

Attachment 1

December 13, 2021

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Submitted Via Electronic Mail

Re: Nantahala Mountains Project

Dear Steverson:

We appreciate the opportunity to provide comments on the Nantahala Mountains Project on behalf of MountainTrue, The Wilderness Society, and Defenders of Wildlife. MountainTrue is a non-profit organization with the primary goals of protecting, restoring, and preserving public lands and native wildlife through education and public participation in decisions at all levels of government. MountainTrue actively participates in the management of the Nantahala National Forest. The Wilderness Society is a national nonprofit organization “working to protect our nation’s public lands” and is also heavily invested in the ongoing forest plan revision. Defenders of Wildlife is dedicated to the protection of all native animals and plants in their natural communities. With more than 1.2 million members and activists, Defenders of Wildlife focuses on wildlife and habitat conservation and the safeguarding of biodiversity.

We are optimistic that this project can be successful with a collaborative approach, and appreciate changes made based on feedback received during previous iterations of the project, formerly Turkey Pen and Redbird. For example, a large portion of old-growth in stand 61-37 has been removed from the project, a good first step toward protecting this important resource and greatly reducing the impact of the project.

However, there are important changes that still need to be made for this project to move forward with our support. In particular, the Nantahala Mountains Project still proposes timber harvest in sensitive areas that should be protected by the revised Forest Plan. As members of the Nantahala-Pisgah Forest Partnership and signatories to the Partnership comments on the Forest Plan, we have concerns about the instances in which the project proposal is not consistent with the Partnership Alternative submitted during the Draft EIS. If the Partnership’s alternative is adopted in the final plan, then projects that will be implemented under the new plan (like this one) will have to drop any activities not consistent with that collaborative result. *See Cherokee Forest Voices v. U.S. Forest Serv.*, 182 F. App’x 488 (6th Cir. 2006). Even if the final plan differs from the Partnership’s recommendations, the District should take care to ensure that its proposals are within its social license. The Partnership’s recommendations identify the areas where timber management proposals can and should be prioritized and other areas where they can proceed (if at all) only with additional justification, analysis, or mitigation. That being said,

we want to be clear that we are not representing the Forest Partnership in these comments, and only the interests of the undersigned groups.

With that framework in mind, we have four main concerns with the project: impacts to wilderness inventory areas (WIAs) and Special Interest Areas (SIAs), impacts to existing old growth and designated future old growth, road building and maintenance, and sedimentation risk. Impacts to special areas harboring important conservation values and impacts to water supply will make both analysis and implementation much more difficult if the treatments identified in these comments are not removed or substantially mitigated.

I. Wilderness Inventory Areas and Special Interest Areas

The most concerning portion of the project is the proposal to regenerate Stand 25 in Compartment 32. This stand is entirely within the Tellico Bald Wilderness Inventory Area and was adopted as consensus backcountry by the members of the Forest Partnership. Furthermore, the stand is included within the Burningtown Bald/Cliff Ridge NHNA and at a minimum is composed of native forest, primarily in the Rich Cove and Mesic Oak Ecozones, that have diverse tree and herb composition. In the Backcountry Management Area, timber production or rotational timber management to balance age classes is not permitted, in contrast to management needed to meet a stand-level need for ecological restoration. Logging of 32-25 would manipulate forest structure but would degrade the quality of the Burningtown Bald/Cliff Ridge NHNA. Furthermore, the upper portions of the stand are listed as originating in the 1880s, and are thus quite possibly over 130 years old; older than the minimum age for old-growth for oak-hickory forest types. This stand should be removed from consideration for harvest and carefully evaluated to determine whether any portion is in existing old-growth condition.

The scoping also proposes a commercial group selection harvest in Stand 121-26. The southern portion of this unit overlaps the Runaway Knob NHNA, which was included as a Special Interest Area in all three Alternatives in the Draft Forest Plan. SIAs like Runaway Knob are delineated because they represent important rare habitats and communities, and regeneration harvest would cause unacceptable and serious impacts within them. Special Interest areas are managed to protect their locally exceptional values. They are incompatible with regeneration harvest intended to meet landscape-level objectives to balance age classes or timber goals. The boundary of the proposed timber harvest should be changed to exclude the SIA, which would still leave the majority of the group selection area intact. We do support the crown touch release in previously harvested groups in the SIA because we are concerned about a loss of diversity without this follow-up treatment.

One feature that makes the entire project area particularly worthy of protection is the rare and endemic salamander habitat it provides. *See attachment, Apodaca and Smith, An Analysis of Important Areas for Salamander Conservation and Connectivity in the Nantahala and Pisgah National Forests (Spring 2019).* Salamander populations have suffered precipitous declines worldwide in recent years, and there are a number of species of concern on the Nantahala. Any project in this region, “the world’s hotspot of salamander diversity,” *id.* at 2, should prioritize the protection of the core areas shown in the attached modeling to be crucial to salamander conservation and connectivity.

Moving forward with harvest in these areas would require, at the very least, preparation of a project-level EIS, and likely an amendment to the new forest plan and supplemental analysis for that purpose. Where an NHNA is allocated to SIA, incompatible management will undermine the plan's conclusions about the protection of rare ecological values. And, at least for Runaway Knob, allocation to any other management area would be outside the range of alternatives presented to the public in the NEPA process. EIS-level analysis would also be needed to authorize incompatible management in a wilderness inventory area recommended for backcountry management. Under agency regulations, an EIS is required whenever a project would substantially impact an inventoried roadless area or potential wilderness area. 36 C.F.R. 220.5(a)(2).¹ Furthermore, the inventory of these areas constitutes significant new information that requires a new analysis to supplement the current Plan EIS. When the current plan was adopted, these areas were not inventoried, and they therefore did not receive an appropriate analysis of possible impacts. We have long maintained that projects affecting areas that qualify for inventory must be preceded by an EIS that considers alternatives to such impacts, *regardless* of their current inventory status. *E.g., The Lands Council v. Martin*, 529 F.3d 1219, 1230-32 (9th Cir. 2008); *Smith v. U.S. Forest Serv.*, 33 F.3d 1072, 1077-79 (9th Cir. 1994). Here, however, the need for an EIS is even clearer: the inventory of these areas is a new recognition by the Forest Service of their generally undeveloped character, which was simply not considered in the previous Plan EIS.

Furthermore, the proposed impacts from this project would destroy the very reasons these areas have been identified as special, prejudicing their consideration in the planning process. A decision that reduces the likelihood of future protection for a qualifying area is, by itself, a significant impact. Thus, we support removing these sensitive areas from consideration for harvest and conforming this project to the Partnership recommendations to ensure that it is consistent both with the revised plan and the zone of stakeholder agreement.

II. Old-Growth Forests

The Southern Blue Ridge Mountains harbor remnant old-growth forests that are among the most significant in North America for their stature, diversity, and intactness, but our landscape is still impoverished when it comes to this important structural class. Best estimates place the total old-growth acreage of the region at 3% of the total area, when more than 50% of our forests should be old-growth at a fine spatial scale according to reconstructions of Historical Range of Variation. As much as 10% of the lands of Nantahala and Pisgah National Forests may be in old-growth condition, which demonstrates the importance of the lands to the representation of old-growth in the region where private lands make up 70% of forests and are generally much younger and more heavily harvested than public lands.

We are glad that the scoping record discusses old growth under the Purpose and Need for

¹ While the regulation specifically addresses impacts to “potential wilderness areas,” the terminology used for inventory at the time it was adopted, these terms are functionally equivalent. Compare FSH 1909.12, Ch. 70 (2007) with FSH 1909.12, Ch. 70 (2012). In other words, these WIAs would be considered PWAs if the older version of the directives were still in effect. For purposes of NEPA analysis, the significance of the impact depends on the values present in the area, not the terminology used to describe them. For that reason, it would be arbitrary and capricious to find that impacts to an area are either significant or insignificant depending solely on whether it is called a PWA or WIA.

the project. The record also correctly points out that old growth was drastically reduced through logging. However, the report errs in implying that this lack of old growth is a past problem. The report states: “As the pace and scale of Forest Service timber management slowed in the 1990s, young forest habitat on the Nantahala National Forest grew into older age classes, and like old forest in the 1930s, has become scarce.”² The report thus conflates old growth with “older forest,” and then incorrectly implies that old growth is no longer scarce. Old growth has specific meaning under the Region 8 Old Growth Guidance, with criteria including, but not limited to, minimum age. True old growth remains a drastically underrepresented condition on the forest, and will remain so for a long time. Many data sources, including FS Veg and the NRV model and Spectrum models in the DEIS, confirm this. How the Forest manages existing old growth, as well as characteristic forest moving toward old growth, will determine how long it will take to recover natural levels of old growth. Early seral condition is also an underrepresented structural condition, but the report erroneously implies it should be the only focus, and in fact should be created at the expense of old growth.

A. Existing Old-Growth

The Nantahala Mountains contain many important examples of existing old-growth forest. One of those examples in the area of Kit Springs Branch was proposed for timber harvest in Stand 61-37. Stand 61-37 was originally proposed as part of the Turkey Pen Project, and the Forest Service was wise to remove the portion of 61-37 that overlaps the Wayah Bald/Wine Spring Bald NHNA from the Nantahala Mountains Project. This is a case, however, where the boundary of the NHNA was drawn too small.

The five acres of 61-37 that are proposed for harvest include forest that is, if anything, older than the portion that was excluded. Hemlocks, though dead, exceed five feet in diameter and large and old trees of several species, including black cherry, are present. While researching this area we found a record of a tree-ring chronology from Kit Springs Branch in the International Tree Ring Database. This chronology was taken from 4200’, lower in the drainage than the proposed harvest, and the researchers cored only hemlock. The chronology goes back to 1660, or 361 years, and is cross-dated back to 1712. In addition to the tree-ring chronology, evidence of old-growth characteristics abounds in the portions of Kit Springs Branch that have not been recently harvested, including large trees, old trees, snags, a mixed-age canopy, a multi-layered canopy, pit and mound formation, and few signs of historical logging disturbance.

Time and time again, we have seen the Forest Service conduct harvest in NHNAs based on the (often flawed) assumption that the NHNA boundary was drawn too widely. Here, protecting the values for which this NHNA was identified requires expanding the boundaries. We ask that the remainder of 61-37 be removed from consideration for harvest. We believe this makes economic sense as well as ecological sense, because the haul and road maintenance to accomplish harvest of 61-37 would not be covered by size of the harvest unit, and because of the great intrinsic values of old-growth forest.

² Nantahala Mountains Scoping Report at 3.

B. Old-Growth Designations

We appreciate the effort made to designate stands that are generally older than average for small patch old-growth requirements. Several of these stands have ages in FS Veg of 120 years or greater. That said, we believe the selection and design of small patch old-growth can still be improved in this project. In particular, there are several compartments where no designation is made that appear to require a small patch designation. We will review each small-patch proposal from north to south to provide our thoughts. Our task is made more challenging by the fact that we do not have a unified shapefile of previous old-growth designations. GIS data for small-patch designations are particularly lacking. For this analysis we used the old-growth designations from Alternative B in the DEIS and Draft Plan as a guide, because it appears to represent the greatest spatial extent of old growth patches that the agency is aware of.

Current guidance on Small Patch Designation is as follows:

SMALL PATCHES: In each compartment containing more than 250 acres of national forest land select a small patch for future old growth management. If 5% of the compartment acres are already part of a large or medium patch an additional small patch is not needed. Whenever possible areas should incorporate some riparian habitat to enhance old growth values. The purpose of the small patches is to increase biological diversity and provide structural components of old growth at the stand and landscape levels.

- a. Select the small patches prior to the first ground disturbing project of at least 5 acres proposed in the compartment.
- b. Select a contiguous area at least 5% the size of the national forest land in the compartment or at least 50 acres, whichever is greater. Management areas 14 and 18 can contribute to old growth acreage when they are included within a selected area. Compartments containing part of a large or medium patch do not need an additional small patch.

LRMP for Nantahala and Pisgah National Forests, Amendment 5 at 32, Table 3-1 (1994) (hereinafter, "1994 Plan").³

- **Stand 31-50** is the only example of what appears to be a poor old-growth designation on paper. It is only 31 acres and Forest Plan Standards call for either 50 acres or 5% of the Compartment, whichever is greater. In the case of Compartment 31, there are already 31 acres of a Large Patch Designation. This stand originated in 1968 according to FS VEG, and is one of the youngest stands in all of Compartment 31. As a general principal, we believe that the oldest forests and/or forests of the greatest ecological quality should be designated old-growth. It makes no sense to designate patches that will need heavy-handed management to improve their ecological trajectory, especially in a project area that has existing undesignated old growth. If possible, forest types least represented in old-growth condition should also

³ Note that the initial guidance on Small Patches clarifies that additional designation is needed if 5% of the compartment is not already part of a Large or Medium Patch

be designated. As a general pattern, xeric forests are better represented in old-growth condition than mesic forests, and high elevation forests are better represented in old-growth condition than low-elevation forests. In Compartment 31, we recommend that at least 19 additional acres be designated adjacent to the existing large patch. Stands 22 and 28 would be particularly good candidates because we believe they are, for the most part, existing old-growth and are contiguous with the Large Patch.

- **Stand 34-15** is a fairly old stand dating from 1900 in FS VEG, and it resides inside the Wayah Bald and Winespring Bald NHNA, which indicates it has high ecological values. However, Compartment 34 requires a minimum of 74 acres of old-growth designation to comply with the 1994 RLRMP and the proposed designation is only 19.5 acres and we have no record of previous designations in Compartment 34. We suggest that a combination of Stands 34-20 (45 acres), 34-18 (9 acres), 34-19 (16 acres), and 34-31 (10 acres) would make a better and more diverse designation in Compartment 34.
- **Compartment 35** appears to require an old-growth designation, as we can find no record of a previous designation. The upper portions of Kelly Cove and Shope Knob are in existing old-growth condition and would make for a quality designation.
- **Compartment 58** appears to have a quality suggestion for a designation, though we question the value of the portion made up by Stand 58-18 since it is listed as being a pitch pine stand and therefore likely a forest type that is overrepresented in closed-canopy, old-growth condition on the one hand, and more likely to experience stand replacement fire on the other. While the proposal looks good on the whole, we suggest that a designation inside of the Wayah Bald and Wine Spring Bald NHNA might have even greater value.
- **Stand 59-33** is a logical choice for old-growth designation by all appearances. It dates from 1900 in FS VEG and is categorized as mature saw timber. What does not entirely make sense is the size and shape of the stand. The 1994 Amendment requires that old-growth designations be either 50 acres or 5% of the compartment, whichever is larger. 59-33 is only 14 acres. Furthermore, its shape is long and linear, which increases in vulnerability to edge effects including wind throw in the event that an adjacent stand was harvested, and invasion by non-native invasive plants from the adjacent system road. We recommend that the old-growth designation for Compartment 59 comply with the 1994 RLRMP and have a more compact shape with a low perimeter-to-surface-area ratio.
- **Compartment 61** appears to require an old-growth designation and there are excellent candidates inside the Wayah Bald and Wine Spring Bald NHNA.
- **Compartment 62** appears to require an old-growth designation and there is an excellent candidate captured by the Alternative C Draft Forest Plan Alternative.
- **Compartment 80** appears to require an old-growth designation.

- **Stands 82-37 and 82-38** are the two proposed old-growth designations for Compartment 82. The age of the stands looks good for old-growth, and their presence within the Wayah Bald and Wine Spring Bald NHNA is an added bonus. However, they are 7 and 11 acres, respectively, are separated by .4 miles, and only total 18 acres. It appears that a previous designation was made that is above 50 acres, but to achieve 5% of the Compartment, 18 more acres are needed. We recommend that the new acreage be contiguous to comply with best practices for conservation biology.
- **Compartment 97** appears to require an old-growth designation.
- **Compartment 98** appears to require an old-growth designation.
- **Compartment 102** appears to require an old-growth designation and there are excellent candidates inside the Milksick Knob NHNA.
- **Compartment 110** appears to require an old-growth designation.
- **Compartment 111** appears to require an old-growth designation.
- **Compartment 121** appears to require an old-growth designation.
- **Compartment 124** appears to require an old-growth designation.

C. Carryover of Small Patches in the Revised Plan

Before leaving this subject, we must again point out (as we did in comments on the Plan DEIS) that the Forests' failure to carry forward small patches in the new plan is arbitrary and capricious. Amendment 5 and the Region 8 Old Growth Guidance each required the development of a patch network that would necessarily be managed consistently over multiple planning cycles in order to achieve move toward the goal of restoring old growth. The patch network should have been fully identified by now, and it should have been mapped in a way that assists project developers and the planning team to know where old growth is the default desired condition. This project area highlights the failure to do so, and thus shows how dismissive the Forests have been towards their obligations with respect to old growth in the past. We realize that it is hard, as a result, to manage the old growth resource both at the project and planning levels. Past failures, however, do not excuse the Forests from their current obligations. Small patches must be identified as required for this project area, and they must be carried forward into the revised plan.

III. Road Construction

The soil disturbance from new road construction, including cut banks and fill slopes, would likely be the largest impact to water quality of the Nantahala Mountains Project. Because the Forest lacks funds to adequately maintain the road system, many system roads develop

ongoing problems with erosion and sedimentation. Roads have lasting impacts to hydrology because of the reduced permeability of road surfaces and their interception of subsurface flows and springs when cutting across slopes. The interactions between roads and flowing water (both surface and subsurface) result in unanticipated and acute BMP failures, as well as chronic problems from lack of maintenance. Through those mechanisms, forest roads serve as conduits to transport sediment to streams and can significantly increase stream volume, depth, and velocity during peak flows.⁴

The Scoping Record documents roads to be added to the system as: 0.61 miles of road off of FSR 7042 (part new and part unclassified); an additional 0.23 miles of unclassified road off FSR 7042; 0.61 miles of unclassified road to access stand 97/25; and 1.25 miles of unclassified road to access group selection units in Comp 124. Scoping Record at 15. However, the Record is unclear on the amount of “temporary” road to be constructed for the project. It mentions short segments of temporary road to access stands 97/26 and 98/6, but it also mentions other temporary road construction. The document also does not clearly delineate the amount of road to be reconstructed. The scoping record discusses the need for reconstruction and maintenance of the road system, and GIS shapefiles for project action show reconstruction of FSR 7042; 711F; and 7164. For many old roads that have not had maintenance, road reconstruction is closer to construction than reconstruction, especially where the road is being upgraded for longer trucks. Thus, all temporary roads and road reconstruction should be documented and analyzed. The Draft EA must also provide a factual basis for treating “temporary” roads as temporary: confirming that the road is not an uncategorized road being reused from a prior entry, explaining why the road is not anticipated to be used again in the future, and how the road will be closed out and the area returned to the resource purposes served by the relevant management area allocation.

A Transportation Analysis Plan (TAP) must be developed to address the overall road system in the project area as well as the new roads to be added by the project, including so-called temporary roads that are likely to be reused again in the future. The TAP must disclose and analyze tradeoffs of both existing and proposed roads. The draft TAP for the Nantahala Forest failed to disclose and analyze these tradeoffs, and it does not support identification of a minimum road system that is within the Forests’ budget and protects water quality. As the Forests know, a new TAP will need to be prepared as soon as plan revision is complete. Without a forest-wide TAP to rely on, a project-level transportation analysis is essential now as new roads are being proposed and considered. The TAP should factor into this consideration need for access and possible road benefits with budget projections and the need to prevent erosion and resource damage due to poorly-maintained roads. Proposing adding road to the system when the road budget doesn’t cover existing road maintenance is unjustified. Reconstructing roads that have deteriorated because of not receiving regular maintenance implies these roads may not have a net benefit vs risk balance. These issues should be thoroughly disclosed and analyzed in a TAP. *See* 36 C.F.R. § 212.5. The project TAP must address the issue of getting the Forest and this portion of the Forest to an environmentally and economically sustainable road system.

⁴ Coe, D., 2006. Sediment production and delivery from forest roads in the Sierra Nevada, California. M.S. thesis. Colorado State University, Fort Collins, CO, 107p

IV. Logging and Road Construction on Steep Slopes

It appears that most of the timber harvest in the project will involve operations on steep slopes. In addition to the steep terrain, the project area has numerous historic landslide sites. Historical landslides are particularly prevalent within the Cartoogechaye watershed, a designated Class WS-III and an important water supply watershed. Many of these historic landslides seem to be associated with Forest Service roads. Temporary roads, skid roads and skid trails can prove to be acute and persistent sources of sediment runoff, as demonstrated by the Panther Branch sale in the Pisgah District (Courthouse Creek). Logging, road construction and reconstruction in areas of steep terrain and high landslide risk pose extreme risk of uncontrolled sedimentation. These risks should be minimized, and fully analyzed and disclosed in the NEPA process. Even where BMPs are followed by the book, not every road or every segment has the same level of risk. A credible NEPA analysis must be able to show the differences. If the District lacks the information needed to anticipate where the high-risk areas are, it must say so and develop a plan for monitoring and mitigating that risk during implementation.

A public analysis of the risks of the project is not only a NEPA requirement, but essential for developing an alternative that complies with the plan standards. North Carolina state law, the Federal Clean Water Act and the Forest Plan all direct the Forest Service to “[p]revent visible sediment from reaching perennial and intermittent stream channels and perennial water bodies in accordance with NC Forest Practice Guidelines Related to Water Quality.” 1994 Plan at III-40. Forest Practices Guidelines Related to Water Quality (FPGs) are a set of mandatory performance standards for forest harvesting practices intended to protect aquatic resources, and the Forest Service is bound to follow them under federal law. 33 U.S.C. § 1323.⁵ The Forest Plan repeats the requirement to “prevent visible sediment” under forest direction aimed at protecting water quality and minimizing soil damage (III-41 and III-42). This project cannot qualify for a FONSI unless the Forest Service can specifically find that water quality standards will be met, which is impossible without incorporating specific mitigation measures to prevent erosion and sedimentation. Such measures may include, but are not limited to, aerial cable logging and phasing implementation over time to space out impacts to the water supply.

The current Forest Plan requires “cable yarding that suspends at least one end of the log on sustained slopes over 40% unless site-specific analysis determines that other logging methods meet soil and water protection standards.” 1994 Plan at III-34. Potential changes to the wording notwithstanding, planners have told us that they intend the standard to be just as protective in the revised plan. However, despite the presence of steep slopes in the proposed stands, the scoping record does not mention the use of cable logging or explain how cable-logged stands will be accessed. Cable logging must be used on steep slopes to comply with Forest Plan standards, or excluded if ground-based logging methods are the only option. We also want to emphasize that we are concerned about ground-based logging on slopes greater than 30%, because of the greater impacts to soil and water of skid roads on steep slopes. The NEPA analysis should address this

⁵ Under the federal Clean Water Act, the Forest Service is obligated to meet the requirements of state water quality protection laws, including North Carolina’s Water Quality Protection Act and Sedimentation Pollution Control Act. 33 U.S.C. § 1323. The NC Water Quality Protection Act prohibits pollution (from any source, including forestry) that violates state water quality standards. NCGS § 143-215.1(a)(6); *see also* 15 NCAC 2B .0211(12).

increased risk of impacts from exposed soil and bank cuts on steep slopes at the upper limit of plan standards for ground-based logging. Every effort should be made to minimize the length, width, and total area of skid roads in the stands selected for harvest. This includes consideration of less disturbing ground-based methods on slopes over 30 percent.

In recent projects, the Forest Service has ignored concerns about sedimentation impacts to waters from road construction and logging by citing to high BMP efficacy rates. The use of BMPs is not a shield to liability if the activity is not in full compliance with the Forest Practice Guidelines, which prohibit the introduction of visible sediment to streams. Moreover, as implementation of recent projects and our previous comments have demonstrated, these BMP rates simply are not reliable in our region and in these portions of the Nantahala National Forest in particular.⁶ Logging in these stands and in these watersheds creates a substantial risk of sedimentation and violation of state water quality standards. Furthermore, even perfect compliance with BMPs does not take away the District's obligation under NEPA to disclose the localized risks of logging on erosion- and landslide-prone sites.

Steep slopes and historical landslides indicate a high risk of sedimentation from logging and road construction. These factors trigger taking a hard look at likely sediment impacts from exposed road cuts, bank cuts, and other soil disturbing activities. The Forest Service must go beyond the base assumption that BMPs and design criteria will be effective to control erosion and sediment. Instead, compliance with NEPA, the Forest Plan, and water quality standards require the Forest Service to evaluate the likely performance of these ordinary measures against extraordinary site conditions in the Nantahala Mountains project area.

V. Compatibility with Forest Plan NEPA Assumptions

The Proposed Forest Plan and Draft Environmental Impact Statement contain three action alternatives. The DEIS asserts that all three alternatives would harvest timber at rates that were sustainable in every ecozone, even if timber harvest were quadrupled over the running 20-year annual average. The Nantahala Mountains Project and several other pending projects will be implemented under the new plan, but are inconsistent with the management activities analyzed in the DEIS.

The 2012 Planning Rule was to require plan objectives to be within the fiscal capability of the Forest Service. A key innovation of the Proposed Forest Plan for the Nantahala and Pisgah National Forests was to address fiscal limitations by analyzing differing levels of impact for what is currently fiscally possible, known as Tier 1, and what would be fiscally possible with a doubling of current resources, known as Tier 2. The management activities predicted for Tier 1 and Tier 2 were then analyzed using Spectrum software, a process that we criticized in our DEIS comments.

One flaw among many was a set of unrealistic assumptions about timber harvest in the Proposed Plan, found in Appendix B. Appendix B contains the Forest Service's best guess at

⁶ See SELC, MountainTrue, The Wilderness Society, Defenders of Wildlife, Sierra Club, Appalachian Voices, Notice of Objection and Statement of Reasons for the Buck Project at 18-28 (Nov. 5, 2019), <https://cara.ecosystem-management.org/Public/Letter/2126589?project=50345> ("Buck Objection").

timber harvest projections under the new Plan, and was used to inform projects in Spectrum in the DEIS. It includes projections for harvest under both Tier 1 and Tier 2 scenarios. Notably, under Tier 1, there was a projection of zero acres of regeneration harvest in the Northern Hardwoods, Cove, and Mesic Oak Ecozones and then steep increase to over 10,000 acres of harvest in Cove and Mesic Oak Ecozones under Tier 2 (B-10).

In order to check the assumptions of the Proposed Forest Plan and DEIS, we completed an analysis of all projects that have been approved or scoped that will be implemented under the new Forest Plan. Those projects are: Twelve-Mile, Buck, Crossover, and Nantahala Mountains. Two other projects, Lickstone and Northside, were not analyzed because they have not been scoped, but from pre-scoping materials appear to be very similar to the projects analyzed. We chose not to analyze Southside due to time constraints and uncertainty over its implementation schedule. In each of these projects, we analyzed the Ecozones affected by regeneration harvest (generally 2-age shelterwood). We did not include any acres resulting from cutting of pine plantations or other activities that have broad acceptance as ecological restoration, nor did we include group-selection acres due to time constraints, though we believe group selection is also a regeneration harvest. In other words, only regeneration harvest of characteristic vegetation was included, and the analysis is an underestimate in the projects that include group selection harvest.

Table 1: Proportional Analysis of Regeneration Harvest in Mesic Ecozones for Projects to be Implemented Under the New Forest Plan

Project	Total Regen Acres	Northern Hardwood Ecozone	Cove Ecozone Regen	Mesic Oak Ecozone Regen	% Cove	%Mesic Oak	% Mesic Ecozones	
12-Mile	1008	2.8	475.4	181.7	47.20%	18%	65.50%	
Buck	795	29.7	499.5	185.6	62.80%	23.30%	89.90%	
Crossover	1316	87.9	871.8	192.9	66.20%	14.60%	87.50%	
Nantahala Mountains	405	56.7	256	58.5	63.20%	14.40%	91.60%	
Nantahala NF Total	2,516	174.3	1627.3	437	64.68%	17.37%	88.97%	
Nantahala-Pisgah Total	3524	177.1	2102.7	618.7	59.67%	17.56%	82.25%	

The DEIS for the Proposed Plan operates under an assumption that 0% of the regeneration harvest will be in Mesic Ecozones such as Cove, Mesic Oak, and Northern Hardwoods. The strategy of the Nantahala National Forest is therefore at odds with the DEIS. Rather than focusing timber harvest and restoration in the most departed ecozones – generally those most degraded by fire exclusion/suppression – the Nantahala National Forest (and, to a

lesser extent, the Pisgah) – is prioritizing the healthiest ecozones and the ecozones with the largest deficits of the old-growth structural class for timber harvest. This is problematic on a number of levels. The pattern we are witnessing is likely to increase the ecological departure of the Nantahala and Pisgah National Forests by focusing scarce resources on the ecozones that need them the least, by leaving ecozones which have the largest proportional deficit of young and open forest habitat mostly unmanaged, by reducing the rate at which old-growth develops in the ecozones most impoverished in it. This pattern also invalidates the analysis in the DEIS.

If the timber harvest projections in the Final Forest Plan and FEIS is anything like what was in the DEIS, it will be inaccurate and invalid based on the projects that we know now will be implemented under the Plan. Furthermore, the Nantahala and Pisgah National Forests are racing towards Tier 2 levels of timber harvest in Mesic Ecozones without meeting Tier 1 objectives for prescribed fire, non-native invasive species control, road management, recreation management, or any of the other objectives in the Forest Plan. We are extremely troubled by this pattern of putting economic concerns – i.e. harvesting timber in the most economically valuable and ecologically sensitive forests – over all other values provided by National Forests.

VI. Designated Trails and Corridors

A. Appalachian Trail

The following activities would affect the Appalachian Trail Management Area:

- Stand 121-26 is a Group Selection in the AT Corridor MA
- Stand 121-36 is a Commercial Thinning in the AT Corridor MA
- Stand 121-35 is a Shelterwood with reserves partially in the AT Corridor MA
- Stand 111-23 is a thinning in the AT Corridor MA
- Stand 111-30 is a shelterwood that partially overlaps the AT Corridor MA
- Reconstruction of Road 7042 in AT Corridor

We recommend that the Appalachian Trail Conservancy be consulted to ensure that these activities are compatible with the Forest Plan DOGS for the Appalachian Trail. In the future, this consultation should take place before scoping, at which point significant resources have already been expended to study the stands in question and determine their suitability for the proposed treatments. A leaf-off walk of the trail is important, but it is not sufficient by itself. The AT Corridor MA does not merely protect scenic quality. The AT provides and is intended to protect other resource values as well, including natural and cultural resources, such as its value as a habitat corridor, a place to find solitude and quiet, and a naturally appearing area where old forests are being restored consistent with NRV. Any timber harvest must be “complementary” to those values under the revised plan, and the list of approved harvest purposes simply does not include timber production or balancing age classes. The MA is not suitable for timber production.

B. Trail of Tears

Significant harvest activities and related road-building are proposed within a ½ mile of the Trail of Tears Corridor. *See* Scoping Record at 17. The Scoping Record states that “The

Forest Service is currently actively engaged with interested tribal governments regarding this project.” *Id.* at 7. While we appreciate that “no ground-disturbing work,” *id.*, can begin until consultation is complete, the Forest Service has already invested significant resources into these plans. Consultation should take place as early as possible in the process, and it should respect the priorities of tribal authorities in the spirit of co-management, including affirmative priorities to protect and enhance cultural resources reflecting past tribal uses and present connections of tribal members with lands in the Forest Service’s charge. Consultation should not merely be asking permission to conduct ground-disturbing activities.

VII. Ecological Interest Area Management Area

Stand 59-39 occurs in an area the Forest Partnership recommended for the Ecological Interest Area Management Area. The proposed action, to clear-cut a white pine plantation and restore to native hardwoods is exactly the type of commercial timber harvest we believe should occur in the EIA Management Area. Timber harvest that restores species composition and structure, especially where there is already road access, is something we strongly support.

VIII. Conclusion

We appreciate the invitation to comment on the Nantahala Mountains Project, and we believe the timing of this project provides a unique opportunity for the Forest Service to demonstrate its commitment to a collaborative approach. It is this approach that will ensure the success of plan revision, as well as the success of individual projects like this one. We urge the Forest Service to keep in mind stakeholder input—in particular the consensus views offered by the Partnership—at every level of planning, and we look forward to continuing to work together.

Sincerely,



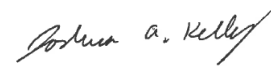
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September 30, 2022

Submitted Via Electronic Mail

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Re: Nantahala Mountains Project

Dear Troy:

We appreciate the opportunity to comment on the Draft EA for the Nantahala Mountains Project on behalf of MountainTrue, The Wilderness Society, and Defenders of Wildlife. MountainTrue is a non-profit organization with the primary goals of protecting, restoring, and preserving public lands and native wildlife through education and public participation in decisions at all levels of government. MountainTrue actively participates in the management of the Nantahala National Forest. The Wilderness Society is a national nonprofit organization “working to protect our nation’s public lands” and is also heavily invested in the ongoing forest plan revision. Defenders of Wildlife is dedicated to the protection of all native animals and plants in their natural communities. With more than 1.2 million members and activists, Defenders of Wildlife focuses on wildlife and habitat conservation and the safeguarding of biodiversity.

We commend the collaborative approach taken by the Forest Service over the course of project planning, and we were heartened to see that our main concerns with logging in particular stands have been addressed since scoping. Our recommendations relating to old-growth designations remain to be addressed, and we believe the analysis of project impacts under NEPA has some deficiencies as explained further below. But overall, we are pleased by the project’s trajectory and the steps taken by the Forest Service to protect the special places we identified from timber production.

I. Protection of Important Areas from Timber Harvest

The proposed regeneration harvest in Stand 25 in Compartment 32 was the most concerning part of this project at scoping due to its occurrence in the Cliff Ridge/Burningtown Bald Natural Heritage Natural Area (NHNA) and the Tellico Bald Wilderness Inventory Area (WIA). We applaud the Forest Service for removing this stand from the preferred alternative and protecting its backcountry characteristics and the old growth it likely contains.

We also noted at scoping that commercial group selection harvest in Stand 121-26 would have overlapped with the Runaway Knob NHNA, also delineated as a Special Interest Area in the new Forest Plan. Therefore, we are pleased that timber harvest activities in this NHNA have been removed.

Finally, Stand 61-37 has many large and old trees and old-growth characteristics, as well as a healthy population of red-legged salamanders that inhabit the large woody debris in the stand. This stand was removed from the preferred alternative in the Draft EA. We appreciate the Forest Service's consideration for this rare and important habitat.

II. Remaining Impacts to Wilderness Characteristics

Despite the notable improvements above, the Nantahala Mountains project EA and Travel Analysis Process (TAP) fail to disclose or analyze remaining impacts to wilderness characteristics within the project area. Clearcutting of stands 59-38 and 59-39, two new permanent wildlife openings, additional linear wildlife openings, and 0.84 miles of system road are proposed within the Tellico Bald WIA. These activities would degrade the wilderness characteristics of this WIA, and such impacts are of significant public interest. Throughout the Forest Planning process, the public has expressed a desire for management that protects WIAs and Mountain Treasure areas. In fact, Tellico Bald was an area that some in the public supported for wilderness recommendation. Many of the unprecedented number of objections to the Forest Plan pointed toward protection of these Mountain Treasure areas, including Tellico Bald.

We appreciate that the clearcutting of stands 59-38 and 59-39 to transition them from uncharacteristic white pine stands to characteristic species composition can be justified as restoration, and in the long term could improve wilderness characteristics. However, these management activities still have impacts, particularly on soil and water and the risk of spreading non-native invasive species (NNIS). Even shorter-term impacts in the name of restoration must be analyzed and any tradeoffs carefully considered in the EA. Moreover, adding permanent road in a WIA is a long-term impact that must be analyzed, because the absence of road is one of the primary measures of wilderness.

No impacts to wilderness characteristics were considered in the EA and TAP. For example, the TAP cursorily discloses effects on natural and cultural resources throughout: "Potential negative effects due to erosion, non-native invasive species dispersal, and impacts to local plants and wildlife." TAP at Table 4.2. It does not mention wilderness characteristics, much less disclose degradation of those characteristics. Similarly, the EA is silent on impacts to wilderness characteristics.

Under agency regulations, an EIS is required whenever a project would substantially impact an inventoried roadless area or potential wilderness area. 36 C.F.R. 220.5(a)(2).¹

¹ While the regulation specifically addresses impacts to "potential wilderness areas," the terminology used for inventory at the time it was adopted, these terms are functionally equivalent. Compare FSH 1909.12, Ch. 70 (2007) with FSH 1909.12, Ch. 70 (2012). In other words, these WIAs would be considered PWAs if the older version of the directives were still in effect. For purposes of NEPA analysis, the significance of the impact depends on the values present in the area, not the terminology used to describe them. For

Attributes that qualify an area as potential wilderness “possess independent environmental significance.” *The Lands Council v. Martin*, 529 F.3d 1219, 1230 (9th Cir. 2008) (EIS that provided “a three-page analysis on ‘roadless character’” was “cursory” and therefore insufficient); *Or. Natural Desert Ass’n v. Bureau of Land Mgmt.*, 625 F.3d 1092, 1116-22 (9th Cir. 2010) (effects on “wilderness values” and/or “roadless character[istics]” in the planning area must be evaluated under NEPA). In addition, the potential for designation as wilderness areas is an independent factor of significance. *Smith v. U.S. Forest Serv.*, 33 F.3d 1072, 1078–79 (9th Cir. 1994). Impacts that would make an area ineligible for inventory in the future are likely to be “significant,” requiring full consideration in an EIS. *See* 36 C.F.R. § 220.5(a)(2) (“Proposals that would substantially alter the undeveloped character of an inventoried roadless area or a potential wilderness area” will ordinarily require an EIS.). Thus, an EIS is required to fully analyze the consequences of roads and logging in wilderness inventory areas with undisputed wilderness characteristics.

III. Old-Growth Designations

We made extensive recommendations at scoping regarding appropriate old growth designations in the project area and incorporate those recommendations by reference here. *See* Scoping Comment Letter (attached). The Draft EA continues to erroneously imply that lack of old growth is a past problem and conflate old growth with “older forest.” We reiterate our statement that true old growth remains a drastically underrepresented condition on the forest, and that the Forest Service must not fail to protect this depleted resource in the name of prioritizing early seral habitat. We urge the Forest Service to review our scoping recommendations on appropriate small-patch designations in this project area and analyze and inventory this project for old growth characteristics as required under the current Forest Plan.² *See* Region 8 guidance, Amendment 5 to the 1994 Plan.

IV. Failure to Disclose and Analyze Impacts

Several important categories of environmental impacts have not been fully disclosed or analyzed in this Draft EA. Specifically, the Draft EA minimizes the likely impacts on water resources by overestimating the implementation and efficacy rates of Best Management Practices (BMPs), fails to discuss the impacts associated with creating new wildlife openings, and inadequately considers the potentially devastating impact of NNIS if appropriate mitigation is not undertaken.

We incorporate by reference our comments at scoping regarding impacts from road construction as well as logging and road construction on steep slopes. *See* Scoping Comment Letter (attached). The Draft EA analysis of impacts acknowledges sedimentation risk, but cites the alleged past success of BMPs and asserts that standard BMPs are sufficient to negate any impacts from these activities. *See* Draft EA at 27; 33-35. As we commented at scoping, and more extensively in our objection to the revised Forest Plan, the Forest Service mistakenly relies

that reason, it would be arbitrary and capricious to find that impacts to an area are either significant or insignificant depending solely on whether it is called a PWA or WIA.

² As we have repeatedly commented during the Plan Revision process, the Forests’ failure to carry forward small patches in the new plan is arbitrary and capricious.

on BMPs to avoid analyzing the water-quality impacts of logging and road construction, particularly on steep slopes such as those in this project area. This faith in BMPs is belied by the chronic lack of funds plaguing road maintenance on the Forest, as well as data showing that BMPs are not perfectly implemented or perfectly effective even when they are implemented. The same critique we detailed in our Forest Plan Objection applies to the faulty analysis—or, more accurately, the failure to analyze impacts at all—at the project level. *See* Objection at 129 – 31 (attached).

In light of the new wildlife openings proposed as part of this project, including roads that will be converted into linear wildlife openings, we must also point to our concerns with the management of wildlife openings, and the failure to analyze the impacts of such management at the project level here. The recent EA introducing chemical management of wildlife openings across the National Forests of North Carolina notes that it does not address the addition of new wildlife openings to the system. Wildlife Opening Management FONSI at 1 (attached). Therefore, the future maintenance activities and introduction of chemical management for native species are among the impacts of establishing new wildlife openings that have not been considered in this Draft EA. The full impacts of creating new wildlife openings in this project must be considered in the Final EA.

Finally, the Draft EA acknowledges that the risk of NNIS spread from project activities, particularly in Rich Cove Forest, will be high. “Considering the risk of infestations and the number of rich cove forest acres affected, the risk of new or larger infestations is high. It will be very important to treat NNIS infestations prior to any rich cove forest harvest and continue to assess after the harvest.” Draft EA at 39. However, the Draft EA notes elsewhere that “time and funding” may not be available for treatment of NNIS prior to timber harvest. Draft EA at 20. This is a conspicuous failure to commit to necessary pre-harvest treatment to prevent the worst-case scenario from unfolding when it comes to the introduction of NNIS in the project area. Ideally this commitment to mitigate the impacts of NNIS should be made part of the project; barring that, a full analysis of the likely impacts without such treatment must be completed.

V. Conclusion

Thank you for your attention to our comments at scoping and for the important revisions you have made to this project. The changes resolve many of our concerns, and will better protect WIAs, NHNAs, and old growth in the project area. Some deficiencies in the project and its analysis remain, and thus we request that the old growth designations we recommended be incorporated into the project, and that the missing analysis of impacts described above be added to the Final EA. We remain optimistic about the success of this project and thank the Forest Service for its demonstrated commitment to receiving input from partners.

Sincerely,



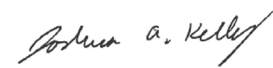
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December 13, 2021

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Submitted Via Electronic Mail

Re: Nantahala Mountains Project

Dear Mr. Moffat:

The **Center for Biological Diversity** appreciates the opportunity to submit scoping comments on the Nantahala Mountains Project.

The Center is a nonprofit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental and administrative law. The Center has over 1.6 million members and online activists dedicated to the protection and restoration of endangered species and wild places. The Center has worked for over twenty-five years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life. The Center maintains a regional office in Asheville, North Carolina.

I. Summary

The Center is concerned about several aspects of the proposed project including the Forest Service's reliance on logging to create early successional habitat (ESH) and the impacts of this project on old growth, imperiled salamanders, and listed bat species. We are further concerned that the Forest Service is moving forward with this project (and others) before updating the 1987 (Amended 1994) Forest Plan to reflect current forest conditions (including those shaped by the surrounding landscape and climate change). The Forest Service needs to identify a full range of alternatives to this project, including a no action alternative, and thoroughly analyze its environmental impacts, including its cumulative impacts (particularly in consideration of the Buck timber project just a few miles away).

II. Discussion

A. The Forest Service Must Identify and Analyze Alternatives that Result in Less Intensive Methods to Create ESH.

The scoping notice calls for a combination of clearcut, two-aged shelterwood establishment and removal cut with reserves, group selection, thinning, and other forms of silvicultural treatments. The Center is concerned that like many other national forests in the Eastern United States, the Nantahala NF is moving forward to “restore” these forests without fully considering the need for these types of treatments and their ecological impacts.

The Forest Service needs to consider several important factors including 1) the role natural disturbances and climate change stressors have had (and will have) in creating early successional habitats on the Nantahala NF; 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 and trends for game species such as ruffed grouse that appear to the focus of the Forest Service’s habitat “restoration” goals; and 5) the importance of late successional stands in sequestering carbon and combatting climate disruption. We discuss each of these factors below and why the Forest Service must identify a range of reasonable alternatives that reduce the amount of ESH created through timber harvests.

1. The Forest Service Needs to Consider the Role Natural Disturbances and Climate Change Stressors are Having on the Creation of ESH.

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. Simply saying that because natural disturbances occur at irregular and unpredictable intervals the Forest Service cannot rely on natural disturbance regimes to ensure ESH is established in “desired amounts and locations” is too cursory of an analysis and a more rigorous evaluation of the project’s purpose and need, impacts, and alternatives is required under NEPA.

Natural disturbances can be abiotic (e.g., fire, drought, wind, snow, and ice) and biotic (e.g., insects and pathogens).¹ 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. Disturbances such as fires, insect outbreaks, and windthrow can disrupt the structure, composition, and function of an ecosystem.²

Disturbance regimes have changed profoundly in many forests in recent years, with climate being a prominent driver of disturbance change.³ Climate change is altering the frequency, intensity, duration, and timing of disturbances.⁴ Disturbance change is expected to be among the most profound impacts that climate change will have on forest ecosystems in the future.⁵

¹ 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).

² *Id.*

³ *Id.*

⁴ 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.

⁵ *Id.*

Warmer and drier conditions facilitate fire, drought and insect disturbances, while warmer and wetter conditions increase disturbances from wind and pathogens.⁶

Fire is the second most common disturbance on the forests after timber harvests, with the area affected by fires increasing over the years.⁷ Many climate models have projected an overall increase in temperature and a drying trend in many subtropical and mid-latitude regions, with wildfires likely increasing in these regions.⁸ Temperature increases across the South would contribute to increased fire frequency and intensity, total burned area, and longer fire seasons.⁹

Windthrows caused by large hurricanes and other intense storms have significant impacts on forest structure, species composition, successional development, and carbon storage and emissions.¹⁰ Flooding in Western North Carolina is often the result of intense rain events derived from localized thundershowers or large-scale hurricanes that have moved inland.¹¹ Debris avalanches occurred across the forests in 2004 as a result of successive hurricanes (Frances and Ivan).¹² These hurricanes caused wide-spread flooding across the Forests¹³ and “triggered hundreds of landslides across the Nantahala and Pisgah NFS and Western North Carolina.”¹⁴

Native insects and pathogens are an important part of a healthy forest but when environmental and biological conditions lead to outbreak levels, they can significantly impact forests.¹⁵ Non-native invasive species have been identified as one of four critical threats and can rapidly increase across the landscape with little resistance beyond control and mitigation measure.¹⁶ Both native and non-native insects and diseases cause above-normal mortality rates on Forest lands and in many instances they can be attributed to changes in forest conditions as well as climate change.¹⁷ These disturbance agents can affect forests at varying scales and intensity from small groups of trees (gaps) to larger sizes and scales.¹⁸ As the DEIS for the Proposed Forest Plan acknowledges, “because many insects and diseases are influenced by environmental conditions, future changes in climate can be expected to result in greater impacts from both non-native and native pests.”¹⁹

⁶ *Id.*

⁷ See UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE, NANTAHALA AND PISGAH NATIONAL FORESTS, DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED LAND MANAGEMENT PLAN 67 (Jan. 2020).

⁸ 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.

⁹ *Id.*

¹⁰ Xi, W. et al. 2019. Hurricane disturbances, tree diversity, and succession in North Carolina Piedmont forests, USA. *Journal of Forestry Research*, 30, 219-231. <https://doi.org/10.1007/s11676-018-0813-4>.

¹¹ DEIS for the Proposed Forest Plan at 99.

¹² *Id.*

¹³ *Id.* at 75.

¹⁴ *Id.* at 76.

¹⁵ *Id.* at 387.

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

Staff at the Nantahala and Pisgah National Forests have also acknowledged the likelihood of more extreme weather events in the future:

The potential for severe storms is expected to increase in the future, including more intense hurricanes making landfall in the southern US, with potential increases in flooding and landslides in mountainous landscapes. Conversely, extended periods of drought and forest stress may lead to drier fuels which will burn more easily and at hotter temperatures, and contribute to more and larger wildfires. More cloud-to-ground lightning due to warming may increase wildfire ignitions, even in mountainous areas where fires are historically less common...Shifting weather patterns throughout Appalachia and the southeastern U.S. will have a variety of effects on forest health. Increasing variability in precipitation distribution can impact both forest productivity and carbon sequestration...²⁰

Despite the increased frequency and intensity of these events throughout the Southeastern United States, the scoping record provides no additional information that explains why the Forest Service believes natural disturbances are an insignificant force in shaping ESH across the landscape and why silvicultural treatments are necessary.

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. The Forest Service should examine the increased frequency and intensity of these disturbances in recent years and how these disturbances may impact the Forest Service's age and structural class categories for each ecozone going forward. Surface geologic processes (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.²¹

Although modifying forest structure and composition can modulate climate sensitivity of disturbance regimes in some instances by lowering the probability of a subsequent disturbance by the same agent,²² an overzealous approach to creating more young forest conditions may ultimately lead to an imbalance in the age and structural class of the national forests, making

²⁰ *Id.* at 62.

²¹ See Swanson, M.E., et al. 2011. The Forgotten Stage of Forest Succession: Early-Successional Ecosystems on Forest Sites. Biological Sciences Faculty Publications. 278. http://scholarworks.umt.edu/biosci_pubs/278; Sippola, A.L., et al. 1998. Amount and quality of coarse woody debris in natural and managed coniferous forests near the timberline in Finnish Lapland. *Scand. J. For. Res.* 13: 204-214; Goodburn, J.M. and Lorimer, C.G. 1998. Cavity trees and coarse woody debris in old-growth and managed northern hardwood forests in Wisconsin and Michigan. *Can. J. For. Res.* 28:427-438.

²² Seidl, R. et al. 2017.

them more vulnerable to climate change.²³ Forests in the Southern United States already have the highest percentage of carbon lost to timber harvest of any region (92%)²⁴ and an increasing rate of natural disturbances driven by climate change could further diminish current net carbon uptake.²⁵

It is therefore extremely important that the Forest Service consider the extent to which the increased frequency and intensity of natural disturbances may be uniquely impacting each of the various ecozones in the Forest, how multiple, overlapping natural and manmade disturbance events could impact the recovery periods/return intervals within these ecozones, and how that may alter the decision-making when it comes to management actions (e.g. timber harvests) aimed at creating more young forests. While the (now outdated) Forest Plan calls for more ESH within the Forest, the Forest Service should examine the appropriateness of using timber harvests to create early seral forests given the impacts of climate change on natural processes. Much has been learned since the Forest Plan was produced. 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 be asserting in the scoping record. The Forest Service should proceed in a manner consistent with the precautionary principle, revisit any assumptions made regarding natural disturbance (including in any PNV and NRV models), and factor in the increase in frequency and intensity of climate change induced and amplified disturbances across the forests. The Forest Service should also monitor natural disturbances to better inform an adaptive management approach to the creation of young forests.²⁶ Moreover, the Forest Service should provide a full accounting of the Forests' role in sequestering carbon, along with the cumulative impact of management and disturbance trends across the National Forest System.

As it is currently formulated, the scoping record fails to provide adequate support under NEPA for the “purpose and need” of increasing regeneration harvests. NEPA planning begins with an identification of the purpose and need for a project. NEPA’s implementing regulations provide that an environmental document should specify the underlying purpose and need to which the agency is responding in proposing the alternative including the proposed action.²⁷ The manner in

²³ Older forests in the Eastern United States have been found to be less vulnerable to climate change than younger forests. See Thom, D. et al. 2019. The climate sensitivity of carbon, timber, and species richness covaries with forest age in boreal-temperate North America. *Global Change Biology*, 2019; DOI: 10.1111/gcb.14656.

²⁴ Harris, N.L. et al. 2016. Carbon Balance Manage 11:24. DOI 10.1186/s13021-016-0066-5.

²⁵ United States Global Change Research Program, Second State of the Carbon Cycle Report, Chapter 9, at <https://carbon2018.globalchange.gov/chapter/9/>.

²⁶ This underscores the need for the Forest Service to update its Forest Plan to account for these changing conditions. 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 Forest Service to evaluate “existing and possible future conditions and trends of the plan area.” This would certainly include climate change. See Preamble to 2012 Planning Rule at p. 21212 (stating that the initial premise of ecological integrity is that “maintaining or restoring ecological conditions similar to those under which native species have evolved therefore offers the best assurance against losses of biological diversity and maintains habitats for the vast majority of species in an area, subject to factors outside of agency control, such as climate change.”).

²⁷ 40 C.F.R. § 1502.13 (emphasis added).

which an agency defines the project's purpose "sets the contours for its exploration of available alternatives."²⁸ Therefore, an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative would accomplish the goals of the agency's action, and "the EIS would become a foreordained formality."²⁹ By falsely assuming that regeneration harvests are necessary to create young forests, and that without these harvests the Forests will continue to deviate from the NRV, the Forest Service has defined the need and purpose of this project so narrowly that only alternatives calling for more regeneration harvests are considered. This must be addressed so that the Forest Service can properly examine less environmentally damaging alternatives that may otherwise address the concerns raised by the Forest Service about the Forests' deviation from the NRV.

2. The Forest Service Must Consider the Quality of Existing Habitats and Species Diversity Before Turning to Regeneration Harvests to Create More Young Forests.

Before the Forest Service turns to timber harvests as a tool for ecological restoration, it must consider where, when, and why logging is appropriate to achieve the desired condition of creating young forests.

The Forest Service needs to clearly differentiate between high quality habitats and degraded habitats when identifying timber harvests as the ecological tool of choice for creating young forests. While it may make sense to cut stands with low species and structure diversity such as non-native pine plantations,³⁰ it makes far less sense from a cost-benefit standpoint to log more diverse areas, especially late successional areas, and those trending towards or classified as old growth. Yet, there appears to be no blanket protections for these age classes in these areas. This could have profound impacts on late successional patches where it appears young forest creation will occur.

The Forest Service needs to also consider the timing of these timber harvests. To re-emphasize our earlier point about natural disturbances, the Forest Plan needs to factor in natural disturbances (amplified by climate change) when determining the appropriate amount of early seral habitat. For example, 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, 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 highly diverse mesic forests.³¹ To proceed with harvesting these areas anyway without concern for maintaining species diversity and the future impacts of climate change, just to satisfy the an ESH target would be misguided, to say the least.

²⁸ *Wyoming v. United States Dep't of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011).

²⁹ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).

³⁰ The Forest Service must still examine the impacts of removing these pines, particularly if they were planted to control erosion as was once common on other national forest lands throughout the Eastern United States. *See, e.g.* Hoosier National Forest Plan at 2-3.

³¹ 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.

Further, the Forest Service needs to explain why timber harvests are the most appropriate tool. There needs to be a rigorous discussion weighing the advantages and disadvantages of using regeneration harvests instead of other active management approaches (such as thinning and prescribed fire) or relying more on natural disturbance agents to achieve the NRV for young forests. Section 219.11 of the 2012 Planning Rule, specifically requires that logging “be carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources,” and that “[w]here plan components will allow clearcutting, seed tree cutting, shelterwood cutting, or other cuts designed to regenerate an even-aged stand of timber, the plan must include standards limiting the maximize size for openings that may be cut in one harvest operation, according to geographic areas, forest types, or other suitable classifications.”

A key consideration under NEPA is whether the “selection and discussion of alternatives fosters informed decision-making and informed public participation.”³² 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.”³³ Without a nuanced and robust discussion of the environmental costs and benefits of using timber harvests to create more young forests, the Forest Service will not be able to provide the public with enough information to meaningfully evaluate the alternatives and determine whether this is the appropriate management approach to achieving the desired condition of more young forests. The Forest Service must engage in a rigorous analysis which provides a clear basis for choice among options by the decisionmaker and the public.³⁴

3. The Forest Service Should Consider the Young Forest Conditions of the Broader Landscape in Relationship to the Forest Service’s Plans to Establish More ESH.

The Forest Service should discuss the role of the Nantahala National Forest within the broader landscape and how the conditions of the broader landscape may influence the sustainability of resources and ecosystems within the plan area. It is important to include information about the structural classes of private and state-owned forest land across the broader landscape. If much of this land is subject to regular timber harvesting for sawtimber and pulpwood products, managed for game species, or otherwise altered to accommodate predominately human uses, there would likely be a substantial if not disproportionate amount of land already within the young forest age class. Therefore, when viewed through the lens of the broader landscape, there is arguably much less need to use regeneration harvests to create thousands of more acres of young forests within national forest boundaries, particularly if many of these existing young forests occur either as inholdings or in proximity to national forest boundaries.

It is also important that the Forest Service consider the conditions of private and state-owned lands when it comes to the protection of rare species. 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 System lands and unique habitats found there. Examples may include the Indiana bat, northern long-eared bat (NLEB), and gray bat, which as explained later depend on

³² *California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982).

³³ *Pacific Marine Conservation Council v. Evans*, 200 F. Supp. 2d 1194 (N.D. Cal. 2002).

³⁴ 40 C.F.R. § 1502.14.

larger more mature trees for roosting. Additionally, several imperiled salamander species (discussed later in our comments) depend on national forests for their survival and private tree farms provide little in the way of habitat for these species. Therefore, there may be an even greater need for additional mid-age, late-age, and old growth forest to compensate for the lack of these habitats across the broader landscape.

The Forest Service should already be engaged in this time of analysis as the 2012 Planning Rule states that in preparing forest plans and plan revisions, the Forest Service must “consider and evaluate existing and possible future conditions and trends of the plan area, and assess the sustainability of social, economic, and ecological systems within the plan area, *in the context of the broader landscape*.”³⁵ Plans “must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area...”³⁶ Planning regulations foresee the Forest Service’s beneficial role in sustaining desirable ecological conditions in the broader landscape but also recognize that activities on state and privately held land may adversely affect ecological conditions on national forests. Because of this, components must consider “contributions of the plan area to ecological conditions *within the broader landscape* influenced by the plan area” and “*conditions in the broader landscape* that may influence the sustainability of resources and ecosystems within the plan area.”³⁷ “Landscape” is “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.”³⁸ Thus, the broader landscape includes non-federal lands outside the national forest boundaries.

The Planning Rules also specifically contemplate instances where 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 within its range.”³⁹

In sum, the Forest Service must consider the need for early seral forests when viewed through the lens of the broader landscape, and whether the amount of regeneration harvests called for in the project is necessary and appropriate.

4. The Forest Service Needs to Explain Why an Increase in Regeneration Harvests is Needed to Benefit Certain Species.

The scoping record states that ESH openings provide habitat that is important to 14 native bat species, songbirds, mammals, ruffed grouse, and a variety of non-game bird species. While we acknowledge ESH is particularly important for some species like the ruffed grouse, the Forest Service needs to identify which specific species stand to benefit from the proposed treatments, provide baseline population data for these species, and explain which direction these populations are trending in the region so that the public can be fully informed about the purpose and need for

³⁵ 36 C.F.R. § 219.5(a)1(emphasis added).

³⁶ *Id.* § 219.8 (a).

³⁷ *Id.* § 219.8(a)(ii)-(iii).

³⁸ *Id.* § 219.19.

³⁹ *Id.* § 219.9(b)(2)(ii).

this project. There also needs to be an assessment of how all these species will fare under all the project alternatives, including the no action alternative. For federally listed species such as the Indiana and northern long-eared bat that depend on late successional forests and are particularly sensitive to intensive silviculture treatments, the statement that ESH opening are “important” is far too simplistic and a much more detailed discussion is needed.

5. The Forest Service Must Protect Late Successional and Potential Old Growth Stands to Combat Climate Disruption.

We are very concerned that the Forest Service appears to be including late successional, potential old growth, and inventoried old growth stands in areas it intends to log. **These stands include 61-37 and a patch in Unit 62** that are being considered for “two-aged shelterwood establishment and removal cut with reserves.” The old growth status of these stands is supported by data from the International Tree ring database and multiple fields surveys. At least five acres of old-growth forest are included in the proposed timber harvest for Stand 61-37. Very little old-growth forest remains in Nantahala National Forest and especially in the Nantahala Ranger District. As the scoping record acknowledges, the Forest was subject to extractive logging between 1880 and 1930 and the Forest Service asserts that there has been an emphasis on management practices that conserve old growth and older forest stands since the 1980s. The Nantahala Mountains have still been logged heavily by the Forest Service in recent decades, and this project and the Buck Project continue to target these forests. Substantial ESH has already been established from prior timber harvests and the ongoing Buck timber project. The 25 acres of old-growth forest in this project area should be prioritized for protection, especially the five acres that remain in the timber harvest boundaries.

In essence the scoping record states that the Nantahala National Forest has too much late successional and old growth forests. The Forest Service’s position is not only antithetical to the goals of the Forest Plan but also the goals of this Administration’s climate change mitigation plans. These 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.⁴⁰ 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.⁴¹

Scientific studies support the need for forests, including national forests, to play a key role in responding to the climate crisis by responding to the need for carbon storage. For example, a 2018 National Academies of Sciences study states that removing carbon dioxide out of the air

⁴⁰ See 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>

⁴¹ *Id.*

will be crucial to meeting global climate goals, and a 2018 study by The Nature Conservancy reports that forests and other natural systems in the U.S. could offset as much as 21% of total national greenhouse gas emissions.⁴² The *United States Mid-Century Strategy for Deep Decarbonization*, released in 2016 by the Obama White House, states that federal lands will play an important role in preserving carbon storage and calls for quickly mobilizing federal lands towards this goal.⁴³ The Biden administration has followed suit with Executive Orders such as “30x30” to implement climate change mitigation strategies on public lands.⁴⁴ In the face of unprecedented climate disruption, the Forest Service should be doing all it can to expand old growth forests rather than accommodating more widespread commercial logging.

B. The Forest Service Must Avoid “Taking” Federally Listed Species.

We are very concerned that the proposed project may “take” listed bat species, including the Indiana bat and NLEB. We are also concerned that the project may adversely affect the Carolina Northern Flying Squirrel.

Indiana Bat (Myotis sodalis)

The Indiana bat was listed as endangered under the ESA in 1973. Summer maternity colonies are known to occur in Western North Carolina and at several sites across the Forests.⁴⁵ During the summer, maternity colonies roost under sloughing bark of dead and partially dead trees of many species, often in forested settings. Reproductive females may require multiple alternate roost trees and adults can forage as far as three miles from occupied maternity roost sites. Recent studies have shown that maternity roosts are not found in forests with open canopies (10-30%) or in old fields with less than or equal to 10% canopy cover.⁴⁶ Accordingly, as the Recovery Plan for the Indiana bat cautions, “Silviculture that involves short rotations and/or removal of dead and dying trees threatens the integrity of roosting habitat for Indiana bats. Retention of large snags and preservation of over-mature trees to provide for a sustained supply of large snags is essential to maintaining summer habitat for tree-roosting bats in general, and Indiana bats specifically.”⁴⁷

The proposed project calls for extensive regeneration harvests and other even-aged management throughout the project area. As the Recovery Plan for the Indiana Bat notes, “Research has

⁴² Sierra Club, Tackling Climate Change: A Climate Change Adaptation and Carbon Dioxide Removal Landscape Analysis 14 (Feb. 2019), available at <https://content.sierraclub.org/grassrootsnetwork/sites/content.sierraclub.org/activistnetwork/files/teams/documents/Tackling%20Climate%20Change%20Report%20Feb%202019.pdf> (last viewed Oct. 26, 2021).

⁴³ *Id.*; See also White House, *United States Mid-Century Strategy for Deep Decarbonization* 15 (2016), listing the need to “[q]uickly scale up forest restoration and expansion on federal lands” as a “Long-term U.S. Mid-Century Strategy Priority”; p. 70: “Federal lands will play an important role in preserving carbon stocks and providing early action.”; and p. 82 listing “quickly mobilizing federal lands” as a “Priority for Policy, Innovation, and Research” towards achieving 2050 goals.” The White House Report is available at https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf (last viewed Oct. 26, 2021).

⁴⁴ See Executive Order 14008 of January 27, 2021, “Tackling the Climate Crisis at Home and Abroad,” 86 Fed. Reg. 7619-7633 (Feb. 1, 2021).

⁴⁵ DEIS for the Proposed Forest Plan at 259.

⁴⁶ *Id.*

⁴⁷ U.S. Fish and Wildlife Service, Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision, 77 (Apr. 2007).

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.”⁴⁸ Therefore, even though young forests may benefit certain species, others such as the NLEB and Indiana bat may experience harm, including the loss of foraging and summer roosting habitat.

The Forest Service needs to closely examine the potential impacts of this project and the agency needs to put in place rigorous measures to protect these species, particularly from April 1-October 15. These measures include retaining snags, shagbark hickory, and hollow trees to protect potential roost sites, as well as establishing legally required buffers around hibernacula. The Forest Service must also include and closely examine recent data regarding the effects of white nose syndrome to the Indiana Bat and other bat species. The potential cumulative effects of white nose syndrome need to be more closely examined and alternatives need to be identified that would minimize impacts to this already imperiled species.

Northern Long-Eared Bat (Myotis septentrionalis)

The NLEB is currently listed as threatened under the ESA, and is generally associated with mature forests and interior forest habitat. It is known to occur at numerous sites across the National Forests.⁴⁹ Several known occupied hibernacula occur on the Forests and “summer maternity habitat is widespread across the Forests.”⁵⁰

During summer they roost singly or in colonies underneath bark, in cavities, or in crevices of both lie and dread trees.⁵¹ Late successional forest characteristics may be favored for several reasons, including the large number of partially dead or decaying trees that the species uses for breeding, summer day roosting, and foraging. While many species of bats rely on snags for roosting, NLEBs also use live trees,⁵² raising the possibility that timbering could bring down trees containing roosting bats. NLEBs are also at risk because of their habitat preferences, foraging in mature upland forest with a fairly closed canopy rather than forest openings that might be used by larger bats. NLEB are tolerant of complex forest structure and some degree of “clutter” in the understory, with a small enough wingspan to be able to maneuver in forest interior areas. Similarly, studies indicate that NLEB regularly roost in trees located in or below the forest canopy, keeping to their forest interior niche.⁵³ One comparative study of Indiana bats and northern long-eared bats found that the NLEBs were more likely to roost within intact

⁴⁸ *Id.*

⁴⁹ DEIS for the Proposed Forest Plan at 258.

⁵⁰ *Id.* at 259.

⁵¹ U.S. Fish and Wildlife Service, ECOS Species Profile, Northern Long-Eared Bat (*Myotis septentrionalis*) at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0JE>.

⁵² United States Fish and Wildlife Service. 2015. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. Accessed at <https://www.fws.gov/midwest/Endangered/mammals/nleb/nlebFactSheet.html>

⁵³ Menzel, M.A.; Owen, S.F.; Ford, W.M.; Edwards, J.W.; Wood, P.B.; Chapman, B.R.; Miller, K.V. 2002. Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest in the central Appalachian mountains. *Forest Ecology and Management* 155(1-3): 107-114.

forests to a statistically significant degree, while Indiana bats were more likely to be found roosting on forest edges.⁵⁴

NLEBs, like many other woodland bats, prefer to roost in larger diameter trees,⁵⁵ making it important to preserve mature forest. NLEBs are less likely to use large forest gaps and clear-cut areas than intact forest,⁵⁶ although research is mixed on the impacts of less severe timber treatments. NLEBs avoided roosting in areas that had been subject to a shelterwood harvest in Indiana, indicating that their avoidance of harvested areas is not just limited to clear-cuts.⁵⁷ An earlier study in Ontario indicated that the disruption to forest structure and truncated age classes that occur with timbering were detrimental to habitat for multiple species of bats, including NLEBs.⁵⁸

NLEBs are also one of the species that have been hit hardest by white nose syndrome, resulting in their listing as threatened under the ESA in 2015. Some eastern and mid-Atlantic hibernacula saw a 99% decline in NLEB after the arrival of white nose syndrome, resulting in localized extinctions

Given the large declines in NLEB populations and federally threatened status, it is imperative that forest management be protective of this species. However, the planned timbering would likely make the project area less suitable for NLEBs, and some individual NLEBs could be directly harmed or killed by tree felling and removal. It is not known at this time whether the Forest Service intends to impose seasonal restrictions to avoid timber activity impacting critical stages in the NLEB'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 timbering.⁵⁹

Although the NLEB is subject to a 4(d) rule under the ESA that may allow for certain activities in NLEB habitat, the impacts of timber harvesting 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.⁶⁰ Further, a

⁵⁴ Carter, T.C. and Feldhamer, G.A. 2005. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. *Forest Ecology and Management* 219: 259-268.

⁵⁵ Silvis, A., Ford, W.M., Britzke, E.R. 2015. Day-roost tree selection by northern long-eared bats – What do non-roost tree comparisons and one year of data really tell us? *Global Ecology and Conservation* 3: 756-763.

⁵⁶ Patriquin, K.J. and Barclay, R.M. 2003. Foraging by bats in cleared, thinned and unharvested boreal forest. *Journal of Applied Ecology* 40: 646-657.

⁵⁷ Badin, H. 2014. Habitat selection and roosting ranges of northern long-eared bats (*Myotis septentrionalis*) in an experimental hardwood forest system. Master's Thesis. Retrieved from http://cardinalscholar.bsu.edu/bitstream/handle/123456789/198110/BadinH_2014-2_BODY.pdf;sequence=1

⁵⁸ Jung, T.S.; Thompson, I.D.; Titman, R.D.; Applejohn, A.P. 1999. Habitat selection by forest bats in relation to mixed-wood stand types and structure in central Ontario. *The Journal of Wildlife Management* 63: 1306-1319.

⁵⁹ Henderson, L. and Broders, H. 2008. Movements and resource selection of the northern long-eared *Myotis* (*Myotis septentrionalis*) in a forest-agriculture landscape. *Journal of Mammalogy* 89(4): 952-963.

⁶⁰ 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

federal court recently remanded the U.S. Fish and Wildlife Service's (FWS) threatened listing for the NLEB back to FWS to make a new listing decision.⁶¹ A new listing determination is expected before the end of November, 2022 and future decisions by FWS may impact the 4(d) rule that the Forest Service has relied upon for exempting take.

In view of these impacts, it is imperative that the Forest Service identify alternatives that would minimize harm to NLEB's during all stages of the species life cycle.

Carolina Northern Flying Squirrel (Glaucmys sabrinus coloratus)

The Carolina northern flying squirrel (CNFS) is listed as endangered under the ESA. The species is found in high elevation, mixed red spruce-northern hardwood, and spruce-fir forests.⁶² In the course of scientific research, CNFS have been captured in stands of varying age, understory, and composition, but most have been taken from moist forest with at least some widely spaced, mature trees (ideally old-growth forest).⁶³ Hardwood forests provide habitat for CNFS that also rely heavily on neighboring spruce-fir forests. Because of their spatial relationship between ecozones, and the fact that they share many ecological components and plant species, these forests are critical to maintaining many species of wildlife that are dependent upon spruce-fir habitats.⁶⁴ Tree species such as yellow birch, beech, sugar maple, buckeye, and others often provide more natural cavities and decaying wood than spruce or fir, which is critical for the CNFS.⁶⁵ CNFS occupy tree cavities, leaf and twig nests, and underground burrows but appear to prefer cavities in *mature* trees as den sites.⁶⁶ These forests "provide essential habitat for several animal species found nowhere else in North Carolina, including the CNFS and a suite of high elevation associated terrestrial salamanders."⁶⁷

Researchers have found that CNFS depend heavily on a variety of underground fungus and lichens as well as beechnuts, which are mainly found in older growth forests.⁶⁸ Food sources such as truffles require a moist forest floor and older tree stands. CNFS also depend on larger trees to help them move safely across the landscape and create nests in both conifers and hardwoods.⁶⁹ The hyphal mats that produce truffles (a major food source for these squirrels) can

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").

⁶¹ *See Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020).

⁶² U.S. Fish and Wildlife Service, Carolina northern flying squirrel, *Glaucmys sabrinus coloratus*, at <https://www.fws.gov/southeast/wildlife/mammals/carolina-northern-flying-squirrel/>

⁶³ U.S. Fish and Wildlife Service, Appalachian Northern Flying Squirrels Recovery Plan (1990) at 7.

⁶⁴ DEIS for the Proposed Forest Plan at 174.

⁶⁵ *Id.*

⁶⁶ *Id.* at 249.

⁶⁷ *Id.* at 174.

⁶⁸ *See* Trapp, S. E., Smith, W.P., Flaherty, E.A. 2017. Diet and food availability of the Virginia northern flying squirrel (*Glaucmys sabrinus fuscus*): implications for dispersal in a fragmented forest. *Journal of Mammalogy* 98(6): 1688-1696.

⁶⁹ *See* Smith, W. P. Ecology of *Glaucmys sabrinus*: Habitat, Demography, and Community Relations. 2007. *Journal of Mammalogy* 88(4): 862-881.

be damaged from the compaction of soils from logging equipment and through desiccation when the tree canopy is removed.⁷⁰

CNFS are suspected to reside within the project area although this has not yet been confirmed.⁷¹ Further, while there is no spruce-fir stands currently within the project area, there likely was spruce-fir here historically, and it is an area of possible spruce-fir regeneration/translocation. Accordingly, the Forest Service needs to carefully examine whether the proposed project would impact the CNFS, its nesting habitat (e.g. soft and punky trees), and its food sources, and if so, identify alternatives that would avoid taking this federally endangered species and further fragmenting its habitat.

C. The Project Threatens Imperiled Salamanders and Other Amphibians

There are 29 species of salamanders that occur within old growth forests on the Pisgah and Nantahala. The mountain chorus frog is also found within old growth forests. Several of these species are listed by the State of North Carolina as endangered or threatened, have patchy and/or isolated distributions across the Forests, and have very specific habitat requirements.

The proposed project appears to call for extensive logging in old growth stands that are home to at least two rare salamanders: the **seepage salamander** (*Desmognathus aeneus*) and the **red-legged salamander** (*Plethodon shermani*). Stand 61-37 has a significant population of red-legged salamanders.

Seepage salamanders are found in moist areas under rocks, logs, and leaf litter near small streams. It has a patchy distribution and where present it is often locally abundant.⁷² Seepage salamanders are threatened by clearcutting and by the conversion of hardwood forests to pine plantations.⁷³ Ford et al. (2002) found higher abundances of seepage salamanders in stands of older, hardwood trees, implicating the loss of mature deciduous stands as a threat to this species.⁷⁴ Gratwicke (2008) identifies numerous threats to the seepage salamander and other salamanders in Appalachia, including mining, logging, development, and pesticide use.⁷⁵ NatureServe (2020) identifies the seepage salamander as vulnerable in North Carolina and

⁷⁰ See Flaherty, E.A., Ben-David, M. Smith, W.P. 2010. Diet and food availability: implications for foraging and dispersal of Prince of Wales northern flying squirrels across managed landscapes. *Journal of Mammalogy*. 91(1): 79-91.

⁷¹ See W.M. Ford, et al. 2015. Predictive habitat models derived from nest-box occupancy for the endangered Carolina northern flying squirrel in the southern Appalachians. *Endang. Species Res.* 27:1131-140.

⁷² Amphibians and Reptiles of North Carolina, Seepage Salamander, *Desmognathus aeneus*, at <http://herpsofnc.org/?s=seepage+salamander>

⁷³ Petranka, J.W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington, D.C.

⁷⁴ Ford, W.M., B.R. Chapman, M.A. Menzel, and R.H. Odom. 2002. Stand age and habitat influences on salamanders in Appalachian cove hardwood forests. *Forest Ecology and Management* 155(1-3): 131-41.

⁷⁵ Gratwicke, B (ed). 2008. *Proceedings of the Appalachian Salamander Conservation Workshop*. IUCN/SSC Conservation Breeding Specialist Group: Apple Valley, MN.

threatened by incompatible forest management practices.⁷⁶ Petranka (1998) recommended forest buffers around seepage and headwater streams in areas scheduled for timbering.⁷⁷

The Norther Carlina Wildlife Resource Commission's 2020 Wildlife Action Plan designates the seepage salamander as a Species of Greatest Conservation Need." The Southeast Association of Fish and Wildlife Agencies (SEAFWA) also has designated the seepage salamander as a Species of Greatest Conservation Need. In addition, the Norther Carolina Natural Heritage Program consider the seepage salamander "Significantly Rare" in the state. Timber Harvests and habitat loss are the primary threat to the seepage salamander. It appears to be declining throughout its range, which is limited to Southern Appalachia and primarily western North Carolina.

Red-legged salamanders are also found primarily at high elevations and is limited to the Unicoi and Nantahala Mountains. Both the Cheoah bald salamander and red-legged salamander were formerly considered to be subspecies of the Jordan's salamander.⁷⁸ The red-legged salamander is also designated as a SEAFWA and North Carolina Species of Greatest Conservation Need. It shares a similar range with the seepage salamander and faces similar threats.

There has been widespread destruction, degradation, and fragmentation of imperiled amphibian habitats in the Southeast.⁷⁹ Dodd (1997) states: "The integrity of both aquatic and terrestrial habitats is important to amphibian survival, even among species that never venture beyond a single habitat type. Furthermore, the various life history stages (eggs, larvae, young, adults) may be differentially susceptible or sensitive to environmental perturbations...Although vast areas have been cleared in the Southeast for agriculture, industry, and urban use, there is virtually no assessment of the landscape effects of land conversion on amphibian populations. It seems evident, however, that habitat changes..., and with them changes in amphibian populations, have been enormous."⁸⁰

Habitat loss and degradation obviously negatively affects amphibian populations.⁸¹ Habitat fragmentation can lead to amphibian extirpation by disrupting metapopulation dynamics and preventing dispersal and rescue between source and sink habitat. Dodd (1997) states: "Land use patterns resulting in fragmentation can influence amphibian population genetic structure...if populations become overly fragmented, emigration and immigration may be inhibited or stopped, thus preventing recolonization from source populations...Small isolated populations are particularly susceptible to environmental perturbations and to stochastic variation in demography

⁷⁶ NatureServe Explorer, Seepage Salamander, *Desmognathus aeneus*, at

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.100247/Desmognathus_aeneus

⁷⁷ Petranka, J.W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C.

⁷⁸ Amphibians and Reptiles of North Carolina, Cheoah Bald and Red-Legged Salamanders, *Plethodon cheoah*, *Plethodon shermani*, at <http://herpsofnc.org/cheoah-bald-and-red-legged-salamanders/>

⁷⁹ Vial, J.L. and Saylor, L. 1993. The status of amphibian populations: a compilation and analysis. IUCN, 98 pp.; LaClaire, L.V. 1997. Amphibians in Peril: Resource Management in the Southeast. P. 307-321 In: Benz, G.W. and D.E. Collins (editors). 1997 Aquatic Fauna in Peril: The Southeastern Perspective. Southeast Aquatic Research Institute Special Publication 1, Lenz Design and Communications, Decatur, GA. 553 pp.

⁸⁰ Dodd, C.K., Jr. 1997. Imperiled amphibians: a historical perspective. pp. 165-200. In Benz, G.W. and D.E. Collins (Eds.), Aquatic Fauna in Peril: The Southeastern Perspective. Special Publication Number 1, Southeast Research Institute, Lenz Design and Communications, Decatur, GA. 553 pp.

⁸¹ See LaClaire (1997).

that can lead to extinction even without external perturbations. Isolation by habitat fragmentation thus becomes a threat to the regional persistence of species.”⁸²

There is general agreement that timber harvests in temperate regions can have numerous negative effects on species richness and abundance of forest-dependent species, including amphibians in particular.⁸³ Logging is detrimental for both aquatic and terrestrial amphibian habitat because it eliminates shade, increases soil and water temperature, alters stream flow, increases sedimentation, reduces the input of coarse wood debris and organic matter into streams, reduces forest floor litter (especially if litter is piled and burned), reduces soil moisture, reduces and eliminates burrows and hiding places, and destroys wetlands. Logging also frequently involves the use of herbicides, which can be detrimental for amphibians.⁸⁴ Logging is known to decrease amphibian abundance and reproductive success.⁸⁵

In particular, studies by Semlitsch et al. (2009) generated dozens of statistically significant negative effects of timber harvest treatments on a broad range of pond-breeding amphibian responses.⁸⁶ Removal of the forest canopy or coarse woody debris exposes amphibians to warmer and drier microclimate conditions⁸⁷ eventually reducing leaf litter⁸⁸ and food resources.⁸⁹ These changes eventually lead to lower survival⁹⁰ or higher evacuation of habitats.⁹¹

⁸² Dodd (1997) at 197.

⁸³ See Bury, R.B. 1983. Differences in amphibian populations in logged and old-growth redwood forests. *Northwest Science* 57: 167-178.; Petranka et al. 1993. Effects of timber harvesting on southern Appalachian salamanders. *Conservation Biology* 7:363-370; Petranka et al. 1994. Effects of timber harvesting on southern Appalachian salamanders. *Forest Ecology and Management* 67: 135-147; deMaynadier, P.G., and M.L. Hunter. 1995. The relationship between forest management and amphibian ecology: a review of the literature. *Environmental Reviews* 3: 230-261; Dupuis et al. 1995. Relation of terrestrial-breeding amphibian abundance to tree-stand age. *Conservation Biology* 9: 645-653; Ash 1997, A.N. 1997. Disappearance and return of plethodontid salamanders to clearcut plots in the southern Blue Ridge Mountains. *Castanea* 60: 89-97; Dodd (1997); Herbeck, L.A., and D.R. Larsen 1999. Plethodontid salamander response to silvicultural practices in Missouri Ozark Forests. *Conservation Biology* 13: 623-632; Grialou et al. 2000. The effects of forest clearcut harvesting and thinning on terrestrial salamanders. *Journal of Wildlife Management* 64: 105-113; Ross et al. 2000, DeGraaf and Yamasaki 2002, Adams and Bury 2002, Herrig, J. and P. Shute. 2002. Chapter 23: aquatic animals and their habitats. Southern Region, USDA Forest Service and Tennessee Valley Authority. 45 pp. In: Wear, David N., Greis, John G., eds. 2002. Southern forest resource assessment. Gen. Tech. Rep. SRS-53. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 635 pp; Ford, W.M., Chapman, B.R., Menzel, M.A., and Odom, R. 2002. Stand age and habitat influences on salamanders in Appalachian cove hardwood forests. *Forest Ecology and Management* 155(1):131-141; Knapp et al. 2003. Initial effects of clearcutting and alternative silvicultural practices on terrestrial salamander abundance. *Conservation Biology* 17:752-762; Russel et al. 2004, Karraker, N.E. and H.H. Welsh, Jr. 2006. Long-term impacts of even-aged timber management on abundance and body condition of terrestrial amphibians in northwestern California. *Biological Conservation* 131: 132-140; Olson et al. 2007. Biodiversity management approaches for stream-riparian areas: Perspectives for Pacific Northwest headwater forests, microclimates, and amphibians. *Forest Ecology and Management* 246: 81-107.; Semlitsch et al. 2009. Effects of Timber Harvest on Amphibian Populations: Understanding Mechanisms from Forest Experiments. *BioSciences* 59(10): 853-862.

⁸⁴ See Amphibiaweb. 2020. University of California, Berkeley, CA, at <http://amphibiaweb.org/declines/ChemCon.html>.

⁸⁵ Dodd (1997), LaClaire (1997).

⁸⁶ Semlitsch, R.D. et al. 2009. Effects of timber harvest on amphibian populations: Understanding mechanisms from forest experiments *BioScience* 59:853-862.

⁸⁷ Kennan R.J., and J.P. Kimmins. 1993. The ecological effects of clear-cutting. *Environmental Review* 1: 121-144; Ash, A.N. 1995. Effects of clear-cutting on litter parameters in the southern Blue Ridge Mountains. *Castanea* 60: 89-97; Harpole, D.N., and C.A. Haas. 1999. Effects of seven silvicultural treatments on terrestrial salamanders. *Forest*

Salamander species may be some of the most vulnerable to regeneration harvests aimed at creating more young forests. Petranka et al. (1993) compared species richness and abundance of salamanders on six clearcuts with salamander densities in mature forest stands in the Appalachian Mountains. They found that salamander densities in the mature stands were five times higher than those in recently cut plots. From these surveys, Petranka et al. (1993) estimated that timber harvesting in the Appalachian Mountains resulted in the loss of 14 million salamanders annually.⁹²

Petranka, et al. (1994) examined the effects of timber harvesting on southern Appalachian salamander communities in the Pisgah National Forest.⁹³ Salamander abundance and species richness were lowest in very young stands and highest in stands more than 120 years old.⁹⁴ Comparisons of clearcuts less than 5 years old with mature stands more than 80 years old suggested that terrestrial salamanders were eliminated or reduced to very low numbers when mature forests were clear cut.⁹⁵

Of those salamanders that initially survive clearcuts, researchers have found that a large portion of the amphibian population dies if they stay in clear cut areas, especially small juveniles.⁹⁶ deMaynadier and Hunter (1995) found that across 16 research projects, control stands had about 4.3 times more captures of salamanders than clearcut stands. Behavioral studies also show that both juvenile and adult amphibians often avoid entering clearcuts when given a choice,⁹⁷ causing habitat fragmentation and isolation of populations.

Ecology and Management 114: 245-252; Chen et al. 1999. Microclimate in forest ecosystem and landscape ecology. BioScience 49: 288-297, Zheng et al. 2000. Effects of silvicultural treatments on summer forest microclimate in southeastern Ozarks. Climate Research 15: 45-59.

⁸⁸ Hughes JW, and T.J. Fahey. 1994. Litterfall dynamics and ecosystem recovery during forest development. Forest Ecology and Management 63: 181-198; Ash (1995).

⁸⁹ Seastedt, T.R., and D.A. Crossley Jr. 1981. Microarthropod response following cable logging and clear-cutting in the southern Appalachians. Ecology 62: 126-135.

⁹⁰ Todd B.D., and B.B. Rothermel. 2006. Assessing quality of clearcut habitats for amphibians: Effects on abundances versus vital rates in the southern toad (*Bufo terrestris*). Biological Conservation 133: 178-185.

⁹¹ Semlitsch et al. 2008. Effects of timber harvesting on amphibian persistence: Testing the evacuation hypothesis. Ecological Applications 18: 283-289.

⁹² Petranka et al. 1993. Effects of timber harvesting on southern Appalachian salamanders. Conservation Biology 7:363-370.

⁹³ Petranka, et al. 1994. Effects of timber harvesting on low elevation populations of southern Appalachian salamanders. Forest Ecology and Management. 67:135-147.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ Rothermel B.B., and T.M. Luhring. 2005. Burrow availability and desiccation risk of mole salamanders (*Ambystoma talpoideum*) in harvested versus unharvested forest stands. Journal of Herpetology 39: 619-626; Todd and Rothermel 2006, Harper, E.B. 2007. The role of terrestrial habitat in the population dynamics and conservation of pond-breeding amphibians. PhD dissertation. University of Missouri, Columbia; Patrick et al. 2008. Terrestrial habitat selection and strong density-dependent mortality in recently metamorphosed amphibians. Ecology 89: 2563-2574; Todd et al. 2008. Habitat alteration increases invasive fire ant abundance to the detriment of amphibians and reptiles. Biological Invasions 10: 539-546.

⁹⁷ Rittenhouse, TAG, R.D. Semlitsch. 2006. Grasslands as movement barriers for a forest-associated salamander: Migration behavior of adult and juvenile salamanders at a distinct habitat edge. Biological Conservation 131:14-22; Patrick et al. 2008; Todd et al. 2009. Effects of forest removal on amphibian migrations: Implications for habitat and landscape connectivity. Journal of Applied Ecology 46: 554-561.

Research by Ford et al. (2002) indicates stand age is an important factor in explaining abundance and community composition of salamanders in southern Appalachian cove hardwood communities. Because these communities are slow to recover and are substantially changed following disturbances such as clearcutting, populations in small, isolated cove hardwood stands might be more vulnerable to extirpation or may require longer recovery times than those in larger coves. Therefore, managers should assess habitat features such as cove extent and habitat connectivity to minimize impacts on these taxa.⁹⁸

The harmful effects of clearcuts on amphibians are long lasting with scientists concluding that population recovery requires 50-70 years⁹⁹ or even longer.¹⁰⁰

Other silvicultural practices may also cause lasting reductions of terrestrial salamander populations due to both low population growth rates and changes to habitat.¹⁰¹ Methods such as group selection and shelterwood involve several entries into the stand, which not only exposes the salamander community to a reopening of the canopy and the associated drying of the environment, but it also results in recompaction or disturbance of the soil and leaf litter from tree felling and logging traffic.¹⁰²

Road construction and operation (frequently associated with timber harvests) can also have significant impacts to amphibian populations. Roads can divide breeding locations from overwintering sites and increase mortality for migrating adults and dispersing juveniles, and can disrupt metapopulation dynamics and lead to population isolation, and light and noise from roads can disrupt breeding and feeding behaviors.¹⁰³

The Forest Service must closely examine and discuss these impacts. As explained above, many salamanders occur across the forests in a very patchy distribution and for many salamander species, they are only found in a very small and isolated geographic area. Sometimes they are found only in a single county. Some of these areas may have never been surveyed or include old growth patches that have not been added to the old growth network and may otherwise be managed consistent with the management area in which they are found. Many species of salamanders could be at risk if these small, concentrated populations are not protected and regeneration harvests proceed in these areas. New roads could divide breeding locations and overwintering sites and further fragment and isolate populations. The use of herbicides before and after timber harvests can also negatively affect amphibians and other aquatic organisms.¹⁰⁴

⁹⁸ Ford, W.M., Chapman, B.R., Menzel, M.A., and Odom, R. 2002. Stand age and habitat influences on salamanders in Appalachian cove hardwood forests. *Forest Ecology and Management* 155(1):131-141.

⁹⁹ Petranka et al. 1993.

¹⁰⁰ Petranka et al. 1994; Homyak, Jessica A., and Carola A. Haas. 2009. Long-term effects of experimental forest harvesting on abundance and reproductive demography of terrestrial salamanders. *Biological Conservation* 142: 110-121; Semlitsch et al. 2007. Salamander abundance along road edges and within abandoned logging roads in Appalachian forests. *Conservation Biology* 21: 159-167.

¹⁰¹ Homyack and Haas. 2009.

¹⁰² Knapp et al. 2003. Initial effects of clearcutting and alternative silvicultural practices on terrestrial salamander abundance. *Conservation Biology* 17: 752-762.

¹⁰³ Dodd. 1997.

¹⁰⁴ *Id.*; Hayes et al. 2002. Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses. *Proceedings of the National Academy of Sciences of the United States of America* 99:

Therefore, the analysis of the potential impacts to these species needs to be nuanced and sensitive to their location on the forests.

In addition, the Forest Service needs to consider management techniques to reduce the impacts to salamanders, including buffers along headwater streams and using harvesting techniques which assure that the basic structure and function of forests remain intact following timbering operations.¹⁰⁵ Moorman et al. (2011) writes, “small forest openings such as group selection harvests and wind-created downburst gaps with multiple treefalls, or partial harvests that retain a large percentage of the overstory, can mitigate the negative effects of timber harvests on amphibians by maintaining shade and leaf litter input and providing refuge and recolonization sources.”¹⁰⁶ Overstory retention adjacent to wetlands can also be critical to maintaining connectivity between reproductive sites and other habitat features.¹⁰⁷ Researchers have recommended at least 50% of the overstory to minimize negative effects on amphibian populations although as little as 41% reduction in the overstory may result in declines in the abundance of plethodontid woodland salamanders similar to clearcuts.¹⁰⁸

In addition to avoiding old growth stands, designated “no harvest areas” on the landscape could serve as sources for repopulating nearby harvest units.¹⁰⁹ Increasing the rotation length may also help ensure that a portion of the area contain large trees, high accumulations of large diameter CWD, and other structural characteristics associated with late-seral forest.¹¹⁰

Mitigation measures also need to be scrutinized because some measures like coarse woody debris retention may provide only short-term benefits by providing refuge from desiccating conditions immediately post-harvest, and may not prevent declines.¹¹¹ Instead, old growth stands that contain significant amounts of decaying coarse woody debris should be avoided.

Finally, the Forest Service must monitor disturbances and commit to mitigating their impacts by adjusting management levels if unexpected levels of disturbance are occurring during implementation.

5476-5480; Hayes, T., K. Haston, M. Tsui, A. Hoang, C. Haeffele, and A. Vonk. 2002. Herbicides: Feminization of male frogs in the wild. *Nature* 419: 895-896.; Herrig and Shute. 2002. Chapter 23: aquatic animals and their habitats. Southern Region, USDA Forest Service and Tennessee Valley Authority. 45 pp. In: Wear, David N.I Greis, Hohn G., eds. 2002. Southern forest resource assessment. Gen. Tech. Rep. SRS-53. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 635 pp.; Cauble and Wagner. 2005. Sublethal effects of the herbicide glyphosate on amphibian metamorphosis and development. *Bulletin of environmental contamination and toxicology* 75: 429-435; King, J.J. and R.S. Wagner 2010. Toxic effects of the herbicide Roundup Regular on Pacific Northwestern amphibians. *Northwestern Naturalist* 91: 318-324.

¹⁰⁵ Petranka et al. (1994).

¹⁰⁶ Moorman, C.E. et al. 2011. Chapter 11. Reptile and Amphibian Response to Hardwood Forest Management and Early Successional Habitats, pp. 191-198. In: Sustaining young forest communities: ecology and management of early successional habitats in the Central Hardwood Region, USA. C.H. Greenberg, B.S. Collins, F.R. Thompson III, editors. Springer, New York, NY. USA.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ *Id.*; Mosely et al. 2004. Coarse woody debris and pine litter manipulation effects on movement and microhabitat use of *Ambystoma talpoideum* in a *Pinus taeda* stand. *For Ecol Manage* 191:387-396; Semlitsch et al. (2009).

D. The Forest Service Must Evaluate Alternatives that Include Fewer Roads.

An additional concern we have with the proposed project is the construction of new roads to facilitate timber harvesting.

The best available science shows that roads cause significant adverse impacts to national forest resources.¹¹² The construction and presence of forest roads can significantly change the hydrology and geomorphology of a forest system, leading to reductions in the quantity and quality of aquatic habitat. Compacted roadbeds reduce rainfall infiltration, intercept and concentrate water, and contribute more sediment to streams than any other land management activity.¹¹³ This increased sedimentation can have a profound impact on fish and aquatic habitat as it has been linked to decreased fry emergence, decreased juvenile densities, loss of winter carrying capacity, increased predation of fish, and reductions of macro-invertebrate populations that are a food source to many species.¹¹⁴ Roads can also act as barriers to migration.¹¹⁵ For terrestrial species, forest roads can cause direct mortality, changes in movement and habitat use patterns, and interfere with predator/prey relationships.¹¹⁶ Roads also fragment habitat, increase the edge-effects, and serve as a vector for non-native, invasive species.¹¹⁷ Forest roads can also increase human presence in remote areas threatening sensitive resources and lead to an increased risk of wildfires (as ORVs can be a significant source of fire ignition on forestlands).¹¹⁸ Climate change can also have an additional impact on roads as roads designed for storms and water flows typical of past decades may be unable to handle the effects of more extreme weather events such as increased flood severity, more frequent landslides, and changes in sedimentation rates and delivery processes.¹¹⁹

The Forest Service needs to consider these and other indirect and cumulative impacts, especially if these roads cross, are adjacent to, or are near streams and creeks within the project area (e.g. MA 18). Road construction in these areas can pose a threat to aquatic species because of erosion and sedimentation and the Forest Service must identify alternatives that would result in fewer roads on the landscape and minimize the impacts to aquatic species.

Moreover, the Forest Plan needs to discuss whether it intends to decommission roads to mitigate environmental impacts.¹²⁰ The Forest Service should also discuss whether there is a road maintenance backlog that could delay future rehabilitation and decommissioning and what specific steps are being taken to reduce this backlog. The Forest service must also consider the

¹¹² See United States Department of Agriculture, Forest Service, Administration of the Forest Development Transportation System; Prohibitions; Use of Motor Vehicles Off Forest Service Roads, Final Rule, 66 Fed. Reg. 3206, 3208 (Jan. 12, 2001) (“Scientific evidence compiled to date suggests that roads are a significant source of erosion and sedimentation and are, in part, responsible for a decline in the quality of fish and wildlife habitat.”).

¹¹³ The Wilderness Society, May 2014. *Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review*, at 2.

¹¹⁴ *Id.* at 4.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 6.

¹¹⁸ *Id.* at 9.

¹¹⁹ *Id.*

¹²⁰ The objective of road decommissioning is to “stabilize, restore, and revegetate unneeded roads to a more natural state to protect and enhance NFS lands.” FSM 7734.0.

impacts of climate change and whether new roads will be constructed and maintained in a manner that can respond to more intense storms and rainfall events.

E. The Project Threatens Several Protected Areas.

We are also concerned about this project's impacts to the Appalachian Trail ("A.T.") corridor and viewshed as well as portions of the Trail of Tears Corridor. The latter is near the Eastern Band of the Cherokee's Qualla Boundary and raises environmental justice concerns that must be addressed in the Forest Service's NEPA analysis. It appears the historic Cherokee community of Aquonee is located in the heart of this project.

The Forest Service must further examine the impacts this project will have on recreation and local communities that derive much of their revenue from tourism and recreation. The Nantahala Mountains project targets a popular recreation area that includes the A.T., the Bartram Trail, Nantahala Lake, and Wayah Bald, one of the most popular peaks in the Nantahala National Forest with panoramic views and a historic fire tower at its summit. The Project area includes the headwaters of the Nantahala River, the most popular whitewater river in the Southeast and it threatens to affect the viewshed of the town of Franklin, a growing mountain town focused on tourism and recreation. It also appears that this project includes a Wilderness Inventory Area (WIA), Northern Carolina Natural Heritage Area (Burningtown Bald Cliff Ridge), Mountain Waters Scenic Byway, and a Special Interest Area proposed by the Forest Service in its draft proposed forest plan.

Stand 32-25 is a proposed shelterwood harvest that overlaps the Burningtown Bald/Cliff Ridge Natural Heritage Natural Area. Stands 59-38, 59-39, and 32-25 are all inside the Tellico Bald WIA, and stand 33-37 overlaps in part with the Burningtown Bald/Cliff Ridge NHNA.

The Burningtown Bald / Cliff Ridge Natural Heritage Area is a WIA that protects dozens or rare and imperiled species. Two populations of the federally threatened small whorled pogonia (*Isotria medeoloides*) have been documented in this Natural Heritage Area. This Natural Heritage Area also supports several rare and state-listed species, including the mountain catchfly (*Silene ovata*), a North Carolina Species of Special Concern. Watch List species occurring here include Carey's saxifrage (*Micranthes careyana*) and nerveless sedge (*Carex leptoneuria*). The locally endemic red-legged salamander (*Plethodon shermani*) and seepage salamander (*Desmognathus aeneus*) depend on this area. Other rare species sheltered by Burningtown Bald / Cliff Ridge NHA include the brown creeper (*Certhia americana*) and lamellate supercoil (*Paravitrea lamellidens*).¹²¹

This exceptional Natural Heritage Area also includes the Appalachian Trail and several patches of old-growth chestnut oak and red oak forest at high elevations. At lower-middle elevations, this area supports rich cove forests and old-growth northern hardwoods forests, which are breeding grounds for winter wrens (*Troglodytes troglodytes*). Watch List waterfan lichen (*Peltigera venosa*) is also found in the rich cove forests of Burningtown Bald/Cliff Ridge NHA.

¹²¹ See Schwartzman, E. 2010. An Inventory of the Natural Areas of Macon County, North Carolina, Department of Environment and Natural Resources, Office of Natural Resource Planning and Conservation, North Carolina Natural Heritage Program (Dec. 2010)(documenting species occurrence in the Burningtown Bald/Cliff Ridge NHA).

Other rare, imperiled, and Watch List animals documented in Burningtown Bald/Cliff Ridge NHA include the dark glyph (*Glyphyalinia junaluska*), open supercoil (*Paravitrea umbilicaris*), dwarf proud globe (*Patera clarki clarki*), and Diana fritillary (*Speyeria diana*). Additional rare, imperiled, and Watch List plants include the small-flowered yellow lady's slipper (*Cypripedium parviflorum* var. *parviflorum*), Cumberland azalea (*Rhododendron cumberlandense*), and Hickey's ground-pine (*Dendrolycopodium hickeyi*), Manhart's sedge (*Carex manhartii*), white bear sedge (*Carex albursina*), broad-leaf panicgrass (*Dichanthelium latifolium*), lance-leaf wild licorice (*Galium lanceolatum*), mountain St. John's-wort (*Hypericum graveolens*), showy skullcap (*Scutellaria serrata*), Goldie's fern (*Dryopteris goldiana*), butternut (*Juglans cinerea*), and Carolina holly (*Ilex ambigua*). The Burningtown Bald/Cliff Ridge NHA should remain outside of this project's boundaries.

In addition, the Mountain Waters Scenic Byway runs through the proposed project area. This 61-mile Scenic Byway provides access to beloved and biologically diverse waterfalls, river gorges, lakes, and trails. Scenic Byways receive special protections under the 1987/1994 Forest Plan and the draft proposed forest plan.

Logging also affects several portions of the Appalachian National Scenic Trail corridor in this project area. Stands 121-36, 121-35, 121-26, and 111-23 include logging within the Appalachian Trail Corridor Management Area. Reconstruction of Road 7042 is also slated to take place in the Appalachian Trail Corridor Management Area. Logging should not take place anywhere in the Appalachian Trail Corridor Management Area.

Stand 92-25 is a proposed shelterwood harvest in the Trail of Tears corridor. Wayah Bald and its surrounding forest is already a sacred site and location of the historic Cherokee community of Aquilone. The Trail of Tears corridor is an especially important corridor for this region's heritage. The Eastern Band of the Cherokee and Western Band of the Cherokee should be consulted before any timber harvests are planned that may affect the corridor, its viewshed, or its watershed.

III. Conclusion

As currently proposed, the Nantahala Mountains project may have significant adverse impacts to old growth plant forests, federally listed species, and special protection areas. We ask the Forest Service to abandon the current proposal and pursue an alternative that will have far less-damaging impacts. A project of this size, scale, and environmental impacts also requires the preparation of an Environmental Impact Statement (EIS) with additional comment periods.

Thank you for the opportunity to comment. Please make these comments part of the official record for this project. Also, please send us all future notices for this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jason Totoiu", with a stylized flourish extending to the right.

Jason Totoiu
Senior Attorney
Center for Biological Diversity



September 28, 2022

Troy Waskey
District Ranger
Nantahala Ranger District
90 Sloan Road
Franklin, NC 28734
SM.FS.R8ncnancom@usda.gov

Submitted Via Electronic Mail

Re: Nantahala Mountains Project

Dear Mr. Waskey:

The **Center for Biological Diversity** submits the following comments on the Draft Environmental Assessment (EA) for the Nantahala Mountains Project.

We appreciate the Forest Service's decision to drop several stands from the proposed project, particularly Stand 61-37. Although the Draft EA addresses many of the concerns we raised in our scoping comments, we have identified a few remaining issues that need to be addressed in the Final EA and in the Forest Service's consultation with the U.S. Fish and Wildlife Service (FWS).

I. Discussion

A. The Forest Needs to Consider the Quality of Existing Habitats and Species Diversity and Purpose and Need for the Project within the Greater Landscape.

We were dismayed to see in the Forest Service's response to comments that the agency has decided not to address certain issues because "the LRMP does not require" a particular assessment. Even if the LRMP does not include specific language requiring the Forest Service to make these considerations, the issues we identified in our scoping comments are important to the agency's selection of alternatives under NEPA. These specific considerations include the quality of existing habitats and species diversity, baseline information regarding the status and trends of wildlife the Forest Service that are purported to benefit from the proposed treatments, and how this project fits within the broader landscape.

While it appears the Forest Service has nevertheless largely addressed our questions concerning wildlife status and trends, the Final EA still falls short in discussing the quality of existing habitats and species diversity in the project area. As we explained in our scoping comments, an

assessment of the quality of existing habitats and species diversity would help inform the agency's decision-making when it comes to using regeneration harvests in particular stands. It makes sense to cut stands with low species and structure diversity such as non-native pine plantations. See Draft EA at 13. These treatments would help restore a native forest species to help boost biodiversity. But it becomes a more complicated decision when the Forest Service is proposing the same type of harvests to achieve ESH in areas that are trending towards or classified as old growth. The Forest Service needs to carefully consider what it is losing in the way of old growth biodiversity to achieve ESH- a forest type that could easily be achieved elsewhere (in less diverse stands) with fewer costs.

These considerations are particularly important now following President Biden's issuance of Executive Order 14072 "Strengthening the Nation's Forests, Communities, and Local Economies." The EO declares a policy of "conserv[ing] America's mature and old-growth forests on Federal lands" and directs the Forest Service to "complete an inventory of old-growth and mature forests on Federal lands."¹ While the Forest Plan requires the Forest Service to identify small old growth patches in each compartment more than 250 acres,² the Forest Service needs to survey for old growth in the project area, specify how much old growth is being proposed for treatment, and identify alternatives that would conserve old growth by removing these stands from treatment.

The Forest Service should also consider the timing of these timber harvests. Are they being proposed in stands where forest gaps have been recently created by natural disturbances, such as storms, fire, windthrow, or insects? As we conveyed in our previous comments, to proceed with harvesting these areas anyway without concern for maintaining species diversity and the future impacts of climate change, just to satisfy an ESH target would be misguided, to say the least. To this end, the Forest Service could field verify these stands to determine whether forest gaps already exist in these areas. If so, the project should be modified to account for these natural disturbances.

Further, the Forest Service has seemed to dodge the question of what the role of the Nantahala National Forest within the broader landscape is and how the conditions of the broader landscape may influence the sustainability of resources and ecosystems within the project area. It is important to include information about the structural classes of private and state-owned forest land across the broader landscape. If much of this land is subject to regular timber harvesting for sawtimber and pulpwood products, managed for game species, or otherwise altered to accommodate predominately human uses, there would likely be a substantial if not disproportionate amount of land already within the young forest age class. Therefore, when viewed through the lens of the broader landscape, there is arguably much less need to use regeneration harvests to young forests within national forest boundaries, particularly if many of these existing young forests occur either as inholdings or in proximity to national forest boundaries. While this may not be required under the Forest Plan, this is an important consideration when defining the "purpose and need" for the project under NEPA³ and as we

¹ 87 Fed. Reg. 24,851, 24,851-52 (Apr. 22, 2022).

² LRMP, at III-27.

³ NEPA's implementing regulations provide that an environmental document should specify the underlying purpose and need to which the agency is responding in proposing the alternative including the proposed action. 40 C.F.R. §

explained in our scoping comments, something the Forest Service should already be planning for in its revisions to the Forest Plan. That recreational opportunities may be more limited in ESH on private lands is understandable, but the Forest Service needs to keep the broader landscape conditions in mind, and it cannot sacrifice ecological sustainability to meet recreational needs not being met outside the Forests.

Moreover, another key consideration under NEPA is whether the “selection and discussion of alternatives fosters informed decision-making and informed public participation.”⁴ 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.”⁵ Without a nuanced and robust discussion of the environmental costs and benefits of using timber harvests to create more young forests, the Forest Service will not be able to provide the public with enough information to meaningfully evaluate the alternatives and determine whether this is the appropriate management approach to achieving the desired condition of more young forests. The Forest Service must engage in a rigorous analysis which provides a clear basis for choice among options by the decisionmaker and the public.⁶ The Forest Service must adhere to these statutory requirements, even if the LRMP does not address these specific concerns.

B. The Forest Service Must Recognize the Proposed Reclassification of the Northern Long-Eared Bat (*Myotis septentrionalis*) from Threatened to Endangered and Not Rely on the 4(d) Rule.

As we highlighted in our scoping comments, a federal court remanded the threatened listing for the NLEB back to FWS to make a new listing decision.⁷ On March 22, 2022 FWS proposed to reclassify the species from threatened to endangered.⁸ A new listing determination is expected by December. Once the species is reclassified as endangered, there will be no 4(d) rule in place for the species as these rules are only for species listed as threatened.

The Draft EA, however, makes no mention of this fact, and the Forest Service bases its impacts assessment and “not likely to adversely affect” determination in the accompanying BE, on compliance with the 4(d) Rule. It also appears the Forest Service cites the original 12-month finding on page 93 of the BE to support the NLAA determination. Stating that “[t]hese activities alone do not have significant, population-level effects” on the species, the Forest Service seems to dismiss the potential threats timber projects pose to the species. However, the court

1502.13. The manner in which an agency defines the project’s purpose “sets the contours for its exploration of available alternatives.” *Wyoming v. United States Dep’t of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011). Therefore, an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative would accomplish the goals of the agency’s action, and “the EIS would become a foreordained formality.” *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).

⁴ *California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982).

⁵ *Pacific Marine Conservation Council v. Evans*, 200 F. Supp. 2d 1194 (N.D. Cal. 2002).

⁶ 40 C.F.R. § 1502.14.

⁷ See *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020).

⁸ See Department of the Interior, Fish and Wildlife Service, Docket No. FWS-R3-ES-2021-0140, Endangered and Threatened Wildlife and Plants; Endangered Species Status for Northern Long-eared bat, Proposed Rule (March 22, 2022).

invalidated that finding because it relied solely on the impacts of white-nose syndrome when listing the species as threatened.⁹ By extension, the 4(d) rule suffers from similar infirmities.

As we explained in our scoping comments, we are concerned about how this project may negatively impact the NLEB and categorical statements like “common forest management activities, including timber harvest...are not a threat to this species locally nor will it adversely affect the species as a whole,” are not supported by the research. (BE at 93).

The NLEB is generally associated with mature forests and interior forest habitat. It is known to occur at numerous sites across the National Forests.¹⁰ Several known occupied hibernacula occur on the Forests and “summer maternity habitat is widespread across the Forests.”¹¹

During summer they roost singly or in colonies underneath bark, in cavities, or in crevices of both lie and dread trees.¹² Late successional forest characteristics may be favored for several reasons, including the large number of partially dead or decaying trees that the species uses for breeding, summer day roosting, and foraging. While many species of bats rely on snags for roosting, NLEBs also use live trees,¹³ raising the possibility that timbering could bring down trees containing roosting bats. NLEBs are also at risk because of their habitat preferences, foraging in mature upland forest with a fairly closed canopy rather than forest openings that might be used by larger bats. NLEB are tolerant of complex forest structure and some degree of “clutter” in the understory, with a small enough wingspan to be able to maneuver in forest interior areas. Similarly, studies indicate that NLEB regularly roost in trees located in or below the forest canopy, keeping to their forest interior niche.¹⁴ One comparative study of Indiana bats and northern long-eared bats found that the NLEBs were more likely to roost within intact forests to a statistically significant degree, while Indiana bats were more likely to be found roosting on forest edges.¹⁵

NLEBs, like many other woodland bats, prefer to roost in larger diameter trees,¹⁶ making it important to preserve mature forest. NLEBs are less likely to use large forest gaps and clear-cut areas than intact forest,¹⁷ although research is mixed on the impacts of less severe timber treatments. NLEBs avoided roosting in areas that had been subject to a shelterwood harvest in

⁹ See *Center for Biological Diversity v. Everson*, at 82-83.

¹⁰ DEIS for the Proposed Nantahala Pisgah Forest Plan at 258.

¹¹ *Id.* at 259.

¹² U.S. Fish and Wildlife Service, ECOS Species Profile, Northern Long-Eared Bat (*Myotis septentrionalis*) at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0JE>.

¹³ United States Fish and Wildlife Service. 2015. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. Accessed at <https://www.fws.gov/midwest/Endangered/mammals/nleb/nlebFactSheet.html>

¹⁴ Menzel, M.A.; Owen, S.F.; Ford, W.M.; Edwards, J.W.; Wood, P.B.; Chapman, B.R.; Miller, K.V. 2002. Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest in the central Appalachian mountains. *Forest Ecology and Management* 155(1-3): 107-114.

¹⁵ Carter, T.C. and Feldhamer, G.A. 2005. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. *Forest Ecology and Management* 219: 259-268.

¹⁶ Silvis, A., Ford, W.M., Britzke, E.R. 2015. Day-roost tree selection by northern long-eared bats – What do non-roost tree comparisons and one year of data really tell us? *Global Ecology and Conservation* 3: 756-763.

¹⁷ Patriquin, K.J. and Barclay, R.M. 2003. Foraging by bats in cleared, thinned and unharvested boreal forest. *Journal of Applied Ecology* 40: 646-657.

Indiana, indicating that their avoidance of harvested areas is not just limited to clear-cuts.¹⁸ An earlier study in Ontario indicated that the disruption to forest structure and truncated age classes that occur with timbering were detrimental to habitat for multiple species of bats, including NLEBs.¹⁹ In the Final EIS for the Revised Forest Plan for the Nantahala and Pisgah National Forests, the Forest Service stated that NLEBs avoid openings larger than 20 acres.²⁰

NLEBs are also one of the species that have been hit hardest by white nose syndrome, resulting in their listing as threatened under the ESA in 2015. Some eastern and mid-Atlantic hibernacula saw a 99% decline in NLEB after the arrival of white nose syndrome, resulting in localized extinctions

Given the large declines in NLEB populations and federally threatened status, it is imperative that forest management be protective of this species. However, the planned timbering would likely make the project area less suitable for NLEBs, and some individual NLEBs could be directly harmed or killed by tree felling and removal. It is not known at this time whether the Forest Service intends to impose seasonal restrictions to avoid timber activity impacting critical stages in the NLEB'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 timbering.²¹

In view of these potential impacts, it is imperative that the Forest Service identify alternatives that would minimize harm to NLEB's during all stages of the species life cycle and engage in a rigorous consultation with the FWS. Moreover, the Forest Service should survey the project area for NLEBs and other bat species to determine the extent of maternity colonies in the area (rather than relying on the conservation measures set forth in the 4(d) rule). (See Draft EA at 91).

C. The Forest Service Needs to Consult with FWS Regarding Tricolored Bats.

Since the Forest Service prepared the Draft EA, FWS proposed to list the tricolored bat as endangered under the ESA.²² Forest removal may result in loss of suitable roosting and foraging habitat, longer flights between suitable roosting and foraging due to habitat fragmentation of remaining forest patches, fragmentation of maternity colonies due to removal of travel corridors, and direct injury or mortality (during active season tree removal).²³ Loss or modification of winter habitats may also result in negative impacts, due to the species' high site fidelity and narrow microclimate requirements for hibernation.²⁴ Accordingly, the Forest Service must consult with the Service regarding the potential impacts to this species and consider measures to

¹⁸ Badin, H. 2014. Habitat selection and roosting ranges of northern long-eared bats (*Myotis septentrionalis*) in an experimental hardwood forest system. Master's Thesis. Retrieved from http://cardinalscholar.bsu.edu/bitstream/handle/123456789/198110/BadinH_2014-2_BODY.pdf;sequence=1

¹⁹ Jung, T.S.; Thompson, I.D.; Titman, R.D.; Applejohn, A.P. 1999. Habitat selection by forest bats in relation to mixed-wood stand types and structure in central Ontario. *The Journal of Wildlife Management* 63: 1306-1319.

²⁰ See FEIS at 3-270.

²¹ Henderson, L. and Broders, H. 2008. Movements and resource selection of the northern long-eared *Myotis* (*Myotis septentrionalis*) in a forest-agriculture landscape. *Journal of Mammology* 89(4): 952-963.

²² See 87 Fed. Reg. 56381-56393.

²³ *Id.*

²⁴ *Id.*

mitigate potential impacts, including maintaining large diameter snags in early stages of decay and imposing seasonal harvesting restrictions in the summer as many states have done through the years to protect maternity colonies and non-volant pups.²⁵

D. The Forest Service Needs to Take a Hard Look at Adding New Roads as it Faces Resource Constraints and a Maintenance Backlog.

We appreciate the Forest Service's decision to eliminate nearly 1 mile of additional roads in response to scoping comments. However, the Forest Service needs to pay closer attention to the concerns raised during scoping concerning the maintenance backlog and whether it has any plans to decommission roads. We are increasingly concerned that the Forest Service is constructing new roads while it contends that it lacks the resources to maintain and decommission existing roads. The Forest Service appears to dodge these questions by pointing to BMPs and their alleged effectiveness of mitigating for sedimentation and erosion, rather than addressing the threshold question of whether these roads should be constructed in the first place given the operational constraints. These issues need to be addressed before the issuance of the Final EA.

II. Conclusion

Thank you for the opportunity to comment. Overall, the Draft EA and BE provide a thorough analysis of the impacts of the proposed project, but more attention needs to be devoted to the issues discussed above before the Forest Service issues a Draft Decision Notice and EA. Please make these comments part of the official record for this project. Also, please send us all future notices for this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jason Totoiu", with a stylized flourish extending to the right.

Jason Totoiu
Senior Attorney
Center for Biological Diversity

²⁵ See *id.*