite information for an informed decision at this specific site.

While ESH can be particularly important for some species, the Forest Service needs to identify which specific songbird species stand to benefit from the proposed treatments. The Forest Service must also provide baseline population data and explain which direction these bird populations are trending in the region so that the public can be fully informed about the purpose and need for this project.

At EA-28: "dependent upon natural processes such as a catastrophic blowdown event, intense wildfire, or other naturally occurring events that would open up the forest canopy. . . . these gap dynamics will move the stands from an oak dominated stand, to favor more shade tolerant species in the overstory".

But there is much more to consider than just amounts of canopy opening - see the patch template and related discussion in "Logging, Thinning - Canopy opening - Mosaic" section of DEA comments. For instance, disturbance to just the ground floor (not intense canopy disturbance) can easily influence the canopy composition (Runkle 1991 USFS report) as can acidity and other soil characteristics. The discussion in the EA/BE is not a factual and full evaluation of the "no action" alternative and the existing condition.

The mature and old age forest found here is not actually "closed-canopy". Numerous disturbances and conditions are on-going that open up the canopy (the existing condition).

A major problem with this proposal is that the FS does not properly consider the contribution of natural processes to maintaining wildlife habitat, such as "early successional habitat", on the project area. See Table 2 - the "current ESH" is just the acreage of artificial ESH fabricated by human logging operations. So, this misleading and inadequate information does not make it clear that this area is ecologically departed or needs more logging to fabricate ESH.

The FS planners fail to properly consider and analyse natural esh patches, including those under two acres in size (the scale of many canopy gaps) (there is no analysis of this in the EA). As a consequence, the GWNF

managers use an invalid "need" to fabricate such habitat as a rationale for cutting down valuable and important mature and old-age forest habitat. Until this natural e.s.habitat is fully and fairly considered and assessed this proposal does not have a valid foundation.

The fact that the FS managers/planners might not formally inventory or monitor this habitat or for some reason does not like its floristic composition does not alter the fact of its de facto existence on the ground. It must be fully and fairly estimated and assessed and properly considered.

The agency's "Response to Comments" sweeps these issues/concerns (about naturally occurring esh availability, natural disturbances, esh on private lands in and around the project area) under the rug and fails to fully and fairly respond, if at all; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference.

Disturbance is episodic (patchily distributed in space and time), so regeneration is episodic as well. Natural old-growth forests have repeated patterns of suppression and release of tree growth. Native forest here should not be expected to be in structural or compositional equilibrium at the short time scales at which they are being evaluated by the agency.

Oaks and hickories and other common overstay tree species here can live at least 200-400 years, so, including the time it takes large dead trees to recompose into soil and other organisms (ca. 100 years), these are basically 500-year forests, i.e., they are not man-aged.

Over this lifetime, large and small disturbance events of varying intensities can be expected to occur here, resulting in varying amounts and periods of regeneration and canopy openness. The fact that some structural conditions may not be here now, does not mean they won't be here somewhere in 5, 10, 30, 100, or 200 years.

The Forest Service should not continue to assume that disturbances will have a relatively small and ephemeral impact on the forests and that active management is always necessary to achieve desired young forest conditions, as it appears to assert/imply in the scoping letter/EA/DNN.

For instance, did the agency predict the existence and location of the Barbours Creek Fire of 2012, the last known wildfire to occur within the project area ? The answer is: No. The Forest Service should proceed in a manner consistent with the precautionary principle, revisit any assumptions made regarding natural disturbance, and factor in the increase in frequency and intensity of climate change induced and amplified disturbances across the forests here. The Forest Service should also monitor natural disturbances to better inform an adaptive management approach to the creation of young forests.⁸

The 2012 Planning Rule requires the Forest Service to consider "[s]ystem drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession" and wildland fire when developing plan components to address ecological sustainability. 36 C.F.R. § 219.8. Section 219.5(a)(1) further states that assessments must evaluate information about "trends, and their sustainability and their relationship to the land management plan within the context of the broader landscape." It requires the Planning Team to evaluate "existing and possible future conditions and trends of the plan area." This would certainly include climate change, as well as the conditions on nearby private lands in the purchase area ("the broader landscape").

At larger spatial and temporal scales, tracts of NF of minimum dynamic area (Shugart 1984) and landscape resilience (Turner et al. 1993), the complete mosaic of successional states is possible (shifting-mosaic steady-state).

Natural disturbance events that enable natural regeneration of esh are usually considered/called "harm" or even "disasters" by the agency. Whereas using heavy machinery and chainsaws to fabricate conditions for esh are labeled "forest health".

It would not only be unnecessary but also detrimental to species diversity if a timber harvest is planned for an area where forest gaps have been recently recreated by natural disturbances, such as fire, windthrow, pathogens, or insects. Moreover, studies have found that if drought and drought-induced fires become more common, fire-tolerant oak and hickory species may become more abundant than less tolerant, maple, basswood, and birch species, potentially reducing diversity in currently diverse mixed mesic/sub-mesic forests. (McNulty, et al. 2013. Forests and Climate Change in the Southeast USA, at https://www.srs.fs.usda.gov/pubs/ja/2013/ja_2013_mcnulty_001.pdf).

Purpose and Need

There is no analysis and proper consideration about acreage of forest on private lands in the PC project area. This inadequate spatial analysis does not make for well-reasoned decision-making. Here, the FS has not honestly, adequately, properly, fully, and fairly analyzed the existing condition. Hence, the purpose and need is not validly justified.

See "Restriction of public" and Purpose & Need for project" sections in DEA comments (incorporated by reference).

The youth of the project area is clearly apparent: "By 2031, an estimated 8,890 acres or 49% of the FS ownership will have reached age 120." (EA-30) So, not even half of the project area will be only 120 years of age. Remember that 130 or 140 years of age for these deciduous forest types is considered by the agency to be the minimum age for being considered old growth (see 1996 OG document).

"There are no additional activities planned in the reasonably foreseeable future, which, when combined with past activities and the projects proposed within these alternatives, would have a significant cumulative effect on old growth forests in the area." (EA) But the foreseeable future is only 10 years. So in 10 years and one day after the final decision for this project, the agency could easily come up with another proposal to cut down hundreds of acres of old age stands. If not before; that is not an impossibility, just not "foreseeable" right now (such as a "salvage sale" after a natural disturbance event(s)).

Inadequacy of Cumulative Effects Analysis

EA-22: "the impact of the proposed vegetation manipulation could have an effect on the vegetative condition of a stand for a long time period, theoretically a full rotation. However, the quantification of those impacts over long periods becomes problematic."

The FS deals with this significant uncertainty and long-term impact, such as to old-age stands and flora and fauna populations, by avoiding the issue:

"Age-class distributions are generally discussed in 10-year increments. Therefore, a 10-year period would be appropriate for the cumulative analysis of future activities."

EA-31: "NNIS surveys were conducted in the project area. Several NNIS were identified within and adjacent to the proposed harvest units, areas of proposed temporary road construction, and along existing roads. Many of these species are shade intolerant plants that require sunlight to grow and flourish."

"The potential to introduce or increase the presence of NNIS in this alternative is related to the amount of acres harvested and acres of ground disturbance. Thus, Alternative 1 has a greater potential for the establishment and spread of NNIS when compared to Alternative 2."

Nothing in the EA about facilitation of NNIS by fires on the thousands of burn acres. "The spread of invasive species can also be reduced by quickly seeding disturbed areas with non-invasive species such as native grasses and wildflowers beneficial for wildlife. The potential spread and establishment of NNIS would further be

mitigated by requiring off-road logging equipment to be inspected and free of soil, seeds, and other attached material before entering onto National Forest ownership."

What, the FS intends to "quickly seed[]" all those incinerated areas? No. Just spread more biocides throughout the PA ecosystems; e.g., "The pre- treatment of forest roadsides and proposed temporary road construction locations . . . Herbicide use tiers to the Forest-Wide Non-Native Invasive Plant Control EA."

The FS EA does not substantiate that the agency's mitigation will prevent significant impacts with regard to invasive species in the project area.

"Otherwise, there are no past, current, or reasonably foreseeable future activities planned in the project area that, when combined with the proposed action, would have a significant cumulative effect on the establishment and spread of non-native invasive plants."

There is no explanation and reasoning provided for this conclusory assertion. The presence of all these NNIS in the PA is certainly related to past/current management activities; e.g., "along existing roads". And the agency conveniently says nothing about the presence/status of NNIS at previous "harvest units"; it's as if that disturbance and "existing condition" doesn't exist.

The agency discloses no quantitative criteria or qualitative reasoning as a basis for claiming there is no "significant cumulative effect on the establishment and spread of non-native invasive plants."

With regard to cumulative impacts to populations - "Recent wildfires in the project area include the Barbours Creek Fire (7,351 acres) in 2012 and the Mill Branch Fire (32 acres) in 2005."

The big question is: What were impacts of these on wildlife and sensitive floral populations there? Such as to site sensitive invertebrates and herpetofauna (see DEA comment letter "Burning" section). Have populations recovered from these previous disturbances?

On this great concern the agency's response is superficial. The agency discloses no quantitative criteria or qualitative reasoning as a basis for claiming there is no "significant cumulative effect" to wildlife such as site sensitive and relatively immobile invertebrates and herpetofauna and interior forest herbaceous flora.?

Part of the concern lies with the agency's intention to repeatedly kill wildlife and suppress population recovery with repeated burning - "This treatment, when maintained with periodic prescribed fire, creates an abundant flush of herbaceous growth on the forest floor. Recent research documents forb cover increases of 50-fold and overall herbaceous diversity increases of 10-fold. (Vander Yacht et al, 2020) Moreover, shrub species such as Vaccinium (blueberry) also respond to this treatment with increased soft mast production. The key to maintaining the open woodlands is repeated prescribed fire." (EA-25)

Impacts to some vague "overall" diversity is not the issue. Impacts and harm to populations/taxa that actually exist here that are sensitive to such disturbance are the concern. Increases of NNIS and common species can increase "diversity".

The agency focuses on artificially fabricated conditions for floristics, but fail to adequately and fully assess impacts to wildlife, including those specifically brought to their attention. And the foreseeable impacts are not confined to just those from this single proposal: "Currently, the intention is to maintain this condition with periodic fire indefinitely into the future."

Here is the entire disclosed "cumulative effects" analysis of TESLR species:

"There are no impacts resulting from implementation of this project that would adversely affect the viability of any TES, sensitive species, or locally rare species, nor result in a trend toward federal listing under the ESA. There are no additional foreseeable activities in the area that would directly or indirectly affect these species, therefore, there will be no cumulative effects to these species from foreseeable future projects."

The FS planners use a mere ten years to gauge cumulative impacts (the "foreseeable future") - but that is NOT the time period that it takes for cutting sites to again become "mature" forests or old-age forest. So, the wildlife that live in and prefer those structural/compositional/functional conditions can be significantly impacted by significant and cumulative effects (short- and long-term) far outside of the scope of the agency's assessment; e.g., amounts of remaining mature forest may be significantly diminished and/or fragmented or degraded multiple

times over the next 8 decades - there is significant uncertainty.

Old-age and Old-growth Forest

See "Age-Classes - Ecological Legacy - Old forest", "Old Age Stands - Old Growth", "Climate change - Proforestation - Carbon sequestration", "Carbon Sequestration - Stagnation - Tree Growth - Forest Vigor - Old Forests", "Old Growth and Special Areas", "Restoration", and "Roadless/Unroaded Tracts/Blocks/Areas - PWAs - VMTs" sections of DEA comment letter (incorporated by reference). The agency's "Response to Comments" sweeps these issues/concerns (about, e.g., age classes, old age stands, old growth, old forest associated communities/taxa, habitat complexity, forest diversity, canopy ecology, uncertainty, carbon sequestration, proforestation, 30X30 goal, climate-smart management, edge effects, retardation of stand development potential, harm to ecological integrity of Frozen Knob) under the rug and it fails to fully and fairly respond; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference.

Basically, old growth is being defined out of existence on the GWNF. There are numerous definitions for Eastern old growth, but what they all have in common are: forest sites with old trees that have been largely undisturbed by people (Barton and Keeton 2018). Estimates are that old growth generally occupied 80 - 90% of the pre-settlement forest landscape in these Eastern forests.

We should be preserving, protecting, and maintaining mature forests as much as possible. Particularly where there is already so much young forest available across the landscape of Virginia (see forest statistics for the state from VA Dept. of Forestry).

Allowing natural forest development and restoration to occur (proforestation) is reasonable, beneficial, promote forest health, and confers desirable conditions - see "Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good" by Moomaw, Masino, and Faison 2019 (attached).

As regards "old growth" in the project area - "The results of the survey yielded that portions of harvest units 19, 21, 30, and 47 contain patches that met the operational criteria for old growth type 21. These patches have been identified as protected areas to be excluded from harvest. An additional location of old growth type 21 was found in unit 3 that has been delineated and will be excluded from harvest."

ONLY 18.4 acres of old growth were identified out of hundreds of acres of old-age stands. Being over a hundred years old, these old-age stands are the closest in development to old growth (e.g., 130 years old, depending on the forest type). Cutting these sites will prevent their becoming old growth for at least another 130 years (a foreseeable and irreversible long-term impact).

This is a major concern/issue: that the Forest Service is including late successional and potential old growth stands in areas it intends to log. For example, there appears to be more than 817 acres of trees that meet the 100 years or older age class in the silvicultural treatment areas (approximately 2/3 of the cutting acreage - see EA Table 3). The contemplated cutting would remove 60-90% of the basal area at the units (a human disturbance that precludes their being defined by the agency as "old growth").

The Forest Service must protect late successional and potential old growth stands to combat climate disruption. Scientific studies support the need for forests, including national forests, to play a key role in responding to the climate crisis and the ongoing extinction crisis by providing for the need for carbon storage/sequestration. See Moomaw et al. 2019, Leverett et al. 2021 "Older White Pine stands and trees accumulate carbon for many decades and maximize cumulative carbon", Law et al. 2022 "The status of science on forest carbon management to mitigate climate change and protect water and biodiversity"; incorporated by reference.

Allowing standing forests to grow to their full biological potential is far more effective in mitigating climate change than are cutting down mature trees and planting young ones. The youthful GWNF and other Eastern NFs have a long way to go to ecological maturity. The nearby Frozen Knob "Key Natural Heritage Community" is an example

of the age-related structural and compositional complexity that can be attained in this eco-region.

Old growth forests of the eastern United States sequester and store significantly more carbon than both young and mature forests (McGarvey et al. 2015; Burrascano et al. 2013) because they generally host significantly more large living trees, above ground biomass, and dead wood (McGarvey et al. 2015; Burrascano et al. 2013), because they have been shown to have lower soil respiration rates than younger forests (Liebman et al. 2015), and because the rate of tree carbon accumulation increases continuously as trees grow in size (Stephenson et al. 2014). The transition of young and mature secondary forests in the eastern United States to old growth status is an especially promising opportunity to increase carbon sequestration and storage (Lichstein et al. 2009). Thus, these old-age stands should be excluded from logging as they not only provide numerous benefits for wildlife, but they are also essential to combatting the effects of climate change as they pull carbon from the atmosphere and have significant carbon stores built up over decades and centuries. Scientists favor leaving older-growth trees intact for their ability to sequester CO₂ from the atmosphere, and thereby counteract global temperature increases resulting from anthropogenic climate change.

See, e.g., Luyssaert S, et al. 2008. Old-growth forests as global carbon sinks. *Nature* 455:213-215, Keith, H, B.G. Mackey, and D.B. Lindenmayer. 2009. Re-evaluation of forest biomass carbon stocks and lessons from the world's most carbon dense-forests, *PNAS* 106(28): 11635-11640; Stephenson, N. L., et al. 2014. Rate of Tree Carbon Accumulation Increases Continuously with Tree Size. *Nature* 507, no. 7490 (March 6, 2014): 90-93. <https://doi.org/10.1038/nature12914>, Mildrexler, D.J. et al. 2020. Large trees dominate carbon storage in forests east of the Cascade Crest in the United States Pacific Northwest. *Frontiers in Forests and Global Change* <https://www.frontiersin.org/articles/10.3389/ffgc.2020.594274/full>.

In the face of unprecedented climate disruption, the Forest Service should be doing all it can in furtherance of Executive Orders like 30x30 to expand old-age/old-growth forests on public lands. See Executive Order 14008 of January 27, 2021, "Tackling the Climate Crisis at Home and Abroad," 86 Fed. Reg. 7619-7633 (Feb. 1, 2021).

Until the 30X30 and climate-smart goals, guidelines, and implementation are explicitly detailed, the Potts Creek project should be put on hold and a moratorium on the irreversible cutting of old trees and tracts be initiated.

The EA/DDN analysis and disclosure are deficient, inadequate, and illegal with regard to these issues and concerns about old forests, climate change, and the 30X30 initiative. Significant impacts to old-age forests and to potential old-growth forests (sites that can foreseeably attain the minimum age to be considered old growth for their forest types in a matter of only a few decades) would occur if the proposal is implemented.

And the issue I raised about "old age" stands was improperly avoided by converting it to "old growth" issue - "1. Timber harvesting and temporary road construction could have the potential to impact portions of stands identified as old growth during field surveys." (Project issues in DEA)

New Information

The climate-smart management directive, the 30X30 goal, and the use of proforestation for carbon sequestration and to counter climate change are new issues and new information that the old Forest Plan did not meaningfully consider in its formation of "desired conditions" and attaining such conditions for the Potts Creek PA. See "Restoration" and "Climate change - Proforestation - Carbon sequestration" sections of DEA (incorporated by reference).

New information on climate change and the diversity/extinction crisis must be fully and fairly considered now and the management direction, analysis, and decision for the PC PA correspondingly updated and altered.

It is also time to amend the Plan to incorporate these new issues/information - this can be done as part of this site-specific decision. This is certainly legal under the NFMA and within the scope of the project.

For instance, as current Forest Service Chief Randy Moore stated in the ROD for the revised Hoosier NF Plan: "The management direction provided in the Forest Plan will be subject to periodic and timely change as new information comes to light and when the public demonstrates a desire for a changed focus in management. Amendments to the Forest Plan will be proposed when the need for change is evident and the public will be involved in those changes."

New information also involves the recent submission of a petition for ESA listing of the Roughhead Shiner and the uplifting to "endangered" of the Northern Long-eared Bat.

Frozen Knob Key Natural Heritage Community Area

For the Frozen Knob KNCHA, "the unusual character of the vegetation for which the area was identified," this character is the old-age forest" found there. Note the use of old-age forest as the defining determinant. This is an example of a natural "500 year forest".

Instead of protecting the "natural evolving or natural appearing landscape character of these areas", the FS here intends to "restore" a human-generated fire regime.

Not clear or substantiated that the intentional burning right here right now is needed to "maintain the long-term goals of the desired conditions in these areas".

The EA does NOT establish how it is that the infliction of an artificial burning regime is necessary here for these "dry to mesic oak dominated forest communities" It is not clearly substantiated how it is that out of all the places on the Forest, the agency cannot even let the "natural evolving or natural appearing landscape character" of this relatively small site alone.

DDN: "DCR also identifies areas of significance called Conservation Sites. There are DCR conservation sites located in the project area. No activities are planned in these special management areas." However, the DCR VDNH considers the Frozen Knob special area "to represent some of the best examples of this old growth forest type on this landform." (LRMP) There is over 200 acres of burning proposed here.

So, Frozen Knob (MA 4D1) is not a special management area called a Conservation Site ?

Nor would a "High SIO" in the area be maintained.

The Forest Service holds a great responsibility in its hands.

Here is one of the few places on this Forest, in the State, and in the Central Appalachians where the opportunity to augment and promote an already existent block of old growth exists (as determined by expert VDNH research) - a restoration opportunity not just disregarded, but actions are proposed to impede its areal development and inflict harmful edge effects upon it through logging, roading, or burning (e.g., facilitating alien invasives).

This is not consistent with "DC 4D1-03: All areas are protected from human-caused detrimental habitat change ..."

Here it is 2020 and the importance and rarity and significance of old-growth forest in the East is simply ignored and swept under the rug. According to the Forest Service's Southern Region guidance on old growth (FR-62), old growth in the eastern U.S. comprises only approximately 0.5% of the old growth that historically existed in the southeastern US. Much of it was cut down in the early part of the 20th century.

There is logging proposed right beside the identified old growth tract. Edge effects are an obvious concern. For instance, the discussion in EAs usually confines the analysis of effects to Ovenbirds nesting habitat just to "the number of acres cut." But this is not sufficient as current scientific knowledge recognizes a potential 600 meter edge effect for bird populations (see Leimgruber et al. op cit. and Wilcove, D.S. et al, 1986, "Habitat fragmentation in the temperate zone", pp. 237-256 in Soule (ed.) Conservation Biology, Sinauer Press, Sunderland MA; incorporated by reference). This edge effect would extend into the old-growth forest from the roads and cutting sites.

In the past, the inadequacy of the analysis is implied when an EA referred to predation and nesting habitat. As the Ovenbirds would no longer be nesting at the cutover sites, the increased predation would not be occurring there, but would be elsewhere. So, the effects are obviously not confined just to the number of acres cut. Logging was proposed on two to three sides of old growth tracts identified in the GWNF Plan map "Existing Patches Old Growth Using Region 8 Guidelines" - including the tract east of High Point and immediately south of Rt 617 (even-age logging is proposed on all FS tracts surrounding this old growth tract). Late open block logging is proposed on nearly all FS tracts surrounding the old growth stand due south of Frozen Knob. Even-age logging is proposed on multiple sides around the old growth tract near Rt 3020. And there may be additional impacts from roads.

An old age stand (at least 150 years old) is surrounded by proposed regeneration logging (and road 617) at the north end of FSR #350. It appears that the FS actually wants to fragment and isolate older age forest and inflict harmful edge effects upon the habitat and populations there. This is a really bad and improper idea that ignores ecological and conservation knowledge and can obviously harm viability and distribution of some species/populations.

This logging referred has not been dropped from the proposal. It should be. Here is yet another alternative/amendment/design criterion to be fully and fairly developed and implemented.

Also see Fig. C-23 at pg. 213 of the SAA Terrestrial report (incorporated by reference) that shows "forest stands selected as possible old growth" on the James River RD. This information, a study by the Forest Service itself, has been in your hands for almost 25 years now. And it still isn't properly acknowledged, as this proposal makes clear.

I am concerned about harm to tracts of old age dry-mesic Oak and dry & dry-mesic Oak-Pine here. These old age stands and portions of stands should be off-limits to logging and road building and intentional burning (i.e., considered "unsuitable" here).

See: Fleming, G.P. and W.H. Moorhead III. 2000. Plant communities and ecological land units of the Peters Mountain area, James River Ranger District, George Washington and Jefferson National Forests, Virginia. Natural Heritage Technical Report 00-07, Virginia Dept. of Conservation and Recreation, Division of Natural Heritage, Richmond. Unpublished report submitted to the USDA Forest Service. 195 pp. plus appendices. Incorporated by reference.

OAKS

See "Logging, Thinning - Canopy opening - Mosaic", "Ecosystems, Oaks, and cutting", and "Forest structural diversity" sections of DEA comment letter (incorporated by reference). The agency's response to comments, analysis, and disclosure are inadequate and improper for a well-reasoned decision.

One of the reasons for the preponderance/abundance of oaks here is due to past anthropogenic disturbance: "During the 1920s and 1930s, chestnut blight removed American chestnut from the overstory and created openings that enabled other species, primarily oaks, to grow in their place." In other words, this is an artificial state brought on by human meddling. A more diverse species composition can not only be more natural, but ecologically beneficial and desirable. Other anthropogenic drivers of an increased or disbalanced abundance of oaks are past intensive logging and intentional burning (both of which, according the the Forest Service, facilitate oak regeneration); see, with regard to the drivers and the patch template, McEwan, Dyer, & Pederson 2010 paper in *Ecography*, "Multiple interacting ecosystem drivers: toward an encompassing hypothesis of oak forest dynamics across eastern North America".

In fact, due in part to these past anthropogenic disturbances, it appears that much of the area is already "dominated" by a mixed oak or oak-hickory canopy (see FTs 42, 45, 47, 60, 80, and 84, most of which are stands

over 100 years old, at EA Table 3), so it is unclear why already very-abundant oak forests must be artificially maintained by logging. Only one proposed cutting unit is FT 53, sub-mesic oak-hickory, so on many/most of the dry or oligotrophic sites, oaks can be expected to continue to be dominants under a natural disturbance regime. More mesic conditions that develop over time (the xerarch successional process described by Braun 1950) within stands will improve habitat for lots of flora and fauna (e.g., salamanders, small snakes and lizards, herbaceous forbs).

This preponderance of oaks here is due in part to past human disturbance, such as intensive logging and intentional burning (both of which, according to the Forest Service, facilitate oak regeneration), as well as Chestnut blight. So, a greater diversity of species and forest types here would be good for forest health, help restore desirable natural conditions, as well as comply with the Plan.

Obviously, species and forest community diversity is a leading characteristic of Management Prescription Area 13. "The landscape features structurally diverse forest communities, ranging from rich cove and mesic hardwood/ pine forests, with predominantly closed canopies" (LRMP DC-13.01)

Regarding Oaks and the "purpose & need" for this proposal, in my DEA comment letter in the "Ecosystems, Oaks, and cutting" section (see and incorporated by reference), I wrote :

"Here's what the GWNF FEIS has to say about hard mast availability:?"The availability of hard mast producing species is not considered to be a problem with any plan alternative as shown in Tables 3B2-12 and 3B2-13." In fact, "The alternative with the highest projections for mid- to late successional hard mast producing forest is C with 951,300 acres (90%) at 10 years."

Alternative C as analyzed had no commercial logging."

This finding by the agency itself is not apparent or acknowledged in the EA/BE - the project analysis does not properly tie to the Plan/FEIS.

Clearly, oak regeneration and mast production can not be expected to be a problem in the NF at the PC PA if the proposed logging of the old-age stands does not occur.

The agency's "Response to Comments" sweeps these issues/concerns (about oak regeneration, the interactions of the landscape template, mycorrhizal relationships, wildlife in non-oak forests, acid deposition & soil productivity, mast availability) under the rug and fails to fully and fairly respond; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference.

Potential Wilderness Area/Virginia Mountain Treasure

See "Roadless/Unroaded Tracts/Blocks/Areas - PWAs - VMTs" section of DEA comment letter (incorporated by reference). The agency's "Response to Comments" sweeps these issues/concerns (about, e.g., direct, indirect, or cumulative impacts of the PC proposal to the Forest's Roadless areas/Unroaded tracts/Roadless blocks/ PWAs/VMTs, roadless character, importance of unroaded blocks, uncertainty, carbon sequestration, proforestation, 30X30, climate-smart management) under the rug and it fails to fully and fairly respond; the EA does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated. Scoping comments and DEA comments incorporated by reference.

The FS claims: "Oak and pine forests (which dominate proposed treatment areas) are departed from desired conditions as presented in the Forest Plan." (EA-81)

The "departure" here claimed by the agency, is actually a departure from artificial (not natural) conditions: "structural conditions with overall open canopy (canopy closure of 25-60 percent: typical of thinned forests)". The proposal would inflict this unnatural condition upon the PWA, yet the EA deceptively asserts that the effect is "Short term degrading; Long term improving", as if having to in some way perhaps recover from this intentional alteration/degradation/destruction (of untold numbers of living organisms) that is not necessary makes it okay.

The agency offers no substantiation that improvement from all the so-called "short term degradation" will necessarily occur. Neither law, regulation, nor Forest Plan require this unnatural condition/degradation to occur here in the first place.

The great majority (ca. 90%) of the PWA/VMT is within the project area.

The "developments" (roads) in the area are found in a small limited section around the Children's Forest. So, "the relatively minimal development over the total area of Potts Mountain, as well as the varied topography, still provides a high degree of screening from these developments and opportunities for primitive recreation." (EA)

Thus, the great majority of the area "provide outstanding opportunities for solitude and physical challenge as well as for natural processes to dominate within the area." (EA) "characterized by a predominantly natural or natural appearing landscapes with a strong feeling of remoteness. Additionally, the diversity of topography in the area provides good screening of private lands which heightens the opportunities for isolation and solitude."

The FS proposes 3896 acres of burning here - almost HALF OF THE PWA (49.5%).

The FS asserts that Alt. 1 "would primarily serve to promote ecological restoration by enhancing habitat conditions for declining early successional species and other species of greatest conservation need, and restoring low diversity stands and systems severely altered from their historic range of variability (e.g., stands <40 years old, fire-dependent systems). However, all activities proposed under alternative 1 within the Potts Mountain area may affect the untrammeled wilderness quality. Effects would primarily focus on hydrologic function, soil productivity, and restoration of forest regimes. See the soils and hydrology and major forest communities' effects analysis for project impacts to those resources. Some effects are short term, while others would have long lasting effects to natural processes. In general, long-term effects may improve the untrammeled quality."

The FS also claims that "the spread of invasive species should be minimal. Alternative 1 would have effects to the natural quality of Potts Mountain. Primary negative effects will be short term. Overall, actions proposed in alternative 1 would not drastically alter the natural quality of Potts Mountain."

With regard to the above assertions, the agency simply sweep impacts under the rug. What appropriate mitigations? Seed almost 4000 acres? The FS intends too impose human impacts on half the PWA, but somehow that does significantly alter naturalness here. Even though implementation obviously "may affect the untrammeled wilderness quality" here. And what exactly is meant by "drastically"?

The proposed actions will significantly alter and harm the natural quality and untrammeled nature of the area (even if somehow not "drastically").

Dozer impacts deception: "The construction of fire control lines will be short-term and would not be noticed by the casual observer in the long-term."

The FS makes the unsubstantiated assertion that somehow the impacts of these lines would not be noticeable or take place over 10 years later.

"There are no project activities such as temporary road or skid trail construction that would increase the potential for illegal ATV use."

As if ATVs can not easily travel on dozer-bladed pathways - such pathways mean "manageability" is degraded/hindered.

The FS intends to "restore" an anthropogenic fire regime and herbicide applications to the communities here. "Effects to wilderness character and attributes are anticipated to be substantially unnoticeable and designed to provide long-term improvement to ecological conditions and restore ecological communities to a more natural condition within the Potts Mountain area."

The actions would be very noticeable - the FS implies that their actions will significantly impact community composition and structure, but somehow it's unnoticeable.

The agency's contemplated actions here are an example of EXACTLY what "untrammeled" or "natural" do not mean. Untrammeled and natural mean NOT controlled and/or obviously impacted by humans - yet here the agency's impacts are mischaracterized with conclusory assertions as somehow "long term improving".

The FS refers to logging and roading as "past improvements in ecological structure" - In actuality those actions degraded and destroyed natural ecological structure and impeded/disrupted successional regimes/natural processes (e.g., canopy gaps from the falling of big old trees and natural LWD loadings (trunks/boles removed)).

Project implementation would result in HALF of the PWA being directly impacted/degraded with regard to untrammeled and natural qualities, and opportunities for primitive recreation, scenery, and manageability. And indirect and cumulative harmful impacts would also ensue in the areas not directly impacted (e.g., more NNIS and negative edge effects).

EA: "prescribed fire is proposed for areas with High and Moderate SIOs." What are impacts to scenic quality for the visitors within the areas with High SIO? Why not explicitly disclose this? The refusal to do so is highly suspect. The EA/DDN fail to adequately and fairly disclose impacts to Visual and Scenic Resources, such as the area's valuable "natural evolving or natural appearing landscape character".

We the public go to places like this (e.g., semi-primitive areas with High SIO) so as NOT to see/experience/enjoy heavy-handed alterations of the landscape. This is yet another reason to drop the burn block in the Potts Mountain PWA/Toms Knob VMT (alternative/design criteria development). This area "provide[s] outstanding opportunities for solitude and physical challenge as well as for natural processes to dominate within the area." These social opportunities would be significantly harmed by the proposed actions.

Recreation opportunities emphasize: nature interpretation, reptile/bird watching, wildlife viewing, nature photography, and hiking on non-motorized, non-mechanized foot trails. This place is characterized by and valued for the "natural evolving or natural appearing landscape character of these areas".

Plus, the area has already been recently impacted by fire: "Past wildfires within Potts Mountain include the Barbour's Creek Fire, which covered approximately 7,351 acres in 2012."

The FS fails to disclose and analyze the recovery of populations of fauna and flora from this previous burn episode and how the proposed actions can impede the area's "natural evolving" character.

Nonetheless, some anonymous people with vested interests (jobs spending the public's money) gave it a poor rating for fire conditions - it seems as if any place without anthropogenic fires (ignited by the USFS) is in "poor" condition (even a place with recent widespread burning). Plus, the agency is significantly uncertain as to the size, intensity, and number of natural fires that might occur here over the next 300-500 years (the lifetime of the trees in a non-man-aged forest here).

Cumulative Impacts to VMTs

Only 40% of VMT acreage is included in currently IRAs on the GWNF.

The cumulative impacts to VMTs, such as reducing or not maintaining their roadless or remote character and degrading, fragmenting or perforating their ecological integrity and "natural evolving or natural appearing landscape character", is a significant issue of great concern.

Numerous recent projects/timber sales have failed to adequately protect VMTs.

In just the recent couple of years, the North Shenandoah Mtn., Sandy Ridge, Potts Creek, Green Hill, and Archer

Knob proposals/projects ALL affect and degrade numerous VMTs on the GWNF; other proposals/projects affect and degrade VMTs on the JNF. And many other projects since the 2014 Plan revision have been significantly reducing roadless/unroaded acreage and degrading the ecological integrity, untrammeled character, naturalness, scenery, and non-motorized recreation associated with VMTs.

The GWNF has 23 Inventoried Roadless Areas (IRAs) with a total of 242,278 acres. As part of the revision process, the Forest identified 37 areas as Potential Wilderness Areas (PWAs) with a total of 372,631 acres. The PWA inventory includes all of the IRAs, with the exception of Southern Massanutten and The Friars (FEIS 2-56). Over 220,000 acres of VMTs are not considered as PWAs or IRAs and are open to "active management" (e.g., logging and roading in MA 13). Further, 85,500 acres of PWAs that are outside of IRAs (such as Potts Mountain) are open to "active management" (plus more acreage in S.Mass. and Friars). Alt. C had 386,800 acres in recommended WSAs.

The EA/DNN do not properly and adequately analyze and disclose the cumulative impacts to the VMTs here in the project area and RD and on the Forest.

The Forest Service Must Avoid "Taking" of and Significant Harm to Federally Listed Bats

Another concern is that implementation of the proposed project may "take" and otherwise significantly impact ESA listed bat species, including the Indiana Bat ("IB") and Northern Long-eared Bat ("NLB"). With regard to the projects impacts on the IB, the BA states: "May Affect - Likely to Adversely Affect."

The adverse effects to two ESA-listed species that may be present in the PC project area weigh in favor of preparation of an EIS.

Depending on the circumstances, the existence of even only one of the "intensity" or "context" factors may be enough to require an EIS (*Ocean Advocates v. US Army Corps of Engineers*, 402 F.3d 846,865 (9th Cir. 2004)).

Contrary to the conclusion in the Draft FONSI that "the proposed action will not adversely affect any proposed, endangered, threatened or sensitive species (PETS) or its habitat" (Draft FONSI at 9), the implementation of the project clearly "may effect" these species and their habitats, and formal consultation with USFWS needs to be initiated. The project, however, is "Likely to Adversely Affect" the Indiana Bat (see BA) and the "may affect" determination for the NLB is based on an outdated and insufficient 4(d) rule and programmatic BO.

Interior forest habitats are vital for a wide range of species, including Northern Long-eared Bats. The GWNF LRMP App. F defines "interior forest habitat: High canopy forest conditions suitable to meet the requirements of area-sensitive species that are adversely impacted by forest edge, including microclimate change (warmer, windier), increased predation, increased brood parasitism, and increased competition."

Project proposal would result in significant impacts to interior forest here. See, e.g., "Wildlife and habitat - TESLR species", "Connectivity - Resilience - Population viability", "Burning", "Birds - fragmentation - edge effects", "Anthropogenic Habitat & Forest Fragmentation/Fracturization/Perforation - Edge Effects", "Roads" sections of DEA comments (scoping comments and DEA comments incorporated by reference).

The proposed project calls for extensive regeneration harvests and other cutting management (e.g., heavy thinning) throughout the project area. As the Recovery Plan for the Indiana Bat notes, "Research has demonstrated that densities of tree-roosting bats are generally greater in old growth forests of temperate regions, where structural diversity provides more roosting options and important foraging areas for some species." "Therefore, even though young forests may benefit certain species, others such as the NLB and Indiana Bat may experience harm, including the loss of foraging and summer roosting habitat.

Of deep concern is that the proposed project may result in an exceedance of the incidental take statement (ITS -

for numbers of Bats) contained in the old Biological Opinion. The FS should also reinstate consultation with FWS regarding the 2014 Forest Plan as it does not appear that the Biological Opinion authorizes the level of take that may likely result from this project. Nor were the increasing impacts of White-nose syndrome adequately factored into the cumulative impacts analysis.

Take may obviously be exceeded or significant harm may occur. I am concerned about the viability and distribution of the Indiana and other rare Bats (e.g., Northern Long-eared and Small-footed Bats). Surveys for rare bats need to be done by qualified professionals at the proper times and with the proper methods and equipment. Mere visual diurnal walk-throughs during the course of BE/EA surveys are totally inadequate and improper. These will not result in valid site occurrence data, nor will it ensure that maternal and roosting trees/sites are properly identified and protected and that excessive take will not occur. The project decision does not ensure such protection.

As the recent finding of Indiana Bats in North Carolina shows, one tree may harbor more bats than is allowed to be "incidentally" taken. Proper surveys have not been done here and are not being done here at the project area to ascertain whether Bats are present in or using proposed cutting units. Nor is it proposed that proper monitoring by qualified personnel of trees if they are cut be accomplished to ascertain if incidental take requirements are not exceeded. The Forest Service is not taking active measures (as they should be if the Bats were being accorded the requisite top priority) to ascertain the actual presence of roost/ maternity trees.

"Actions proposed under Alternative 1 are more than 0.25 miles from any known hibernaculum and more than 150 feet from any known occupied maternity roost trees." But how will the existence of roost trees be known in order to apply the 150-foot buffer zone? Loggers cannot be expected to find and identify roost trees. The mitigation measures for the project are inadequate for a valid "finding of no significant impact". Simply stating that actions are "more than 150 feet from any known occupied maternity roost trees" is meaningless for validating a FONSI unless a good faith effort is made (by those with expertise and technical equipment using adequate field methodologies) to actually locate roost trees in the project area and proposed cutting sites. Endangered species are required to receive top priority in management decisions.

The I. Bat and NLB are among the species "that were not seen during the surveys, but possibly occur in the activity area based on habitat observed during the surveys or field surveys were not conducted when species are recognizable (OAR code "6")." (BE) And yet the DDN states "it was determined that the project will not adversely affect any federally listed species".

They may be here and the actions may significantly adversely affect them.

FEIS: "Due to the variability of known roost sites and the lack of knowledge about landscape-scale habitat characteristics, it is difficult to quantify summer roosting habitat for Indiana bat at a range-wide, regional, or local level."

BA: "During summer, northern long-eared bats roost singly or in colonies often in cavities, or in crevices, of both live and dead trees. This bat seems opportunistic in selecting roosts, using tree species based on suitability to provide cavities or crevices."

In other words, such roosting habitat cannot be easily predicted or observed/found (such as by walk-through biological "surveys").

"Occupied and potential roost trees could be directly affected by vegetation management, firewood and salvage sales, routine maintenance/permitting of small clearings including easements, rights-of-way and access to privately-owned lands, and road construction. Plan implementation will result in vegetation disturbance and possible impact to currently occupied and potentially occupied roost trees. There is potential for adverse effects to a maternity roost tree if one occurs on the Forest and in an area where trees are being felled. However, forestwide standards minimize, if not eliminate, the chance of adverse effects under all alternatives. Any Indiana

bat roosts that are discovered would be protected until they were no longer suitable (unless treatments were needed for public or employee safety) under all alternatives." (FEIS)

The problem is that adequate and proper actions are NOT being taken to "discover" the roosts (see EA/BE/BA/FONSI).

Simply maintaining a "supply of snags, live potential roost trees, upland water sources, and other habitat features across the landscape" is not enough to adequately allow for the maintenance of and promote the recovery of endangered IB and NLB populations.

Northern Long-eared Bat

Concerns relating to Northern Long-eared Bats (*Myotis septentrionalis*) were raised in the "Wildlife and habitat - TESLR species" section of my comments on the Draft EA (incorporated by reference). However, new information relating to Northern Long-eared Bat concerns has arisen since the comment period on the Draft EA, and I am raising this new information here per 36 CFR § 218.8(c).

The recent up-listing of "endangered" status for the Bat (March 2022), raises new concerns with regard to the adequacy of the protective measures incorporated into the PC project for the Northern Long-eared Bat ("NLB"). Even if the listing change has not been formalized yet, it is still obviously foreseeable and will be enacted during the time period if the proposal is actually implemented. So the requisite priority demanded by the ESA militates for the FS to act as if it is already formally "Endangered".

As a related matter, in the context of National Forest timber sale litigation, members of the public may "alert[] the decision maker to the problem in general terms, rather than using precise legal formulations." *Idaho Sporting Congress v. Rittenhouse*, 305 F.3d 957, 965 (9th Cir. 2002). In addition, Objector lacked the information necessary to bring a more specific claim during the previous comment period. Moreover, given the lack of transparency surrounding numerous issues/concerns in the EA (e.g., the previous unavailability of a BE or BA and the nonresponse by the agency to various issues/concerns raised), the agency cannot now claim that Objector failed to raise concerns with sufficient clarity to allow the Forest Service to address those concerns during the previous administrative process.

Here, the agency states in its BE: "All species listed as threatened or endangered were analyzed in a separate document: Biological Assessment of effects on Threatened and Endangered Species; The Potts Creek Vegetation Management Project."

If the Forest Service determines that an action "may affect" a listed species, the Forest Service must consult with FWS under Section 7 of the ESA. *Karuk Tribe of Cal. v. US Forest Serv.*, 681 F.3d 1006, 1027 (9th Cir. 2012). Consultation may be formal or informal. 50 C.F.R. § 402.14; *Karuk Tribe of Cal.*, 681 F.3d at 1027. Formal consultation is obligatory where the Forest Service determines that an action is "likely to adversely affect a listed species." 50 C.F.R. § 402.14 (a)-(b).

Two factors demand that the FS must here formally consult with the USFWS on this proposed Potts Creek project. 1) the NLB was listed as "endangered" subsequent to the last comment period and the draft Decision; 2) the NLB potentially occurs in the project area and the contemplated actions can adversely affect it in various ways. Just as for the IB, the determination for the NLB should be "May Affect - Likely to Adversely Affect."

Because of the potential harm, further species-specific analysis is essential.

No mention of the IB or NLB in the resource protection measures ("design criteria", i.e., mitigation measures) that were specifically developed for this project (see DDN).

The FS now claims "that the project will not adversely affect any federally listed species and the U.S. Fish and

Wildlife Service concurred with this finding on February 26, 2021" (FONSI). But there was NO mention of such a concurrence in the October 2021 DEA (see pg. 44). And this concurrence from over a year ago occurred before the NLB was listed as "endangered". And their populations have been further negatively impacted in the interval between Feb. 2021 and now (such as by logging and White-nose syndrome). Formal consultation needs to be initiated. Must re-initiate consultation, in part, because of new incidental take concerns.

It is not known at this time whether the USFWS intends to impose seasonal restrictions on the FS to avoid timber activity impacting critical stages in the NLB's life cycle, such as the maternity period. Female bats are more sensitive to fragmentation due to more stringent roosting requirements and greater resource needs related to reproduction, so they would be particularly vulnerable to the impacts of logging.

Ravaged by the deadly White-nose Syndrome, the Northern Long-eared Bat now requires heightened federal protection as an "endangered" species, the Fish and Wildlife Service said on March 2022. The move acknowledges a deterioration in the condition of the bat, which was designated a "threatened" species under federal law in 2015. The FWS said that white-nose syndrome has "caused estimated northern long-eared bat population declines of 97-100 percent across 79 percent of the species' range." In a statement, the agency said wind energy projects, climate change, and habitat loss also pose threats.

In 2020 Judge Emmet Sullivan, on the U.S. District Court for the District of Columbia, said he was "not persuaded" by the agency's 2015 listing rationale and called it "procedurally flawed." "FWS disregarded the cumulative effects that factors other than WNS may have on the species when explaining the rationale for the threatened determination," Sullivan wrote.

The consultation and BA for the PC project involved consideration of the Northern Long-eared Bat as a "threatened" species, a different standard for gauging effects than "endangered" status. Endangered species are those that are currently in danger of extinction, while threatened species are those likely to become endangered in the foreseeable future.

As part of the 2015 listing of the Northern Long-eared Bat, FWS issued a "4(d) rule" that's permitted for threatened but not endangered species. The rule let loggers, drillers and others incidentally "take" the species in states unaffected by white-nose syndrome.

The new decision by FWS impacts the 4(d) rule that the Forest Service has relied upon for exempting take. Current use of "the programmatic biological opinion on implementing the final 4(d) rule dated January 5, 2016" is not sufficient.

Although The ESA requires each federal agency to ensure that an agency action is not likely to "jeopardize the continued existence" of a threatened or endangered species. 16 U.S.C. § 1536(a)(2), such non-jeopardy is not equivalent to there being no significant impacts to the species at the PA or Forest.

Even if it is true that "Proposed management activities will not jeopardize the continued existence of the northern long-eared bat", that does NOT mean that significant effects (such as to viability or distribution) may not occur to them within the GWNF or project area. The Forest Service may not be harming "critical habitat" for the species or be jeopardizing the "continued existence" of the species overall, yet its viability/distribution on this particular Forest may still be jeopardized. NFMA requires that viability be maintained on this particular planning area, not just somewhere on the species entire range. It is this NFMA mandated viability and distribution on this particular Forest and project area that the agency is not ensuring in this decision.

The BA states that the USFWS determined that "take, within authorized levels, would be incidental take, and would not result as jeopardy to the Indiana bat." Even if that is true (and it is not clear that is for this project), the impacts of timber harvesting and burning must still be fully analyzed by the Forest Service under NEPA. A conclusory summation of the project's impacts and simply deferring to a Programmatic Biological Opinion and/or 4(d) rule would not comply with NEPA. The "Take" of concern as regards NEPA significance and NFMA

viability/distribution is not simply take with regard to "forms of habitat disturbance"; of concern and at issue is also take of Bats themselves. When the BA states "Therefore, there will be no cumulative effects to the Indiana bat" it is simply referring to impacts to "critical habitat" and "jeopardizing" the species "continued existence".

See *Sierra Club v. Norton*, 207 F. Supp. 2d 1310, 1335 (S.D. Ala. 2002) (stating that the "jeopardy" analysis is distinct from the "significant impact" standard of NEPA and explaining the importance of preparing an EIS where there is uncertainty about impacts to listed species); *National Wildlife Federation v. Babbitt*, 128 F. Supp. 2d 1274, 1302 (E.D. Cal. 2000) (requiring an EIS even though mitigation plan satisfied the requirements of the ESA); *Portland Audubon Society* 795 F. Supp. 1489, 1509 (D. Or. 1992) (rejecting agency's request for the court to "accept that its consultation with the United States Fish and Wildlife Service under the Endangered Species Act constitutes a substitute for compliance with NEPA."). Even if FWS determines the project would not jeopardize the species, this is not the equivalent to a finding of no significant impact under NEPA. See *Makua v. Rumsfeld*, 163 F. Supp. 2d 1202, 1218 (D. Hawaii 2011) ("clearly, there can be a significant impact on a species even if its existence is not jeopardized").

All bats do not have the same behavior with regard to use of forested habitats. Their different wing shapes make this clear, i.e, ecomorphology - the organism's morphological shapes and sizes are correlated to and indicative of habitat use and behavior and diet (see "Wing Design, Flight Performance, and Habitat Use in Bats" by Ulla Norbert in *Ecological Morphology*, edited by P.C. Wainwright and S.M. Reilly, Univ. of Chicago Press, 1994; incorporated by reference). Some bat taxa are adapted to using closed canopy forests, such as the NLB, whereas others may prefer more open canopy conditions. Thus, all bats are not equal as regards their responses to cutting regimes. Yet the BA circumlocutes around the issue and does not give full consideration and priority to the specific endangered Bats: "These habitat changes should provide early successional forest that bats can forage over and in general provide forest diversity generally beneficial to bats."

Related information is the recently published thesis from the University of Kentucky examining the effects of logging systems on Northern Long-eared and other bat species in eastern Kentucky. The thesis, "Effects of Shelterwood and Patch Cut harvests on a Post White-Nose Syndrome Bat Community in the Cumberland Plateau in Eastern Kentucky," was submitted and accepted in mid-2020 (by Phillip Arant, University of Kentucky College of Agriculture, Food, and Environment).

In his study, Arant examined changes in habitat usage by several species of bats following timber harvest in three sites in eastern Kentucky. Notably, in the shelterwood harvests in the study, 50% of the commercial timber volume was harvested (Arendt at 9), while "coppice with reserves" logging in the PC project area (Alt. 1) would remove ca. 85% of the basal area in given stands (551 acres) and 348 acres would have ca. 60% removal (down to 40 square feet per acre of basal area). The commercial thinning of 334 acres in the PC PA would remove 30% to 50% of basal area, similar to the shelterwood harvests in Arant (2020).

Arant (2020) found that Northern Long-eared Bats avoided areas following harvest, stating "The lack of activity of these bats in harvests, however, suggests they do not actively forage within cuts (Arant at 71; See also Figure 18 at 46; Table 3 at 48; Figure 19 at 58). Arendt hypothesizes that one reason *Myotis* species may be avoiding these harvest areas is due to reduced prey availability:

"The mean number of lepidopterans collected was lower at shelterwood and patch cut stands than unharvested stands (Table 8). There was no difference between shelterwood and patch cut stands (Table 8)." (Arant at 51).

Northern Long-eared Bats exhibit high fidelity toward roosting areas.

According to the previous final listing rule for the NLB:

"Northern long-eared bats change roost trees frequently, but use roost areas repeatedly and to a lesser extent, reuse specific roosts... Once documented, northern-long eared bats are known to continue to use the same roosting areas." (NLB Rule at 1911)

And while Northern Long-eared Bats are highly mobile (outside of the lactation period), and demonstrate some flexibility and plasticity in habitat use, the scale of the timber harvest matters.

The Programmatic Biological Opinion for the Northern Long-eared Bat states:

"During the summer, NLEB habitat loss is primarily due to forest conversion and forest management. Throughout the range of NLEB, forest conversion is expected to increase due to commercial and urban development, energy production and transmission, and natural changes. The 2010 Resources Planning Act Assessment projects forest losses of 16-34 million acres (or 4-8 percent of 2007 forest area) across the conterminous United States, and forest loss is expected to be concentrated in the southern United States, with losses of 9-21 million acres (USFS 2012). Forest conversion causes loss of potential habitat, fragmentation of remaining habitat, and if occupied at the time of the conversion, direct injury or mortality to individuals. Forest management activities, unlike forest conversion, typically result in temporary impacts to the habitat of NLEB, but like forest conversion, may also cause direct injury or mortality to individuals. The net effect of forest management may be positive, neutral, or negative, depending on the type, scale, and timing of various practices." (BIOP at 16, emphasis added)

That Biological Opinion references Silvis et al. 2014, stating:

"In model simulations based on the tracking data, removal of more than 20 percent of roosts initiated social network fragmentation, with greater loss causing more fragmentation." (BIOP at 37)

This is another reason why the site-specific identification and protection of roosts is essential.

Silvis et al. (2014) also report that overall colony roosting areas were between 1.3 and 58.8 hectares (3.2 and 145 acres), with median distances between roosts of 111.1 and 219.4 meters (Silvis et al. 2014 Table 1).

In the PC project proposal, timber harvest areas range up to 348 acres, far exceeding reported colony size.

"northern long-eared bat colonies to continue to occur in managed landscapes. However, in areas with WNS [White-nose Syndrome], northern long-eared bats may be less resilient to stressors and maternity colonies are smaller. Given the low inherent reproductive potential of northern long-eared bats (one pup per female per year), death of adult females or pups or both during tree felling could reduce the long-term viability of some of the WNS-impacted colonies if they are also in the relatively small percentage of forest habitat directly affected by forest management." (Final Rule at 1909)

The scale of disturbance prescribed in this project, including large logging blocks, could substantially impact Northern Long-eared Bats. Given this fact, the determination of "no adverse effects" is incorrect.

The Forest Service could remedy this, in part, by conducting proper surveys specifically for Northern Long-eared Bats, and Indiana Bats, in the project area. The outdated and now inadequate Final Biological Opinion makes discretionary recommendations that Federal agencies may take for the benefit of NLBs. Among those recommendations are that agencies:

"Perform NLEB surveys according to the most recent Range-wide Indiana Bat/NLEB Summer Survey Guidelines" (BIOP at 6).

The BA states:

For the IB "there are no known summer/fall roost trees documented within the project area by USFWS or state agencies (VDGIF, 2021)." And for the NLB, project activities are said to be "more than 150 feet from known occupied maternity roost trees." The claimed exception from incidental take prohibitions is now not proper for this "endangered" species.

The problem and illegality is that the GWNF has not accomplished Bat monitoring and surveys with appropriate

methodologies to determine the locations of roost or maternity trees. So, in addition to adversely modifying habitat, direct take (mortality or injury) could occur. The "full consideration in the decision-making process" has simply not been accomplished for the NLB or Indiana Bat.

OAR 6 : "Species not seen during field survey, but possibly occurs in activity area based on habitat observed; or field survey not conducted when species is recognizable (time of year or time of day). Therefore assume presence and no additional surveys needed." (BE)

But additional surveys are needed so as to ascertain effective spatial and temporal mitigation measures. And the same reasoning applies to Indiana Bats.

However, the Forest Service has not stated whether or not any surveys have taken place at all.

And the BIOP also recommends that federal agencies:

"Conduct tree removal activities outside of the NLEB pup season (June 1 to July 31) and/or the active season (April 1 to October 31). This will minimize impacts to pups at roosts not yet identified." (BIOP at 7)

Neither of these conservation measures were considered in the analysis for the PC project. Had the Forest Service taken an appropriate "hard look" at the possible effects to the Northern Long-eared Bat, then perhaps these measures would have been incorporated into the project design.

SITE SENSITIVE SPECIES

Impacts to such biota (i.e., small creatures such as salamanders, skinks, snakes, turtles, and invertebrates with limited mobility and avoidance ability were explicitly raised in my comments to the DEA (see "Wildlife and habitat - TESLR species", "Woodland Salamanders", "Connectivity - Resilience - Population viability", "Burning", "Birds - fragmentation - edge effects", "Anthropogenic Habitat & Forest Fragmentation/Fracturization/Perforation - Edge Effects", "Roads", "Old Growth and Special Areas", and "Box Turtles" sections; scoping comments and DEA comments incorporated by reference). The agency's "Response to Comments" sweeps the issues/concerns under the rug and does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated.

The Forest Service may not be harming "critical habitat" for the species or be jeopardizing the "continued existence" of such species overall, yet their viability on this particular Forest may still be jeopardized. NFMA requires that viability be maintained on this particular planning area, not just somewhere on the species entire range. It is this NFMA mandated viability and distribution on this particular Forest and project area that the agency is not ensuring in this decision.

The agency's failure to fully and fairly consider, analyse and disclose the proposal's potential impacts to these species is a violation of NEPA and the APA. A failure by the agency to fully and fairly consider impacts to these species does not ensure protection of the Forest's diversity and does not ensure these species' viability and distribution on the Forest, violations of the NFMA.

Just as a broader scale is necessary for determining an actual purpose and need for the proposed habitat alterations here, so to is a finer scale necessary for determining a valid FONSI. This involves issues/concerns about within stand habitat complexity. For example, some species may favor or benefit from dry/sunny conditions for thermoregulation, reproduction, hibernacula, or foraging, while others may prefer or benefit from more mesic conditions, with different aspects and topography and rockiness. Logging of a single site can have widely different outcomes and effects.

Examined in this light, the proposed actions may result in significant impacts to the viability, distribution, and sustained yield of various taxa. Most fauna and flora are not homogeneously distributed across the project area; which also raises issues/concerns about habitat connectivity and fragmentation. This is a complex issue -

compounded by the detrimental effects of genetic drift in small populations. This process can negatively affect survival and reproduction; i.e., harm to natural selection and adaptations that maintain populations' viability and distribution and evolutionary resilience.

I stated explicitly that "I am concerned about the populations of reptiles, such as Box Turtles and Worm & Earth Snakes and Timber Rattlesnakes and Coal Skinks, and amphibians, such as Plethodontid and Ambystomatid salamanders, on the PC PA", but there is no meaningful response to this in the "Response to Comments".

Another issue/concern I clearly raised was that "The MIS used in the DEA are inadequate for properly gauging impacts to them [the aforementioned taxa]." For this too, there is no meaningful response in the "Response to Comments".

After all these decades of intentional burning on this Forest, do you have the slightest idea how much mortality you are inflicting upon small slow animals (e.g., turtles, snakes, salamanders) who can't run/fly away from harm? There is apparently no monitoring data with pre- and post-fire population estimates - without this there is significant uncertainty about the potential impacts from this proposal.

I've seen some FS post-fire monitoring reports - the agency considers it successful to burn up the litter and duff, the very places the small creatures will hide in to try and escape the devastation.

The agency claims it wants to be clearly alerted to site-specific issues, but then when this occurs it ignores the issues/concerns raised by the public. It is an abuse of discretion for the FS to consider these site-sensitive taxa/populations to be insignificant.

The wildlife, communities, and ecosystems of concern are not just needless details. Particularly when their sustained yields (as required by the Forest Plan; 16 U.S.C. § 1604(e)(1)) at the PA are at risk and evidence is not provided that they were adequately considered.

Some "presently unquantified environmental amenities and values" (e.g., those associated with site sensitive wildlife and special/sensitive habitats discussed in the DEA comments) have not been "given appropriate consideration in decision-making" (see 42 U.S.C. 4332. (B)).

Box Turtles (*Terrapene carolina*), for instance, are significant components of the Forest's diversity and communities (NFMA), the only terrestrial turtle species in this entire Ranger District and the great majority of this Forest and the Southern Region. Does the Forest Service have the most basic baseline population/demographic/distribution inventory information about the Turtles here? Does the Forest Service have the most basic monitoring information about the Turtles here? Apparently not (see "Response to Comments" and EA/BE).

And the present MIS are totally inadequate proxies for gauging impacts to the Box Turtle populations here.

There is much suitable Box Turtle habitat throughout the PC PA. Box Turtles (BT) definitely occur in the PC PA (I have observed them). Box Turtles may be (and have been) directly, indirectly, or cumulatively negatively impacted by project implementation, through such harms as direct deaths or injuries and habitat degradation, alteration, or reduction.

The Turtles are every bit as important as any so-called "demand species". The vast majority of Americans (95%) are not hunters.

The potential for significant impacts (direct, indirect, cumulative) to the population viability of Box Turtles here is foreseeable.

The FS has not obtained information on population sizes, monitoring and inventory data for this species on the

GWNF PC PA, estimated mortality related to this proposal should it be implemented, and assessed amounts of habitat degraded or destroyed and the affects of all this on Box Turtle distribution and viability. The agency has not made a valid determination of "no significant impact" to this species since it does not have this fundamental information and viability analyses. And the current MIS are inadequate proxies for the Box Turtle.

There is significant uncertainty involving basic demographic and monitoring information on the Box Turtle and other wildlife populations on the Forest and at this specific site. Relevant population and monitoring data are lacking or absent. Aside from the uncertainty involved, there is also significant controversy as to the impacts and desirability of intentionally logging and burning Box Turtle habitat and populations.

Many of the issues, concerns, argument, research, and evidence with regard to Box Turtles pertain as well to salamanders and other site sensitive taxa.

I wanted the FS to clarify how the Project will protect BT population viability/distribution. In response, the Forest Service refused to address the issue in the EA or in their "Response to Comments". ?

The MIS (see table 12 EA-35) used by the FS here do not the same behavior, habitat use, physiology, diet, mobility, reproduction, recovery from or vulnerability to anthropogenic disturbance that Box Turtles and other site sensitive taxa have. Demographic information about the numbers and status of their populations here are not in the record; nor are there estimates of the direct and indirect mortality that may incur due to project implementation.

Thus, there is significant uncertainty as to the impacts of the implementation of proposal (NEPA) and the FONSI is not legitimate. Therefore, significant impacts might occur (intensity and context NEPA) and maintenance of their distribution and viability in the project area is at clearly at risk (NFMA). The mitigation measures do not adequately address these NEPA and NFMA factors.

I explicitly raised these issues and concerns to the agency. There is no reasoned addressing of these issues and concerns and no refutation of them or explanation of the FONSI. In fact, the Box Turtle issues/concerns are not even mentioned in the "response to comments" document.

In addition, the agency intends to repeat the ground disturbance (burning) - so the populations would not just be impacted and repressed once, but then again in the foreseeable future. So the survivors (if there are any) would again be impacted and populations repressed. The agency is silent as to how much of this is possible without significantly impacting their viability and distribution in the project area.

These Turtles and other site sensitive species are "demand species" for wildlife viewing. By killing them off and reducing their populations and distribution, the FS is impairing the enjoyment of the Forest by future generations.

There is no evidence that the agency has examined the relevant data and articulated a satisfactory explanation for its action (its FONSI). In other words it has failed to consider an important aspect of the situation/problem here (potential impacts to the BTs and salamanders and snakes, the significant uncertainties involving these taxa, and the inadequacy of currently used MIS). There is a "substantial question" that implementation of the project as currently proposed will have a "significant effect on the environment."

Therefore, the FS is here in violation of the Administrative Procedures Act ("APA"). A Court may "hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" or "without observance of procedure required by law." 5 U.S.C. § 706(2)(A), (D). The APA requires a "thorough, probing, in-depth review" of agency action, *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402,415 (1971); simply ignoring issues and concerns and reasoned argument and facts is not worthy of deference.

The lack of full and fair analysis and consideration by the agency does not indicate/substantiate that the effects of project implementation are not uncertain (40 CFR 1508.27). In addition, severe repression of meaningful public involvement is a violation of the APA.?

The FS has here used of an incomplete information base for decision-making.

BURNING

Impacts to such biota (i.e., small creatures such as salamanders, skinks, snakes, turtles, and invertebrates with limited mobility and avoidance ability were explicitly raised in my comments to the DEA (see "Wildlife and habitat - TESLR species", "Woodland Salamanders", "Connectivity - Resilience - Population viability", "Burning", "Birds - fragmentation - edge effects", "Anthropogenic Habitat & Forest Fragmentation/Fracturization/Perforation - Edge Effects", "Roads", "Old Growth and Special Areas", and "Box Turtles" sections; scoping comments and DEA comments incorporated by reference). The agency's "Response to Comments" sweeps the issues/concerns under the rug and does not properly or adequately analyze/disclose effects; the draft Decision is not well-informed and the NEPA and APA are violated.

It is not at all validated that implementing the proposed burning would actually restore "plant and animal species" here. Many species may be significantly harmed.

After all these decades of intentional burning on this Forest, does the FS have the slightest idea how much mortality it is inflicting upon small slow animals (e.g., turtles, snakes, salamanders) who can't run/fly away from harm? Monitoring data with pre- and post-fire population estimates - without this there is significant uncertainty about the potential impacts from this proposal.

I've seen some FS post-fire monitoring reports - The agency considers it successful to burn up the litter and duff, the very places the small creatures will hide in to try and escape the devastation.

How long does it take litter/duff/soil populations to recuperate, reinvade, reestablish, and/or recover after they are suppressed/destroyed by fire? Does repeated burning on short time intervals (e.g., 5 years or 15 years or 25 years or more) allow them enough time to recover? Are their populations being chronically suppressed due to an accumulation of impacts over time?

Thousands of acres of the PA recently burned (2012), such as the Toms Knob area. What was the impact upon the turtle, salamander, invertebrate populations there? The DEA discloses nothing about this significant factor. And now you are proposing new stress upon them (cumulative impacts).

Prescribed fires on the National Forest are often implemented through ignitions around the perimeter of the burn area. And on top of these multiple ignitions, the interiors of burn sites are also ignited. See, e.g., 2007 GWNF Lee RD burn project DM-10: "Boundaries of the area may be ignited with drip-torches followed by strips through the interior to complete burning out the area." "Ignitions may utilize aerial resources (helicopter or UAS Drone), ground resources such as hand crews, or a combination of both. " (PC DEA)

Small and/or slow moving animals have negligible chances to escape when thus surrounded, and even large and/or swift movers can become confused and trapped by a wall of flames that is seemingly in every direction.

Perimeter and/or interior burns kill wildlife of public interest. The ethical underpinnings for intentionally incinerating sentient beings for any reason are certainly questionable. But it is particularly heinous when the incineration is done in such a manner that could not be worse if it was calculated or that could be avoided or that is unnecessary or that is done simply to achieve some floristic composition that somebody deems 'desirable' (perhaps partly or wholly for economic reasons).

This is a significant issue, as well as an issue of controversy and conflict. Yet the FEIS for the Forest Plan failed

to address it in the slightest. And now the FS fails to address it here at the project level (see DEA, BE, and "Response to Comments").

What is the agency's rationale for concentrating on some variable floristic composition pre- and post-burn, but showing no apparent concern or consideration for the killing of multitudes animals during the fire? This is an ethical issue with on-the-ground ramifications. It is also an issue involving important values held by the public. This concern with controversial and uncertain aspects must be fully and fairly evaluated here and now. See Strohmaier, D.J. 2000.

There is NO analysis in the EA of fauna mortality from the proposed fires. What post-fire monitoring data, analyses, and estimates do the HNF managers have for deaths of small slow creatures such as Box Turtles, salamanders, invertebrates, snakes, shrews and others ? Many of these hide in the ground floor litter, humus, cwd, and vegetation that these prescribed burns can be expected to pyrolyze. Does post-fire monitoring even search for and record this mortality ? And much of this mortality would not even be discernible. What fire monitoring data, analyses, and estimates do the GWNF managers have with which to ascertain the significance of impacts to population viability and distribution on the project area and Forest? This is apparently another gaping void of uncertainty regarding the project's effects.

Sensitivity to Acid Deposition

A review of a GIS dataset that rates soil sensitivity to acid deposition and nutrient depletion indicates that most of the proposed harvest units fall into moderate- or low-risk categories.

The FS, however, does not clearly disclose about the units that are at higher risk.

And most of the amounts of minerals of value and concern are in the boles (trunks) to be removed, not the slash/limbs left on site.

Karst

"Karst is a type of terrain where underground dissolution of the bedrock creates surface and subsurface features such as sinkholes, sinking streams, caves, springs, underground streams, aquifers with large flows of groundwater, and other karst features. The karst map units in the project area include the Helderberg Group limestones.

"Groundwater in the project area includes karst aquifers. Past and present activities (roads, residential development, timber harvest, historic mining, and other land uses) may be affecting groundwater.

"Sinkholes and other karst features are known to occur in the project area. Topographic closed depressions under forest cover were apparent in LiDAR-derived hillshade imagery and are likely to be sinkholes if located within or near the published karst map units. The project area includes caves and other karst features identified by the Virginia Department of Conservation and Recreation (DCR) (Hypes, 2020). Upland areas across the Forest recharge areas for groundwater and karst resources downslope."

And then, after all this, the planners just come up with a conclusory assertion: "In general, the application of design criteria and Forest Plan standards would reduce or avoid potential impacts to karst resources and groundwater." - NO analysis on how it was determined that significant impacts would not occur.

It would be good for forest health and resilience to AVOID the karst area on the southeast flank of Peters Mountain - yet another obvious alternative action or mitigation (design element) that the planners improperly

refuse to fully develop and examine.

Slope Stability and Landslides and Sedimentation

"Landslides are part of the natural disturbance regime in the project area. Various types of landslides (such as rockslides, slumps, rockfalls, stream bank failures, debris slides, debris flows) occur sporadically in the project area, usually triggered by a rainstorm. Debris slides and slumps occur occasionally along stream banks and steep side slopes adjacent to streams."

"Proposed timber harvest activities in the headwaters of Wylies Run watershed would result in an incremental increase in the existing natural potential for landslides (such as a debris flow or a temporary landslide dam) and associated risks to public safety, resources, and infrastructure downslope." Logging is also proposed at Hamilton Branch and Kyles Branch.

The potential harm to TESLR species in streams, such as the Roughhead Shiner, is glossed over and the proper "hard look" has not occurred.

Black Bears, Illegal ATV Use, Bird Taxa, and White-tailed Deer

The EA/DNN did not allay concerns about significant negative impacts to or from Black Bears, illegal ATV use, bird taxa, and White-tailed Deer - see "Negative impacts to Black Bears", "Birds - fragmentation - edge effects", "Anthropogenic Habitat & Forest Fragmentation/Fracturization/Perforation - Edge Effects", "Illegal ATV use", "Roads", and "Impacts to/from White-tailed Deer" sections in DEA (incorporated by reference). The full and fair hard look at these issues and concerns has not occurred.

Sincerely,

Dr. Steven Krichbaum (herpetology - conservation biology)