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By Electronic Mail

Re: Draft Environmental Assessment Cooper Creek Watershed Project

Dear Mr. Baker and Dr. Wentworth,

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Cooper Creek Watershed Project. The following comments are submitted by Georgia ForestWatch, the Georgia Chapter of the Sierra Club, and the Southern Environmental Law Center.

The Cooper Creek watershed is identified in the Draft Environmental Assessment ("EA") as "a priority watershed on the Chattahoochee-Oconee National Forests because of its important ecological values, resource-related concerns that need to be addressed, and strong partnership opportunities." EA at 3. We agree. The area contains prime trout streams that also support rare aquatic species; it harbors rich, moist soils that support old, towering forests; it provides unfragmented wildlife corridors and habitat; and includes the steep slopes and vista-laden ridges that embody the best features of our treasured national forests in north Georgia.

The area also has significant resource concerns, including former clear-cuts that could most benefit from restoration-based management, impaired soil productivity, high-quality streams that are becoming impaired in sections, roads that are deteriorating or failing, significant departure of old forest from natural levels, and to a lesser extent, departure of young forest, too. Addressing these problems in the watershed must be a priority, in addition to addressing other concerns noted in the EA.

Finally, the area has strong partnership opportunities. We want to underscore our appreciation for the opportunities to discuss this project with you and other Blue Ridge Ranger District staff, including during field trips to some of the project stands, and your willingness to try to answer our many questions about this project and to provide additional information about it. We also welcome the development of an additional action alternative, Alternative 3, which is an improvement over the original proposal and would reduce some of our concerns. Alternative

3, however, does not address all of our serious concerns and does not respond to all of the significant issues we have raised regarding this project.

So far, this project proposal represents missed opportunities. In an effort to help the District meet its goals here, we conducted extensive analysis of the project area, visited over 60 stands in the field, presented detailed observations about the ecological condition of those stands, suggested alternative treatments in some individual stands, identified areas important to avoid, identified more appropriate alternate sites for woodland restoration, and even identified thousands of additional acres within this watershed where treatments (even commercial treatments) would have greater benefits for forest health, or at least be less damaging. In some instances, these positive changes have been made, which we appreciate, but for the most part they have been rejected so far.

We want to be clear that we support sound, science-based ecological restoration. While landscape-scale ecological models can be useful for project planning, they must also be field-verified and their predictions modified as needed, based on the conditions observed "on the ground" in specific project areas and specific sites. This is needed to ensure that predictions of desired and current conditions scale down accurately to smaller areas and "match" the actual site conditions there, especially in our highly varied Southern Appalachian landscape. Unfortunately this second step has not occurred here, leading to the continued proposal to force woodland conditions on inappropriate types of sites. Principles of ecological restoration also require land managers to weigh the risks and benefits of active versus passive restoration for any given site. In many project stands, we believe the risks and impacts of attempting to alter stand structure through commercial logging, with its associated road construction and other disturbance, outweigh any possible benefit. We did identify more degraded stands where restoration is more needed and where tree cutting would carry fewer risks, but as noted above those alternatives have not been fully considered.

Certainly, the District does not have to accept all of our recommendations, but we have sought, and will continue to seek, a path forward that reduces conflict and could lead to a project that has more broad public support, while allowing the District to implement its goals. We hope that the following comments are read in that light.

The District does have to comply with the National Environmental Policy Act, the National Forest Management Act, and other authorities, however, and the Draft EA is inadequate to do so. Although lengthy, the Draft EA lacks a clear analysis of all the relevant information regarding the conditions at Cooper Creek and a clear application of that analysis to the specific proposed activities and their effects. Many of the impacts associated with this project are not adequately disclosed, considered, and addressed in the Draft EA, as we have noted in our comments. The Draft EA's analysis of these risks, as well as its analysis of the project's purpose, need, adverse effects, and alternatives, omits scientific and other highly relevant information that must be disclosed. We recognize our comments are lengthy; this is due in large part to our efforts to provide much of the information we believe is currently missing from the Draft EA and to show its importance to further analysis of this project. In many instances, the project's adverse effects and risks could be avoided or further reduced with reasonable action alternatives, which are not yet considered or are not fully considered. For example, alternatives

that avoid logging in the riparian corridor, avoid logging on lands unsuitable for timber production, and avoid concentrated logging in the watershed of Bryant Creek (an important tributary to Cooper Creek) should be considered. These and other reasonable alternatives discussed further below should be fully and fairly presented, analyzed, and considered to allow the public and agency to weigh the most appropriate alternative.

Beyond the incomplete nature of the Draft EA's environmental analysis, the Draft EA also does not address serious questions regarding this project's compliance with existing direction and procedures for management of the CONF, including: the National Forest Management Act (NFMA); the CONF Forest Plan; Forest Service regulations and other applicable rules; and the Forest Service Manual, Handbook, and regional guides. Many of these authorities provide mandatory direction for this project, as well as guidance and information developed by the Forest Service itself, which should aid in the interpretation and application of these authorities and which should be taken into account in shaping this project. Instead, the Draft EA often turns a blind eye to them or picks and chooses the elements it wishes to consider.

The EA should be revised to address and repair these problems or an EIS should be prepared. Any revised, supplemental, or additional environmental analysis should be reoffered and re-noticed for public review and comment, before the district develops and releases a draft decision notice.

We appreciate your consideration of our comments. After you and other district staff have had an opportunity to review and consider our comments, we would like to meet with you to discuss this project further, perhaps including additional field trips. Ultimately, we are hopeful that the District will be willing to take a collaborative approach to making specific changes to Alternative 3, so that we can collectively develop a project that can meet many of the District's objectives while avoiding unnecessary risks to this special place.

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II. PROJECT PURPOSE AND NEED

i. Background

The Draft EA presents an oversimplified view of forest health. This incomplete view leads to inaccurate assessment of current forest needs and long-term consequences of the proposed actions. Ecological processes, environmental stresses, and local environmental conditions (both biotic and abiotic) drive forest health and are reflected in forest structure and species composition. The Draft EA reduces the primary stressor or disturbance to fire, while ignoring how fire may interact with other stresses such as drought and wind disturbance to forest health. To determine how these stresses impact forest health, they need to be viewed in the context of important concepts such as scale, stochasticity, and evolution.

Abiotic conditions dramatically alter forest processes, structure, and composition. Topography alters disturbance regimes and nutrient cycling. Elevation and soils impact competition between species and rates of recovery from disturbance. In a region with such varied topography, elevation, and soils as Cooper Creek, simply saying "many of the stands in the project area are dense and overcrowded" does not clearly present conditions in the area. EA at 2. Discussing health issues in terms of forest types or ecological units helps address this issue, but does not completely solve it. The same condition, such as closed canopies, may have different causes in different forest types and thus require a different management. Moisture conditions in particular need to be explicitly stated when discussing forest conditions at Cooper Creek.

Fundamentally, forests are healthy when they live and develop under the same conditions that shaped them. Evolution has adapted forests to those conditions, particularly to natural environmental stresses such as drought, fire, and pest and pathogen outbreaks; and these may vary in degree, and spatially and temporally. Conversely, any condition outside the natural range of variation for that ecosystem has the potential to disrupt structure and composition and threatens forest health. The key to how an ecosystem responds to a stress is whether it evolved with that particular stress or disturbance.

ii. Current conditions

Given the history of the past 100 years, we question whether a healthy forest would produce open canopies in this area. Except for a few small areas, industrial logging in the early 1900s intensely disturbed the forest across the analysis area, and initiated new stands. Oliver and Larson[1] identified four stages of stand development, in order: stand initiation, stem exclusion, understory re-initiation, and old-growth. Stands in the Cooper Creek area are currently transitioning from stem exclusion to understory re-initiation. Density-dependent mortality is still ongoing; slightly shorter individuals are dying as adjacent larger individuals continue to grow and increasingly shade them. The initial cohort of trees are also not fully mature yet; trees

[1] Oliver, CD and BC Larson. 1990. Forest stand dynamics. McGraw-Hill, Inc. 467 pp. In addition to the attachments to these comments, all articles, documents, and materials referenced herein are fully incorporated herein by reference, including scientific citations, previous comments, and other correspondence and information submitted to the agency regarding this project.

continue to increase in both height and crown spread. At the same time, shade-tolerant trees are establishing in the understory and density-independent mortality is just beginning. The stem exclusion phase is characterized by a closed canopy. Normal forest development leads to closed canopies just beginning to open at this stage. That condition is exactly what we find at Cooper Creek. The forests at Cooper Creek are developing the same as healthy forests.

The age of the forests at Cooper Creek also directly suggests that a low rate of canopy gap formation should be expected. In surveying old-growth forests across the CONF, ForestWatch found the median age of representative trees was 213.5 years for white oaks and 189 years for chestnut oak. These ages underrepresent the longevity of the species, because cores rarely hit the pith, time to reach coring height was not included, and cores were obtained from live trees. White and chestnut oaks may be the two most common species in the Cooper Creek area and many other dominant species have similar longevity. The dominant trees at Cooper Creek are less than halfway through their life spans. If the forests are healthy, we would expect low rates of mortality and consequently, little canopy gap formation.

There are also reasons to expect Cooper Creek to have less open canopy than a generic, average forest of similar age. Many broad-scale, intense disturbance events are both infrequent and patchy in their effects. Consequently, even when a major event occurs, most of the effects will be concentrated in a few areas. In 1995, Hurricane Opal intensely disturbed many stands in the CONF, but most stands were undisturbed. The southern pine beetle outbreak in 2001 strongly affected many stands, but again left most stands intact. The 2011 tornado cut a 30-mile long swath through the forest, but adjacent areas were untouched. While the 34,018 acres of Cooper Creek Watershed Project may be a large area to analyze and the 5,100-acre treatment area a large area to manage, these areas are small when talking about average rates of disturbance. Naturally-occurring early successional forest is likely to be unevenly distributed (both spatially and temporally), and most areas, like Cooper Creek, will have below average amounts at any given point in time.

Relative to preceding centuries, the 20th century was a wet one for north Georgia. Recent droughts have been shorter and less severe than occurred in earlier periods, especially 1696-1820.[2] Extended drought is a major cause of direct tree mortality, and also increases the vulnerability of trees to other stresses, particularly pathogens and insect pests. Consequently, we would expect healthy forests in the 20th century to have relatively low mortality rates and dense canopies. As far as we understand, the stage and transition models that the departure analysis is based upon do not account for this long term-variation in drought or other disturbances that result in tree mortality.

While the Draft EA focuses on canopy density, other potential forest health issues are inaccurately assessed or ignored. The Draft EA states that snags, cavities, and coarse woody debris (CWD) are "abundant", and cites "past southern pine beetle activity, periodic ice and windstorms, and fire" as sources. EA at 105. This claim appears to be a generic statement not based on the Cooper Creek area. There is no evidence of recent southern pine beetle outbreaks

[2] Pederson N, AR Bell, TA Knight, C Leland, N Malcomb, KJ Anchukaitis, K Tackett, J Scheff, A Brice, B Catron, W Blozan, and J Riddle. 2012. A long-term perspective on a modern drought in the American Southeast. *Environmental Research Letters* 7(1).

in the area, and the preferred host species, yellow pines, are rare. EA at 90. Tree crowns in the area do not show breaks from ice damage, and ice storms disproportionately affect small trees. Windstorms and fire have produced some snags and CWD, but no major events have occurred in the project area in recent decades. These forests have very little CWD and snags relative to pre-settlement conditions, as is indicated by the much greater abundance of CWD in the old-growth forests that once dominated the area. The claim that Cooper Creek is replete with snags and CWD is further belied by the emphasis on canopy density; how have snags been formed without creating gaps in the canopy? Snags and CWD are as scarce as gaps across most of the area. Adding logs to Pretty Branch to create trout habitat also clearly shows the functional shortage of CWD. *See* EA at 111.

Similarly, tree cavities and microtopography are relatively scarce. Trees in this area have not been large enough for long enough time to give fungi and other forces opportunities to produce cavities. They are present in the area, but much reduced relative to pre-settlement times. Early 1900s logging operations destroyed much of the existing microtopography, such as pits and mounds. The shortage of uprooted large trees has limited the rate of new microtopgraphy formation. The relative scarcity of microtopography is again indicated by an abundance of microtopography being used as one way to identify old-growth stands.

iii. Effects of the proposed actions on forest health

While this project views closed canopies as a "symptom" of an unhealthy forest, it does nothing to address the actual cause of the condition. The silvicultural treatments in this project will immediately open the canopy, but they will not cause the forest to start producing more canopy gaps in the future. In fact, these treatments will do the opposite. Residual trees will experience reduced competition and have more resources to defend themselves against pests and pathogens. At the same time, the forest's ability to produce cavities, snags, and coarse woody debris will be severely diminished for decades. The retained trees will be less likely to become any of these assets, and about half of the existing trees will have no chance to contribute because they will be removed. While the retained trees will have a slightly increased chance of windthrow, none of the removed trees will generate pit and mound microtopography. Given the scale of cutting, the rate of formation of these assets that literally hundreds of species use is likely to decrease by more than 50% for decades. This project offers a short-term solution to a dubious problem while disrupting processes essential to long-term forest health.

Long-term effects on forest composition are also far from certain. Silvicultural treatments aimed at oaks will often provide opportunities for more competitive early successional species to regenerate as discussed further below. Even where fire will control those early successional species, oak regeneration is not guaranteed. Studies pairing silvicultural treatments with prescribed fire have had mixed results in regenerating oaks. **Prescribed fires on their own, approved prior to this project, are more likely to generate long-term vegetation changes by limiting tree regeneration and selecting against fire-sensitive species.**

The implications of existing treatments on forest processes, structure, and composition have also not been appreciated. The Draft EA acknowledges that prescribed burns have "created and maintained" early successional habitat in the project area. The Upper Warwoman Project

Environmental Assessment predicts that prescribed fires in new burn units would eventually convert 35% of the unit area to early successional habitat, and that prescribed burns would maintain existing early successional forest produced by earlier burns. Warwoman EA at 126. Given that potential to create and maintain early successional habitat with prescribed burns, we find it strange that the Draft EA concludes early successional habitat within Cooper Creek burn units "would grow older and lose its value as early successional habitat for wildlife species".

Viewing the issue mechanistically makes it even harder to understand how that conclusion was reached. Prescribed fires can produce open canopies and early successional habitat in at least two ways. The first is by top-killing dense mountain laurel thickets. Gaps in the overstory with mountain laurel underneath them are considered closed canopy because the ecological classification modeling assessed "canopy" at two meters above ground and mountain laurel is typically over two meters tall. Prescribed fire would convert those overstory gaps to areas of open canopy and early successional habitat. Mountain laurel does not resprout vigorously and is killed by successive fires, so these areas are likely to remain open.

Prescribed fire can produce open canopies and early successional habitat, secondly, by limiting tree regeneration. One of the principle goals of prescribed fires is to reduce understory saplings. Without saplings able to take their place, the death of canopy trees will lead to persistent openings and early successional habitat. On most sites, three to five years is not enough time for trees in this region to grow large enough to withstand even low intensity fires. That process is what allows fire to maintain woodland and savannahs. Ridges and dry slopes will see gradually diminishing tree cover as long as prescribed burning is conducted on a three-five year frequency.

The Draft EA has failed to fully assess needs within the project area and how the proposed actions will affect the myriad processes that influence forest health. Stand development processes, the longevity of dominant species, and variability of disturbances in both space and time all call into question whether forests are too "dense and overcrowded". That question has not been thoroughly analyzed. If the forests are overcrowded, existing prescribed fires will reduce density and create early successional habitat. The proposed silvicultural fixes would disrupt key ecological processes, without providing a long-term solution. Long-term solutions to the area's needs require appreciation of the complexity of the situation and re-assessment of the full effects of potential actions.

III. VEGETATION MANAGEMENT

i. Forest Service Definition of Ecological Restoration

Increasingly the agency is implementing treatments across the forest with a restoration focus. This is a positive step. Largely as a result of past timbering, and to a lesser degree as a result of fire exclusion, many areas of the forest are highly departed from reference conditions. The value of restoration treatment though is dependent upon need for restoration, restorative capacity of the treatment, and collateral effects of the treatment (i.e., adverse impacts from treatments). These treatments are only effective if they are actually restorative, not just labeled

as such. Recognizing that "the concept of ecological restoration has not been well understood nor consistently implemented within the agency" the Forest Service established a new title in the Forest Service Manual focused on restoration and provided clarity in 2012 Forest Planning Rule and implementing regulations. 78 Fed. Reg. 56202 (Sept. 12, 2013). The Manual and agency definitions regarding ecological restoration are not mentioned in the Cooper Creek EA but any restoration-based project must comply with their guidance.

Forest Service regulations define ecological restoration as "[t]he process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed." 36 C.F.R. § 219.19; *see* FSM 2000, Ch. 2020. Restoration aims to reestablish the "composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions." *Id.* Ecological restoration moves an area towards "ecological integrity" which is the "condition of an ecosystem when its . . . composition, structure, function, [and] connectivity . . . are within the natural range of variation." 36 C.F.R. § 219.19. The natural range of variation is "the full range of variation produced by dominant natural disturbance regimes" and generally refers to a "pre-European influenced reference period." FSH 1909.12, Ch. 05. "Adaptive management, monitoring, and evaluation are essential to ecological restoration." FSM 2000, Ch. 2020.6. In sum, a project is only restorative if it is moving an area towards ecological integrity which requires bringing the composition, structure, function, and connectivity of an ecosystem more in line with the natural range of variation.

ii. Inappropriate use of ECS ecological departure analysis

Models can be helpful, though coarse, tools to assess ecological departure and develop restorative projects. The Draft EA states "departure analysis was one of the analysis tools used to develop the Alternatives and the location of treatments." EA at 89. However, the particular departure analysis and the ECS it is based on are not appropriate tools for selecting the location of treatments within a project because these models are not very accurate at smaller stand scales. In other words, while these models are helpful at identifying landscape-scale needs, they are ineffective, on their own, at prescribing stand-level treatments.

"The Ecological Zones of the Southern Blue Ridge: 3rd Approximation" (Simone 2011) provides a product very similar to the Cooper Creek ECS, but uses more rigorous analytical techniques that were fine-tuned to this particular application over the course of several years. Simone's model correctly identified the ecological zone 79% of the time. That result may overstate the accuracy of the model, because the test was based on the points used to develop the model rather than a random set of points. Thus, the Cooper Creek ECS is likely to misidentify stands over a quarter of the time. Landscape models of ecological units can be useful for assessing trends and patterns at the scale of the entire project, but individual stands must ultimately be evaluated based on physical evidence found in the field.

We appreciate that some field data has been gathered in this project, but it appears model results have taken precedence over the field data. The reverse should be true. Stand 633-24 provides a clear example why. The stand occupies a steep west-facing slope high on Duncan Ridge. Given that typically dry landscape position, the ECS not surprisingly maps this stand as

"low to mid-elevation oak forests". Almost the entire stand is placed in the "dry to xeric" subtype with only small amounts of "dry-mesic (submesic)" and even less "transitional to cove forests". In real life, tuliptree dominates the stand and mesic herbs, especially *Veratrum parviflorum*, cover the forest floor. The mesic nature of the stand makes it entirely inappropriate for the woodland treatment even though the model predicts a dry community.

While the departure analysis identifies lack of open canopy conditions as a major source of departure, it does not identify the cause of closed canopies. Any vegetation more than two meters above ground is considered part of the canopy. Consequently, closed canopies may reflect continuous overstories, continuous understories, or a combination. Whether the canopy closure results from the overstory or understory is an important distinction, because they call for different management approaches. Closed overstory may be addressed through traditional silvicultural practices while closed understory conditions are much more efficiently addressed with prescribed fire. Some stands slated for thinning already have abundant overstory openings, such as 505-07 and 505-30. These treatments seem unnecessary and wasteful given that these stands are also scheduled for prescribed burning. In general, understory and overstory closure is easily obtained from the LiDAR data already used in the departure analysis. The proportion of returns occurring near ground level can be used to identify dense shrub layers. Converting canopy height to above or below a particular height allows quick visual identification of any gaps above that height break.

The departure analysis also identifies lack of older forest as a major source of departure. This contributes much more to the departure than lack of young forest, which this project prioritizes addressing. Treatments should be placed such that they maximize the amount of old forest in the future, otherwise the project risks increasing departure instead of decreasing it which is neither "restorative" nor beneficial for forest health. This will generally involve treating relatively young stands. When older stands are treated, the treatment should be of low enough intensity that the oldest cohort remains dominant. Treatments that remove nearly half of the overstory or close to that amount will functionally shift the stands to younger age classes. As retained trees die, the trees regenerating in response to the harvest will become the majority of the stand.

iii. Woodland "Restoration"

The Forest Plan defines restoration as "ecologically, the process of returning ecosystems or habitats to their former structure and species composition, especially through the return of former ecological processes such as fire."[3] As provided above, the Forest Service more recently adopted a different definition: "The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems' sustainability, resilience, and health under current and future conditions."[4] The Society for Ecological Restoration defines ecological restoration as an "intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and

[3] Appendix B (U.S.D.A. Forest Service, 2004, page B-53.
[4] New NFMA regulations, 36 C.F.R. §219.19.

sustainability."[5] In keeping with these definitions, for the woodland treatments in this project to be restoration, they must occupy sites that were woodland in the past. For that to be the case, the natural, specific site conditions must dictate a woodland community.

1) Rational for woodland restoration presented in the Draft EA overestimates woodland

In our response to the May 2014 scoping, we asked for evidence that the woodland restoration treatment stands were woodland under natural (pre-European settlement) conditions. The Draft EA recognizes that concern in the Issues section, and states "the appropriateness of the sites selected for woodland restoration are discussed in Chapter 3 of this document." EA at 6-7. However, we could find no direct discussion of the appropriateness of the woodland treatment stands in that chapter. Indeed, we found no justification for the woodland treatment in the Draft EA beyond "sites proposed for woodland restoration in the Cooper Creek Project were identified through the use of the Cooper Creek Ecological Classification System." EA at 6.

It is unclear how the Ecological Classification System (ECS) could be used to identify pre-settlement woodland sites. The ECS purports to map pre-settlement ecological units, but no ecological unit on the CONF is associated with only woodland conditions. Ecological units associated with woodland condition also have closed canopy forest forms. It appears the assumption was made that every occurrence of an ecological unit associated with woodland is capable of supporting woodland. Thus, any ecological unit associated with woodland is sufficient justification for woodland restoration.

We tested that assumption by applying ecological classification at the landscape scale and comparing the results to historic landscape descriptions. We used Steve Simone's first approximation of ecozones on the Chattahoochee National Forest to identify pre-settlement ecological units. This model produces outputs similar to the Cooper Creek ECS, and is the best available data for the surrounding landscape. We removed Tennessee, Ridge and Valley, and Piedmont sections of the output so that the data set would better match the Cooper Creek area and historical references. We also removed private lands since they are not available for management. The data set does not cover the northeastern part of the Chattooga River Ranger District, but includes the rest of the Blue Ridge in the CONF.

We then used Landfire Biophysical Settings used in the Upper Warwoman Landscape Management Project to estimate the extent of woodland from the ecological units. Mesic ecological units such as acidic cove and northern hardwood forest can exist in open canopy forms. However, these open canopies are usually transitory, so we assumed they contributed no woodland. For all oak and pine ecological units, we treated them as woodland if they had an open canopy, and the proportion in an open canopy was found by summing the percentage in each open canopy stage. For instance, dry-mesic low elevation oak forest has 13% in the mid-open class, 14% in late-open and 42% in late 2-open, so 69% of the ecological unit was assumed to be woodland. The total extent of woodland was found by multiplying the area of each ecological unit by the percent in woodland and summing for all oak and pine types.

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[5] SOCIETY FOR ECOLOGICAL RESTORATION. 2004. *The SER international primer on ecological restoration.* Society for Ecological Restoration International Science and Policy Working Group, Tucson, AZ. 13 pp.

The ecological unit modeling and Biophysical Settings predicted that 60% of the CONF Blue Ridge province was woodland during pre-settlement times, a proportion not supported by historical data or reflected in current conditions. The Ayers and Ashe[6] survey of Southern Appalachian forests described the forest as typically dense. Landscape photographs from the same period also show continuous closed-canopy forest stretching across multiple ridges and slopes. Those photographs would not be possible if the region were over half woodland. This would be especially true by 1900 when higher rates of burning and livestock grazing had increased the extent of woodland above pre-settlement levels. Thus, the ECS approach predicts woodland in many places that were not woodland during pre-settlement times. Our analysis demonstrates that the ECS approach alone is not sufficient to identify sites suitable for woodland restoration.

To be truly restorative, proposed restoration activities must be evaluated based on an individual site's specific characteristics (*e.g*. soil, topography, fire compartment size, and potential productivity). At each site, the agency should be able to describe an appropriate reference condition based on the site's characteristics, identify any ecological degradation that has occurred, and consider options for repairing that damage, including options for active and passive restoration (see DellaSalla *et al*.[7] at 17). But the Draft EA does not offer any site-specific characteristics of the stands proposed for woodland restoration. If the agency cannot identify ecological departure from an individual site's reference condition, restoration is unnecessary. Actions that are not consistent with this definition and are not supported scientifically should not be labeled as restoration. If there is a conflict between model results and evidence from a particular site, the local evidence should take precedence over theoretical predictions.

2) Landscape indicators of pre-settlement conditions do not suggest woodland

While the agency has not offered any evidence that any woodland existed in the treatment area prior to European settlement and has not provided any justification for its selection of individual stands for woodland restoration, there is persuasive evidence indicating that there was never any significant pre-settlement woodland in these stands.

Woodlands naturally occur only where disturbances kill most saplings. If disturbances kill almost all saplings, a savannah or prairie will result. If disturbance kills only a few saplings, a closed-canopy forest results. Determining what ecosystem would naturally occur at a site then depends on estimating how many saplings would be killed under a pre-settlement disturbance regime. This number varies with how large the saplings are when the disturbance occurs. That size in turn depends on how long it has been since the last disturbance and the growth rate of the

[6] Ayers, HB, and WW Ashe. 1902. Message from the president of the United States: transmitting a report of the secretary of agriculture in relation to the forest, rivers, and mountains of the Southern Appalachian region. US Department of Agriculture. 208 pp.

[7] DellaSala, DA, A Martin, R Spivak, T Schulke, B Bird, M Criley, C van Daalen, J Kreilick, R Brown, and G Aplet. 2003. A citizen's call for ecological forest restoration: forest restoration principles and criteria. *Ecological Restoration* 21(1):14-23.

saplings. The suitability of Cooper Creek for woodland restoration then depends on the pre-settlement frequency of disturbance and the local growth rate of trees.

Fire, grazing, and drought can all disproportionately affect saplings and in some regions contribute to woodland maintenance. Of those disturbances, the woodland restoration treatments manipulate only fire. Thus, fire is the only disturbance that will be considered in the rest of this analysis.

Pre-settlement fires were started by either Native Americans or lightning. Native American impacts on the landscape were patchy and concentrated around their settlements.[8] Hence, Native Americans burned primarily near their settlements. Native Americans developed their communities around reliable, perennial water sources on level terrain. Duncan Ridge runs through the middle of the treatment area and eliminates opportunities for settlement within the treatment area or to the east and west. That leaves the valleys between the treatment area and Blairsville and along Cooper Creek itself as potential settlement areas and sources of fire. For most of its length, Cooper Creek is deeply incised, so any settlements would have been along its lower reaches.

The large flats on Cooper Creek are over four miles from many of the proposed woodland stands. Fire has no clear path to migrate from the potential settlement sites to the proposed woodland restoration stands. East-west ridges, streams, isolated peaks, and broad gentle slopes fragment the terrain in between. Fires set near potential settlements would encounter barriers to spread before reaching the proposed woodland sites and would typically go out before reaching those areas. So fires set near Cooper Creek settlements would contribute little to fire frequency on the upper slopes of Duncan Ridge.

Fire would be even less likely to spread from settlements near Blairsville. Fire from those areas would have to cross the consistently steep and rich north slope of Duncan Ridge to reach the proposed woodland treatment sites. Those conditions create a continuous mesic area that functions as a broad fire barrier.

Simple geometry dictates that setting fires far from settlements would result in lower frequency of fire across a broader area. For example, if a community of Native Americans burned 2,000 acres annually, it would take them three years to burn all the area between one and two miles from their settlement. However, it would take the same group nine years to burn all the land between four and five miles from their settlement. The farther from settlement areas, the less frequent fire would be even if Native Americans set fires far from their settlements. Difficulties of fire spread across a heterogeneous and fragmented terrain would still apply. Overall, the landscape suggests that the frequency of Native American fire in the Cooper Creek treatment area was low.

From 1970 to 1999, there were 143 lightning strike fires on the Chattahoochee-Oconee National Forest. Assuming that fires were distributed equally throughout the CONF during this time, then 124 fires occurred in the Chattahoochee, and 19 fires occurred in the hotter and drier

[8] Munoz, SE, DJ Mladenoff, S Schroeder, and JW Williams. 2014. Defining the spatial patterns of historical land use associated with the indigenous societies of eastern North America. *Journal of Biogeography* 41:2195-2210.

Oconee National Forest. If Cooper Creek is representative of the Chattahoochee, Cooper Creek would have averaged less than one fire in 30 years. Additionally, lightning strike fires in the Cooper Creek vicinity would suffer from the same spread issues as fires set by Native Americans. If a fire started on Duncan Ridge itself, the deep Mulky Gap, with its associated north-facing slope, and the high and moist Coosa Bald would serve as barriers to spread along the ridge. The top of Duncan Ridge within the treatment area is generally moist for a ridge, and supports cove species such as may-apple, showy orchis, and blue cohosh. Thus, lightning strike fires probably occur on Duncan Ridge below the typically low rate, and even if recent lightning fire underestimates historical rates, lightning fires would have been rare in the Cooper Creek area.

Without frequent fire, slow tree growth rates would be necessary to limit sapling density and prevent canopy closure. However, the treatment area contains tall trees, which indicates fast growth rates. The tallest known silverbell and basswood in Georgia grow in the treatment area; yellow-poplar comes within 10 feet of the state height record; and farther down Cooper Creek white pine reaches 169' tall. The state champion Fraser magnolia and Alleghany serviceberry also grow in the treatment area. The area appears to have generally productive soils capable of supporting high rates of growth. The scarcity of rock outcrops also suggests soils are relatively deep, which would buffer stands from the effects of droughts. Only stand 505-17 has several rock outcrops, and most of the remaining stands do not even have isolated rock exposures. For any given landscape position, growth rates in the Cooper Creek treatment area appear moderate to fast, and trees would develop resistance to fire at a proportionately quick rate. *Consequently, landscape evidence suggests the balance of fire and growth would favor forest over woodland in the Cooper Creek area.*

3) Vegetation indicators of pre-settlement conditions

Examination of existing vegetation provides an alternative means of evaluating the likelihood of pre-settlement woodland at a specific location. Logging and fire exclusion destroyed evidence of woodlands in many areas, while European burning extended woodlands into areas previously occupied by forest. Hence, both presence and absence of woodland structure and species must be interpreted cautiously.

Pines (excluding white), clonal heaths, low branching oaks, composites (Asteraceae), and warm season grasses have all been pointed to as indicators of woodland. Pines (excluding white), are generally scarce in the Cooper Creek area. The project is just outside of the range of pitch pine and table mountain pine, the most fire-associated pines in the region. Shortleaf pine is scarce, but that may reflect elevation more than disturbance history. Virginia pine often occupies the dry and exposed landscape positions favored by pitch and table mountain pines outside of the range of those species. In the treatment area Virginia pine is scarce, found primarily in flats along upper Bryant Creek that were likely farmed. Deep soils and competition from faster-growing hardwoods seem the most likely explanations for the lack of Virginia pine. Overall, the lack of fires-associated pines argues against the presence of pre-settlement woodland.

Mountain laurel is common and the most widespread heath in the treatment area. While mountain laurel is an important component of some open communities, the species' shade

tolerance also allows it to grow and reproduce underneath a closed canopy. Fire easily top-kills mountain laurel, and the species recovers slowly. This combination of traits allows mountain laurel to thrive under conditions that do not support woodlands, so the species' abundance cannot be interpreted as evidence of past woodlands. Other clonal heaths that recover faster after burning are rare or absent in the treatment area. Bearberry huckleberry is surprisingly scarce given how common the species is in oak forests across north Georgia, and low-bush blueberry appears restricted to narrow sections of ridge-tops. These species are not woodland obligates, so their scarcity is not conclusive. However, it would be surprising that so little of them persisted if extensive woodland occupied the area pre-settlement.

Oaks with open grown morphology are essentially absent from the Cooper Creek area. That absence could reflect either their historical absence or their removal during industrial logging. The oak species in the region most closely associated with woodlands, post and blackjack, do not occur in the treatment area. However, those species rarely occur at such high elevations, so a pre-settlement woodland in the area likely would not have included them. Other oaks species such as white and chestnut are among the most abundant species in the Cooper Creek area. Those species are well adapted to both forest and woodland habitats, so they are not reliable indicators of early community structure. If the mere presence of those species is interpreted as an indicator of woodlands, then one would have to conclude that the majority of the CONF was woodland in pre-settlement times. However, accounts from the early settlement period clearly contradict that interpretation as described above.[9] Overall, the current structure and abundance of oaks in the treatment area provide little information about prior woodlands or their absence.

Composites and warm season grasses are major and consistent components of woodland ecosystems. More generally, they are characteristic of disturbed habitats. Their small wind-dispersed seeds allow them to colonize even isolated recently disturbed areas. Within the treatment area, shade-tolerant species not typical of woodlands, such as Curtis's goldenrod, are widespread, and light-demanding species are restricted to road edges and similarly disturbed areas. The light from the road may have allowed the latter to persist in an otherwise inhospitable environment, or they may have colonized the road edge from a distant location after the disturbance. The existing vegetation does not allow either of these possibilities to be eliminated, particularly since every sunny road bank and building site in Georgia supports warm season grasses or composites after a year or two. Consequently, these species are not reliable vegetation indicators of pre-settlement woodland in the Cooper Creek area.

Just as we can look for species that indicate pre-settlement woodland, we can look for species that indicate pre-settlement forest. As mentioned above, may-apple, blue cohosh, and showy orchis grow on top of Duncan Ridge, but are typically found in rich cove forests. Mesic forest herbs have a notoriously difficult time recolonizing sites after disturbance, so it is unlikely these species colonized Duncan Ridge after the advent of fire exclusion. Their presence indicates that the upper edge of the general woodland treatment area was forest during pre-settlement times, and that Duncan Ridge has unusually rich soils.

[9] Ayers, HB and WW Ashe. 1905. The Southern Appalachian forests. United States Geological Survey. 291 pp.

In their early forest surveys, Ayers and Ashe[8] noted that American chestnut is sensitive to fire. American chestnut also provides unique information about historical forest conditions, because the species no longer reproduces by seed and sprouts typically survive only when originating from small diameter stems.[10] The location of current chestnut sprouts then identifies places that had fire sensitive individuals in the 1930s. While a few chestnuts might escape a fire, an abundance of sprouts indicates the area did not burn frequently. We encountered abundant chestnut sprouts in the northern half of 505-6, on top of Spencer Knob, and the upper slopes of 504-18. Chestnut *might* have been able to rapidly colonize openings in woodlands if fires were stopped. However, chestnut blight generally coincided with the start of active fire exclusion, so chestnut could have colonized former woodlands only if fire exclusion started unusually early in that area. The current distribution of chestnut sprouts suggests that several areas in the woodland treatments were forest during the early 1900s.

Much of the existing vegetation at Cooper Creek is inconclusive regarding woodland. Many species are adapted to both forest and woodland habitats, and post-settlement disturbance has destroyed much potential evidence. The woodland vegetation that is likely to persist, pine, is scarce, which suggests the area lacked woodland. Concurrently, fire-sensitive species that do not readily colonize new habitat remain across much of the proposed treatment area. Overall, the existing vegetation indicates the treatment area was forest during pre-settlement times. This landscape stands in stark contrast to other parts of the region like Rabun Bald or the escarpment around Amicalola Falls where south-facing slopes are extensive and long south-trending ridges provide corridors for fire movement and spread.

Woodlands occur where fire or other disturbances kills most saplings and maintain an open canopy. Patterns of fire spread, Native American settlement, and lightning ignitions in the Southern Appalachians indicate the project area experienced fire infrequently during pre-settlement times. The fast tree growth in the area and long intervals between fires would allow most saplings to grow large enough to survive fires. Existing vegetation is often not definitive, but generally supports this conclusion. Persistent woodland species are absent or scarce across the project area, and fire-sensitive species are widespread. **Thus, we are forced to conclude that the woodland treatments in this project would not contribute to the goal of *restoring* 10,000 acres of woodland, because these areas were forest rather than woodland.**

4) Better options for woodland restoration

The highest priority areas for woodland restoration on the CONF should be those that have lost the most woodland and contain rare species dependent on open conditions. These areas have the highest likelihood of success. For example, the Conasauga Ranger District contains areas with relatively high fire frequency and low fertility in the Ridge and Valley (which supports Georgia aster), the western edge of the Cohuttas, and the area south of Fort Mountain. Similarly, the southern part of the Chattooga River District contains extensive areas with warm, dry habitat with abundant pines (which support turkey beard), and the northern part of the district supports relatively large populations of our most fire-adapted pine species, pitch and table

[8] Ayers, HB and WW Ashe. 1905. The Southern Appalachian forests. United States Geological Survey. 291 pp
[10] Paillet, FL. 1982. The ecological significance of American chestnut (*Castanea dentate* (Marsh.) Borkh.) in the Holocene forests of Connecticut. *Bulletin of the Torrey Botanical Club* 109(4):457-473.

mountain. The Blue Ridge District lacks similarly large areas with indications of high fire frequency. Hence, of the 10,000 acres of woodland restoration planned for the Chattahoochee National Forest, less should be allocated to the Blue Ridge District than either the Conasauga or Chattooga River Districts.

Within the Blue Ridge District, the driest and least productive conditions occur at the southern end of the district. The Blue Ridge Escarpment creates extensive dry, south-facing slopes, and fire could spread onto them from the adjacent and more fire-prone piedmont. Other parts of the District have smaller fire compartments, less opportunity for fire to spread from adjacent areas, and often more fertile soils. Hence, most woodland in the Blue Ridge District should be on or near the escarpment.

The Forest Plan indicates that the priority for woodland should be old-growth types 22 (dry-xeric oak forest, woodland, and savanna) and 24 (xeric pine and pine-oak forest, woodland, and savanna) (FW-055). These old-growth types have a site index of less than 60, except where dominated by pitch or table mountain pine (EIS tables 3-30 and 3-81). The Continuous Inventory of Stand Conditions lists only one stand in the Cooper Creek Watershed Project area, 633-18, as having a site index of less than 60, and pitch and table mountain pines are absent from the treatment area. Stand 633-18 contains existing old-growth, so it should not be thinned. Therefore, even if any of the stands in this project were appropriate for the woodland treatment, they should be low priority.

5) Adaptive management

It is challenging for managers to make the forest do what they want it to do, instead of what it wants to do. In the settlement period, woodland was created by cutting trees and maintained by burning the forest and grazing livestock. The absence of the latter tool now makes it much harder to create and maintain woodland, especially on more productive sites.

The Brawley Mountain Woodland Restoration Project is an example of the difficulties encountered in trying to create woodland on a productive site. Success or failure at Brawley will be a good indicator of success or failure of woodland creation in the Cooper Creek project area, because of the similarities and proximity of the sites.

Creation of woodland on a productive site such as Brawley requires cutting most of the trees, applying large amounts of herbicide, and frequent burning. Since 2010, all of these activities have been done at Brawley Mountain, which was “recently completed” according to the Draft EA (Brawley EA at 148); but so far there is no clear indication of success. At Brawley, stump sprouts grew unchecked for two years, because funds were not available for sufficient herbicide and effective cut-stump application. The burns that were conducted in 2014 and 2015 killed some stump-sprout stems, but not the roots. As shown by the “ten-time burn” on the Conasauga District (a stand that was burned 10 times in 30 years), a three-year burn frequency will not prevent red maple, black locust, oak, or most other hardwoods from continuing to sprout. How will sprouting of these “undesirable” hardwoods be addressed in the Cooper Creek Project where a 3-5 year prescribed burn is proposed?

At Brawley, a modest effort to establish grassy groundcover (an important component of woodland) was successful on 5–10% of the project area at best, mostly on haul roads, but considerable parts of the roads remain unvegetated. It is inconceivable that either the Forest Service or the stewardship contractor could provide the time, effort, and money needed to successfully sow grass over the whole area. In short, the evidence before the agency to date indicates that the attempt to create woodlands at Brawley is progressing poorly.

The Introduction to the Forest Plan states that the Plan "represents an adaptive management approach," which means "practicing restorative ecosystem management with the understanding that we are students of nature, not masters of it." As "students of nature," the Forest Service should not attempt any additional creation or "restoration" of woodland until it can demonstrate a reasonable prospect of success, and even then only on sites that show clear signs of having supported natural woodland in the past.

The Plan goes on to state that "[a]daptive management will use our scientific knowledge and experience to design strategies that allow us to progress toward ecological and socioeconomic objectives as we learn. The adaptive aspect of these strategies is the ability to test our assumptions and make adjustments as we learn from our work and the work of others in the field. … With sustainable forest habitats and healthy watersheds and ecosystems as primary goals, a great deal of knowledge is being tested; and there are many factors to monitor over time. … Monitoring (and constant evaluation) is the heart of adaptive management" (Plan at 1-2).

When the Forest Service proposes to create woodland on an even larger scale than at Brawley, in similar conditions, with the knowledge that this first attempt (at Brawley) has not proven successful to date, it is not acting as a "student of nature" or practicing "adaptive management." It is violating its own plan.

NEPA requires that "relevant information" be made available so the public can evaluate projects proposed by federal agencies such as the Forest Service.[11] As discussed further below (*see, infa,* Section IX(3)(iii)) the District's experience and results with its woodland creation efforts thus far are highly relevant information that must be considered and disclosed, under NEPA. The Draft EA should provide a detailed, forthright explanation of the outcomes so far at Brawley and explain why and how the Forest Service believes it can achieve a different result in the Cooper Creek Watershed Project. Proceeding with woodland creation in the absence of such recognition and explanation would be arbitrary and capricious because of the failure "to consider an important aspect of the problem."[12]

The Draft EA does not adequately explain or demonstrate how the proposed woodland treatments are appropriate ecological restoration. It must disclose and consider relevant information regarding appropriate ecological restoration and squarely address how this proposal meets that standard. Aspects of the project that cannot be justified based on ecological restoration should be reconsidered or re-justified. At a minimum, the District should consider an alternative justified solely by ecological restoration. The District should ensure that restoration activities developed as part of this project conform to the definition of ecological restoration.

[11] *Robertson v. Methow Valley Citizen's Council*, 490 U.S. 332, 349-50 (1989).
[12] *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Inc. Co.*, 463 U.S. 29, 43 (1983).

Project activities should also adhere to other highly relevant information developed by the agency and by reputable scientific authorities that defines and establishes best practices for ecological restoration.[13]

Sustainability and success of woodland restoration at Brawley Mountain and proposed Cooper Creek sites will always be low because these sites never supported woodland and they are simply too productive. If the District feels that it must make more progress towards the Forest Plan's goal of 10,000 acres of woodland, it should follow the principle of adaptive management, look for an appropriate site, start on a much smaller scale than 720 acres, test its assumptions, make adjustments, monitor, and constantly evaluate its successes and failures.

The agency is dealing with an immensely complicated system. Hundreds of species are interacting simultaneously, topography alters nearly every process, and many of the most important factors, such as soil conditions, are hidden. Restoration is being implemented in this complicated context with little documentation of pre-settlement communities, no good extant reference communities, and managers are trying not merely to re-introduce an absent disturbance, but also undo the effects of nearly a century of altered disturbance regime. And all this must be accomplished without the help of grazing, which was one of the primary tools for the creation and maintenance of woodland in the period of European settlement.

The chance of success can be maximized by learning as much as possible from the few woodland restoration attempts that have been made, and starting with the most ecologically-appropriate sites. The Cooper Creek Watershed Project takes the opposite approach; the sites selected are marginal, at best, and the proposed treatments are unmodified clones of the District's first woodland restoration attempt, Brawley Mountain, the results of which are inconclusive and not very promising.

6) Conclusions

The Draft EA does not justify woodland restoration in the Cooper Creek area. The ECS approach (modeling general relationships among current topo-edaphic conditions, historical vegetation, and disturbance regimes) over-predicts the extent of historical woodland and is not a reliable means of identifying pre-settlement woodland stands. Site specific conditions and current vegetation indicate Cooper Creek naturally supported very little if any woodland. This information indicates woodland cannot be "restored" at Cooper Creek, and results at similar sites call into question the feasibility of creating woodland at Cooper Creek. Given the Forest Service's limited capacity to maintain the disturbance regimes needed for woodland, attempting to create woodland at Cooper Creek would only prevent woodland restoration at more appropriate sites within the Chattahoochee, where the agency would likely have a higher degree of reaching targeted goals.

[13] *See, e.g.*, Dominick DellaSala et al., *A Citizen's Call For Ecological Forest Restoration: Forest Restoration Principles And Criteria*, Ecological Restoration 21:1 (March 2003) (available at http://library.eri.nau.edu/gsdl/collect/erilibra/archives/HASH0180.dir/doc.pdf); Society for Ecological Restoration International (SER) Science & Policy Working Group, *The SER International Primer on Ecological Restoration*.

iv. Oak/oak pine thinning

As described in the EA, this treatment is unlikely to achieve its stated goals of improving stand health and regenerating oaks. However, it could easily be modified to meet those goals, assuming appropriate stands are selected. Some of the issues with the treatment derive from the particular stands selected, and those will be addressed in our comments on individual stands (see below). Increasing the basal area retained to 80-100 ft^2/acres would improve the treatment by better mimicking natural disturbance regimes and making oak regeneration much more likely.

Disturbances in mature lower slope or fairly mesic forests, such as those targeted by the proposed treatment, consist primarily of gaps of one or a few trees produced by weather events, often wind storms. In such cases, closed canopy forest entirely surrounds the gaps. Removing a third or less of the existing canopy would mimic that disturbance and produce a gradient of light levels within the stand. The resulting light gradient would create a variety of niches and maximize short-term diversity. Removing a third or less would also produce the structure that more bird species are adapted to. However, if the stands are allowed to age naturally, this treatment would still be unnecessary, because natural gap formation is inevitable. But taking the stands down to 60-80 basal area as proposed would create high light conditions across the entire stand and greatly reduce the ability for gaps to occur naturally in the future. Overall the stand will be healthier if basal area targets are higher.

Oaks require low levels of competition and intermediate to high light levels for regeneration. As proposed, these treatments would create high enough light levels for highly competitive, fast-growing early successional species like white pine and tuliptree to regenerate and likely out-compete any oak seedlings. This issue is particularly problematic, because treatments are proposed outside the prescribed burn units. The seedling number of early successional species could easily overwhelm herbicide treatments. Even in areas that are burned, fires are unlikely to eliminate all of the white pine and tuliptree on such sites. The reduced thinning we suggest (80-100 BA) would maintain enough shade to suppress early successional species while still providing enough light for advanced oak regeneration to develop. When gaps naturally occur, the oaks would then have a height advantage that would allow them to out-compete early successional species. Maintaining higher basal areas would also reduce or eliminate the need to cut mature oaks to meet the target basal area, so this group of important species for wildlife would be better maintained both now and in the future.

Deliberately favoring white and northern red oak also seems to run counter to the forest health goals of this treatment. Oak species are ecologically distinct with different species being adapted to different site and microsite conditions. The presence of chestnut oak in a mixed stand indicates it is the best adapted species to the site/microsite conditions. Deliberately favoring other oaks over it will likely result in a stand that is less adapted to local conditions and more vulnerable to pathogens and climate extremes. This situation will probably become worse over time, because climate change is expected to intensify droughts in the Southern Appalachians.[14] *Favoring white and northern red oak over chestnut oak will likely result in forests that are less resilient to climate change;* instead of increasing forest health, this treatment will reduce forest

[14] Laseter, SH, CR Ford, JM Vose, and LW Swift jr. 2012. Long-term temperature and precipitation trends at the Coweeta Hydrologic Laboratory, Otto, North Carolina, USA. *Hydrology Research* 43(6):890-901.

health. Chestnut oak is one of the most drought tolerant oaks. We see no justification for favoring white and northern red oak over chestnut oak in this area, particularly when one of the goals of this project is to increase the health and resilience of these stands to climate change.

v. Pine/pine-oak thinning

This treatment has issues similar to the oak/oak-pine thinning regarding the amount of basal area retained and potential for oak regeneration. We have additional concerns about the sites selected for this treatment. This treatment specifically targets white pine, red maple, and tuliptree, and the increase of white pine and red maple on uplands over the past century is well known. However, many of the stands are in acidic mesic and riparian areas where all of the targeted species have historically occurred and are well adapted. In fact, these treatments border the entire length on Bryant Creek in the project area as well as parts of Pretty Branch and several smaller streams. Removing white pine, red maple, and tuliptree on such sites will not "restore oak to its native sites". Hence, the pine/oak thinning treatment should be restricted to dry upland sites and planted white pine stands.

vi. Canopy gap thinning

Like the thinning treatments, the purpose of this treatment does not seem to match the design of the treatment. Birds in this region evolved with disturbances that create gaps, holes in a closed canopy, in mesic forests. The Draft EA notes that "'patchiness' of canopy caused by the death of single or multiple trees in small groups" contributes to forests "rich in diversity." EA at 100. These natural gaps were not in open canopies, as is proposed in this project, and were much smaller than the gaps in this treatment. If the goal is to produce the structural diversity that will benefit birds the most, we wonder why the Forest Service does not mimic the kind of structure with which these birds evolved with.

As designed, this treatment will ensure continued failure of oak regeneration rather than promote oak regeneration, the stated goal. This treatment will produce light levels high enough for fast-growing early successional species to easily out compete oak trees. None of this treatment occurs within prescribed burn units, so oaks will have to compete with faster-growing species. If true canopy gaps were created that would be optimal for forest birds, light levels would be sufficient for oak regeneration while not allowing early successional species to become established.

vii. Midstory

This treatment is overwhelmingly concentrated in Prescription 7.E.1 which is classified as "unsuitable" for timber production under the National Forest Management Act ("NFMA"). The Draft EA only provides one justification for this treatment – preparation for "stand regeneration." EA at 13. In other words, this treatment is advanced site preparation for a future commercial timber sale. As discussed below (*see, infra*, Section VIII(i)) this treatment cannot be implemented in Prescription 7.E.1 consistent with designation as "unsuitable" for timber production under NFMA.

viii. Release

This treatment has great potential to produce both long- and short-term benefits. It will immediately produce canopy gaps and over the long term shift the species composition back towards a more natural mix. We suggest that the treatment be carried out with only chainsaw felling, unless there is a safety risk.

ix. ESFH

One of the stated purposes of the project is to "[e]ncourage regeneration of Oak and Oak-Pine Forest communities." EA at 37. ForestWatch agrees with the need to encourage oak regeneration but doubts that harvesting mature oaks will have a beneficial effect on hard mast production, even in the long run.

It may be argued that there will be many acres of oak forest remaining in the project area after project implementation. However, that argument takes only a short-term view. The scientific literature has thoroughly documented the scarcity of oak reproduction across much of the eastern United States.[15] In our visits to the project area, we found that while mature oaks may be widespread, advance regeneration is consistently scarce. Hence, oaks will likely decline in this area over the coming decades. Harvesting mature oak stands would then be sacrificing current mast production for the hope of an increase in mast production beginning many decades in the future. That choice seems especially odd if the goal is to improve wildlife habitat, not hasten its deterioration. In particular, this concern applies to stands 398-28, 399-12, 504-15, 504-21, 505-07, and 505-19 (see attached stand-specific comments).

We were surprised by the claims that cutting young (less than 40 years old) stands would provide limited benefit to wildlife and produce insufficient regeneration. These claims rest on a false premise, and are inconsistent with research on temperate forest regeneration. Limits to wildlife use and regeneration purportedly result from boles and other slash left on site, which is in turn a consequence of the stands being too young to harvest commercially. While the trees in many young stands are too small to harvest, many other young stands already have commercial size trees. LiDAR data indicates that over 250 acres of young forest in the analysis area are already dominated by trees 50 to 70 feet tall. This would be enough acreage to replace all the proposed early successional forest habitat. Trees in those stands are large enough for commercial harvest, and commercial harvests are planned in stands with the same canopy height range, such as 505-007.

To determine if concerns about wildlife use of non-commercially harvested stands were valid, we reviewed the scientific literature. We could not find support for either claim. Slash appears to restrict the movement of only large ungulates,[16,17,18,19,20] suggesting that of the many

[15] Robert L. Johnson. 1979. Adequate Oak Regeneration – A Problem Without a Solution? Management and Utilization of Oak, Proceedings 7th Annual Hardwood Symposium of the Hardwood Research Council. Cashiers, N.C. 59-65.

[16] de Chantal, M and A Granstrom. 2007. Aggregations of dead wood after wildfire act as browsing refugia for seedlings of *Populus tremula* and *Salix caprea*. *Forest Ecology and Management*. 250(1-2):3-8

[17] Krueger LM and CJ Peterson. 2006. Effects of white-tailed deer on *Tsuga canadensis* regeneration: evidence of microsites as refugia from browsing. *The American Midland Naturalist* 156(2):353-362.

species using early successional habitats in Cooper Creek, only white-tailed deer would be impacted. These studies refer to "microsites" such as piles of logs or treefall mounds (which would not be produced by non-commercial treatments) where tree seedling and saplings experience reduced browsing. As controls they often used seedlings and saplings at the same sites but outside of these protected microsites. The control seedlings are consistently browsed. Taken together, these studies imply only small parts of stands would be inaccessible to deer, and that accessible vegetation would still be enough to meet deer needs. Any loss of browse for deer would also have to be weighed against the loss of mast production from cutting mature stands. Studies of bird use of naturally disturbed sites such as tornado swaths suggest that fallen trees do not restrict use.[21] We did not find any other research documenting or suggesting that slash restricts wildlife use of early successional forest habitat. If you have data or studies to suggest otherwise, we would appreciate seeing those results.

All of the native wildlife in this region pre-dates commercial timber harvesting. Disturbances with abundant slash are the norm for these species. Any species dependent on early successional habitat that could not use such areas would have gone extinct long ago.

Studies of regeneration in the context of disturbance and slash document sufficient regeneration across a wide variety of temperate forest settings. We did not find any studies that directly compared the amount of regeneration in commercially and non-commercially logged stands, but salvage logging versus no treatment following wind disturbances provides a close analog. One study in Europe that examined windthrow gaps in a wide variety of forests found salvage logging sometimes increased regeneration, but soil pH and ground vegetation cover were better predictors of sapling density 11 to 21 years after disturbance.[22] Another study in western Tennessee found that two years after a wind disturbance, herbaceous cover and tree seedling density did not differ between salvaged and unsalvaged areas.[23] An unsalvaged forest damaged by a tornado in Kentucky also had no shortage of tree regeneration.[24] Finally, a comparison of loblolly pine stands in Texas subject to either southern pine beetle mortality or cut-and-leave control procedures found "abundant hardwood regeneration" in both stands.[25] On the CONF, the 2011 tornado swath has abundant regeneration in areas that were not salvaged. We can find no

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[18] Krueger LM and CJ Peterson. 2009. Effects of woody debris and ferns on herb-layer vegetation and deer herbivory in a Pennsylvania forest blowdown. *Ecoscience* 16(4):461-469.
[19] Long, ZT, WP Carson, and CJ Peterson. 1998. Can disturbance create refugia from herbivores: an example with hemlock regeneration on treefall mounds. *Journal of the Torrey Botanical Society* 125(2):165-168.
[20] Ripple, WJ and EJ Larsen. 2001. The role of postfire coarse woody debris in aspen regeneration. *Western Journal of Applied Forestry* 16(2):61-64.
[21] Prather, JW and KG Smith. 2003. Effects of tornado damage on forest bird populations in the Arkansas Ozarks. *The Southwestern Naturalist* 48(2):292-297.
[22] Kramer K, P Brang, H Bachofen, H Bugmann, and T Wohlgemuth. 2014. Site factors are more important than salvage logging for tree regeneration after wind disturbance in Central European forests. *Forest Ecology and Management* 331:116-128
[23] Peterson, CJ and AD Leach. 2008. Salvage logging after windthrow alters microsite diversity, abundance and environment, but not vegetation. *Forestry* 81(3):361-376.
[24] Held, ME, S Jones-Held, and JE Winstead. 1998. Forest community structure and tornado damage in an old-growth system in northern Kentucky. *Castanea* 63(4)474-481.
[25] Coleman, TW, SR Clarke, JR Meeker, and LK Rieske. 2008. Forest composition following overstory mortality from southern pine beetle and associated treatments. *Canadian Journal of Forest Research* 38(6):1406-1418.

evidence to support the assertion that "material left on the ground would substantially impede the regeneration of the stand."

The wildlife value of early successional forest habitat produced by cutting young stands is not different in any meaningful way from that produced by cutting mature stands. Stands less than 40 years old have value to wildlife, but not as much as mature stands (see our scoping comments). Hence, these younger stands should be considered a higher priority for management, particularly since the ecological departure analysis also identified consistent shortages of stands in the oldest age classes. *The practicality of this alternative (cutting these younger stands) is even imbedded in Alternative 3; stand 398-002 is proposed for commercial regeneration harvest, but is only 35 years old. This approach should be the default.*

In choosing where to apply the treatment, effects on future ESFH formation should be considered. Harvesting young stands for ESFH has little effect on future ESFH formation while harvesting mature stands will decrease natural ESFH formation over the next century. We believe the treatment should not be part of the problem.

Among the stands proposed for ESFH treatment, 398-32, 504-31, 505-26 and the degraded part of 505-7 are good choices. These stands are either young or planted. They currently have low diversity and provide little in the way of wildlife value (see attached stand comments for details).

We also note that the treatment includes planting oaks, and that four of the stands are in prescribed burn units. Are there plans to plant oaks in those stands? Planted specimens will be burned in the fires. The stress of planting also makes them likely to resprout less consistently and vigorously than naturally occurring sprouts in the area. Given that these stands occur adjacent to stands with mature oaks that should supply sufficient acorns, encouraging and protecting naturally occurring oak seedlings seems more likely to re-establish oak on these sites.

In Alternative 3, daylighting is proposed on two closed wildlife opening access roads to provide additional early successional forest habitat. Wildlife openings often harbor multiple non-native invasive species (NNIS), and canopy removal provides opportunities for NNIS to become established. The linear nature of the opening creates corridors for NNIS spread. The potential for transport by vehicles also make roadside NNIS populations particularly problematic. *Daylighting should not be carried out unless the Forest Service commits to regular monitoring and eradication of NNIS in these areas and the wildlife openings for the duration of the treatment.*

Finally, ESFH treatments are not the only source of ESH in the project area. Other treatments, particularly woodland treatments and prescribed fires, will contribute ESH. Woodland and ESH treatments will cover nearly 20% of the 5,083-acre treatment area. We understand that woodland may not technically contribute to Forest Plan objectives for early successional forest, but it does provide early successional habitat benefits for wildlife and must be considered in that context. Spreading out the ESH would better meet plan goals and avoid issues with concentrated treatments described below.

IV. OLD-GROWTH

i. Existing old-growth and old-growth surveys

We were disturbed to see that both alternatives still call for cutting existing old-growth. In a meeting on 6/22/15, we notified the district that old-growth forest occupies the central part of 633-018 and extends slightly into 633-019. This forest is easily identifiable as existing old-growth. The circa 1900 road used to log the adjacent area stops roughly 100 yards short of the stand edge. Trees within the stand are somewhat larger and obviously much older than the trees in the surrounding forest. We encountered no evidence of direct human disturbance within the stand. This stand or patch of approximately eight acres[26] meets Region 8 old-growth criteria and should be added to the stands designated for old-growth in this project. If the District insists upon proposing cutting here, a revised EA must disclose and consider the potentially significant environmental effects of cutting existing old-growth (see further discussion below).

This stand may have eluded detection due to deficiencies in the District's old-growth survey. At our request, the District provided a copy of its "Old-growth Analysis Process" paper for this project. According to that document, the initial step in the survey was to "ID all stands with vegetation management treatment planned (excluding fire) that were within 10 years of meeting Old-growth age requirement according to historic data (CISC)." However, the table of surveyed stands omits multiple treatment stands that CISC identifies as within 10 years of old-growth age requirements, including 633-018 (origin year 1880).

We suggest that surveys for old-growth should also consider landscape positions that early logging operations often avoided, such as remote, steep, south- and west-facing slopes. This is particularly useful, because stand ages are less reliable for older stands (*e.g.* 633-019 is listed as originating in 1960). That strategy would likely also have found the old-growth in 633-018. We prioritized ground-truthing that stand, because it is the single steepest treatment stand in the entire project.

The District should conduct additional old-growth surveys in all treatment stands within 10 years of the old-growth criteria and steep stands with difficult access from historic routes. Once all surveys are complete, we request an opportunity to review the survey data and discuss the survey results with the district. We are interested in gaining a better understanding of the District's approach to old-growth surveys and survey methods.

ii. Stands designated for old-growth

[26] The Forest Service's "Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region," Forestry Report R8-FR 62 (June 1997) (hereafter "Old Growth Guidance" or "Guidance") defines small old-growth patches as patches of 1-99 acres. Guidance at 18. Therefore, an entire "stand," as that stand presently is delineated in CISC/FSVeg, need not meet old-growth criteria in order for a portion of the stand(s) to be identified as existing old-growth. The district should ensure that all patches of existing old-growth greater than 1 acre in size are identified. Once identified, the district may consider its options for managing old-growth sites, but it is essential that all existing old-growth patches first be properly identified. The Plan states that "The minimum old-growth block size for tracking purposes is ten acres." Plan at 2-17. However, the minimum size for *tracking* purposes does not prevent the CONF from *identifying* in field surveys existing old-growth patches less than 10 acres and then considering how to manage them.

We are pleased to see the District proposed to designate over 5% of each 6th-level watershed for old-growth management (i.e. future old-growth patches). Many of the stands designated are fine choices; they contain mature forest that is beginning to regain old-growth attributes and normal ecological functioning. The designated stands also include a wide variety of productivity levels and aspects. Unfortunately, they are not as diverse in elevation or geographic distribution throughout the watersheds and we expect multiple old growth community types are omitted. They are concentrated in the highest elevation parts of the analysis area, and there are no stands designated at the lowest elevations or adjacent to any of the larger streams. The proposed future old-growth patches in Cooper Creek watershed are all located in the eastern portion of the watershed, except for one stand. National forest lands comprise over 90% of the Cooper Creek watershed; there is ample opportunity for excellent geographic distribution and representation of old-growth community types and forest types throughout the watershed, and there are very good candidate sites that should be considered.

Another issue with the designated stands is at least three of them were largely clear-cut, likely in the 1980's. These stands, 395-010, 395-016, and 395-022, are all located on the north side of Coosa Bald. Conversely, the four stands in the analysis area that have been previously identified in Georgia ForestWatch surveys as existing old-growth are not proposed to be allocated to old-growth management. These old-growth stands occupy parts of 398-024, 402-014, 403-007, 630-006, 630-007, 632-001, 633-033, 633-039, and 633-041. The stands containing clear-cuts should be replaced by these stands, and lower elevation stands along Cooper Creek or its tributaries should be added. Additional high-quality stands identified in Georgia ForestWatch comments submitted June 29, 2015, should be considered and designated as future old-growth patches, including 399-62, and 398-9.

iii. Potential for future old-growth

The Draft EA consistently understates the impact of this project on the potential for future old-growth. Continuity of ecological process and lack of human disturbance are at the heart of the myriad of definitions of old-growth. As described above, mechanical treatments will disrupt ecological processes such as snag formation and alter nutrient cycling, and temporary roads and skid trails will leave indelible signs of human impact. These treatments will impact roughly 34% of the treatment area, and hundreds of additional acres were clear-cut in the 1970s and 1980s. Exacerbating the extent of the treatments, they disproportionately focus on acidic cove and dry oak ecosystems, so these ecosystems will have little opportunity to transition to old-growth within the project area.

Treatments also threaten the old-growth potential of 504-009, the stand that the old-growth survey identified as having the strongest old-growth characteristics. Even if the oldest trees are targeted for retention, reducing the basal area in parts of the stand to 15 to 30 ft^2/acre will reduce the number of old trees below the threshold for old-growth. Prescribed fires also are not likely to remove all the signs of the thinning. Even high intensity, stand replacing wildfires typically leave over 90% of the biomass on site. That means that lower intensity prescribed fires will not consume cut boles or cut stumps, which are likely to persist in places for decades. This level of extensive disturbance would conflict with old-growth characteristics.

According to the ecological departure analysis, as presented in the Draft EA, most forest ecosystems here are lacking *both* old-growth and open conditions (early succession and/or open canopies). The Draft EA does not address, however, the consequences of creating open conditions in many of the mature stands that are closest to reaching old-growth, thereby reducing the amount of older stands that will soon develop into old-growth, to help close that gap in the departure analysis as well. The Draft EA asserts the project won't negatively affect old-growth development because trees will be cut on only 6% of the project area. We are unsure what the Draft EA could be referencing, because approximately 33% of the project area would receive commercial harvest under Alternative 2. Moreover, this focus on percentages of the entire project area fails to identify and grapple with the fact that the trees to be cut will be taken, in part, from many of the oldest stands with greatest ecological value in the project area, which are closest to meeting old-growth conditions. It also fails to address the fact that cutting is concentrated on particular ecosystems, thereby retarding achievement of old-growth conditions in those ecosystems to a greater extent than in the others.

iv. Cutting old-growth may have significant environmental impacts which must be disclosed and considered in a revised EA and which may require an EIS.

Given the rarity of old-growth in the Southern Appalachians and the little existing old-growth identified on the CONF, we firmly believe that any existing old-growth should be protected and not logged. The CONF Forest Plan directs that existing old-growth forest be prioritized for protection in old-growth patches. *See* Plan at 2-17 (standards FW-46 and 49). While the Plan seems to permit woodland creation in old-growth (*see* Plan at 2-18), altering existing old-growth forest may still have significant impacts which must be disclosed and analyzed, and alternatives considered, under NEPA.

Although "[m]uch is still unknown" about old-growth, the Forest Service has recognized that old-growth forests hold biological, ecological, scientific, cultural, aesthetic, and spiritual values, which increase in importance because old-growth is so rare in the Southern Appalachians. Regional Guidance at 1, 12-14. As the Forest Service has recognized, old-growth communities "are rare or largely absent" in Southeastern forests, perhaps occupying about one half of one percent (0.5%) of the total forest acreage; old-growth is "the missing portion" of southern forest ecosystems. Regional Guidance at 1. Old-growth takes centuries to develop, so it is irreplaceable on a human time scale if it is replaceable at all. *See Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1382 (9th Cir. 1998); *Idaho Sporting Congress v. Alexander*, 222 F.3d 562 (9th Cir. 2000). Accordingly, cutting old-growth implicates many of the factors of significant impacts, tending to show that logging old-growth is likely to significantly affect the quality of the human environment, requiring an EIS. *See* 42 U.S.C. § 4332(2)(c); 40 C.F.R. § 1508.27(b)(3), (5), (8) (providing that an EIS is more likely to be required when the resource affected is unique, culturally or scientifically significant, or uncertain). The need for an EIS would actually become greater if the District continues to dispute whether the stands identified by Georgia ForestWatch are existing old-growth. *See* 40 C.F.R. § 1508.27(b)(4) ("controversial" effects are more likely to require an EIS; *see, infra*, Section XV).

v. Forest Plan and Regional Old-growth Guidance

1) Possible inaccuracies in old-growth surveys and needs for additional analysis and consideration.

As noted above, the District should complete surveys in the remaining stands that may be existing old-growth. We also encourage the District to further explain the basis for determining that 504-009 is not existing old-growth. This stand was excluded based on human disturbance, but there is no explanation in the Draft EA or the Old-growth Analysis process paper of what specifically the human disturbances were and why they were determined to excessively conflict with old-growth characteristics. As the Guidance explained:

> "… the acceptable level of past human disturbance can prove difficult to quantify. For this reason, a 'coarse, non-quantified, and common sense' approach will be used when considering past human disturbance. For a stand to be considered as existing old growth, no obvious evidence of past human disturbance which conflicts with the old-growth characteristics of the area should be present. Recent vegetative management activities which maintain characteristics consistent with old growth probably would not disqualify an area as existing old growth. Examples of these activities may include commercial thinnings, mid-story treatments, prescribed fire, or interpretive trails."

2) The analysis and designation of stands for old-growth management is not adequate under the Forest Plan and Regional Guidance.

To implement the Old-growth Guidance, the Forest Plan directs for the CONF to "Provide a well-distributed and representative network of large, medium and small potential old-growth blocks in the Blue Ridge Mountains and Southern Ridge and Valley ecological sections." Plan at 2-16. The Plan sets up the beginning of the old-growth network by identifying large and medium old-growth patches (which the plan calls old-growth "blocks") in old-growth management prescriptions and other prescriptions compatible with the protection or development of old-growth conditions. Plan at D-16 to 17. The old-growth network will be filled out through the identification of small patches of old-growth at the project level, so that at least 5% of every 6th level watershed is allocated to old-growth management. Plan at 2-16 to 17; Plan Appx. D-17 to 18.

The Forest Plan and Regional Guidance set forth several factors which should be considered in selecting the small patches, most of which are not considered and analyzed in the draft EA. Therefore, it is not evident that the District has satisfied the Forest Plan and Regional Guidance direction for the CONF's old-growth network. In fact, it appears the patches do not meet the direction. Moreover, this is another example of the District's repeated choices, with this project, to ignore Plan direction, agency guidance, or other information which expands upon or aids in the interpretation of its obligations under the Forest Plan and other authorities.

In order to achieve the well-distributed and representative network required by the Plan and the Guidance, the Plan sets priorities for identifying small patches. Plan at 2-17 to 18; Plan Appx. D-17 to 18. First, identify existing old-growth. Plan at 2-17. Second, identify "stands that

most-nearly meet the criteria for existing old-growth." *Id.* Third, identify patches "with decreasing preference with increasing departure from the old-growth criteria; that is, quality is more important than block size or distribution within the watershed." *Id.* Finally, in the Blue Ridge, identify patches based on representation of Old-Growth (OG) Type, in the order of: (1) river floodplain hardwood, (2) dry and dry-mesic oak-pine, (3) conifer-northern hardwood, and (4) all others. Plan at 2-18.

The Draft EA does not consider these factors and work through this prioritized analysis as directed by the Forest Plan. As far as we can tell from the information provided, the existing old-growth forest identified by Georgia ForestWatch and the nearly old-growth stands identified by the District were not considered for allocation to an old-growth patch (except for one stand), despite the clear Plan direction to identify small old-growth patches first in existing old-growth and second in forest most nearly old-growth. We cannot tell whether or how much of the possible old-growth in the project area, *see* Table 3.9.3, was actually proposed for old-growth patches in Table 3.9.4. Other high-quality stands identified by Georgia ForestWatch were not considered for small old-growth patches, either (as discussed above), despite the Plan direction that quality is the next important factor. And several young stands, not likely to attain old-growth conditions any time soon, are proposed for old-growth. These stands should be replaced by more suitable candidates.

The Draft EA also does not consider additional direction provided by the Plan and Regional Guidance to select small patches based on the representation, distribution, and linkages or connectivity of the patches of each OG Type. *See* Guidance at 14-20, 26-27; *see* Plan at Appx. D-2 to 4, D-17 to 18. Yet the Draft EA does not discuss geographic distribution of patches at all and, in fact, the proposed old-growth patches are not adequately distributed. For example, in the Cooper Creek watershed, all proposed patches are concentrated at the eastern end of the watershed, at higher elevations. The Draft EA does not discuss the representation of the various OG Types and disclose the OG Types of the proposed old-growth patches in the watershed. Therefore we cannot tell whether or how the proposed old-growth patches fill gaps in the representation of the various OG Types in the network. We doubt that they contain a representative distribution of OG Types, given that they are all located in higher elevations.

Finally, we wish to express our consternation that the District has touted this project based on the claim that it sets aside a large amount of forest for old-growth management.[27] This creates the wrong impression, because most of the forest identified for old-growth management already has a considerable level of protection. Over 50% of the proposed old-growth patches are located in the Coosa Bald National Scenic Area, and another 30% are in existing Wilderness. Wilderness already is permanently protected and already was considered a large old-growth block in the Plan, to boot. While identifying old-growth patches in Coosa Bald may give them some extra protection, this Congressionally-designated area already is managed in a very limited

[27] For example, project webpage at **www.fs.usda.gov/detailfull/conf/home/?cid=FSEPRD490276&width=full**, and flyer at **http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/98791_FSPLT3_2664496.pdf.** Describing this project as largely utilizing prescribed fire ("the single largest tool used to restore health in the watershed") is also misleading – those burns have already been authorized under separate NEPA documents.

way. It is duplicative and contrary to the letter and spirit of the Plan and Guidance direction for watershed-level old-growth networks to place all but one of the new old-growth patches in Cooper Creek watershed in Coosa Bald, neighboring the large block of old-growth in the Wilderness, concentrated at one end of the project area.

V. PRESCRIBED FIRE

Prescribed fire is an inherently powerful management tool. A single day's work can dramatically alter 1,000 acres of forest for decades to come. Hence, careless use of prescribed fire could do great damage. With that in mind, we believe the agency should take a cautious approach to transitioning from dormant season burns to growing season burns, especially since this change in treatment will impact nearly half of a high quality watershed.

We suggest that no growing seasons burns be conducted in units that have not already had dormant season burns. Phasing in the burns will allow organisms to gradually adjust and shift resources farther belowground. This condition has been agreed to in other projects. Growing season burns should also be done twice in the smallest burn unit before being implemented across all 11,800 acres. Those first two burns should be monitored for biological effects beyond standard prescribed burn monitoring, including effects on duff layer thickness, forest-floor dwelling animals, and invasion of exotic species. More detailed monitoring (both pre- and post-burn) would help identify any adverse effects early before they potentially impact nearly half of a high quality watershed.

The 2010 scoping for the Fish Knob, Cliff Ridge, Dunsmore Mountain, Coosa Bald, and Bryant Creek burn units (most of the prescribed fire units in this project) describes the burns as "moderate to low intensity surface fire". Under Alternatives 2 and 3, "high to moderate fire intensities are desired for the south and west-facing xeric ridges, with moderate intensity fire on the midslopes." EA at 16, 25. While the Draft EA describes why changing from dormant season to growing season burns could be beneficial, no justification is provided for the increase in fire intensity. Fire intensity can strongly impact vegetation, soils, water quality, air quality, and CO_2 emissions, so we believe such large changes in the prescribed fire plans should not completed without thorough justification, public discussion, and monitoring if implemented.

Ubiquitous burning homogenizes the forest just as complete fire suppression does. Without refuges, fire-sensitive species will be lost from the forest. Invertebrates and vertebrates living in the leaf litter are particularly vulnerable. These issues of extent and homogeneity can be addressed by carefully implementing prescribed fire in a way that mimics natural fire. If fires are set from only a few ignition points on ridges and south-facing slopes, fire patterns should mimic those that occur naturally. Limiting the number of ignition points is important for preventing unnaturally intense and widespread fires. Targeting ignitions on ridgelines and south-facing slopes focuses fire on naturally fire-prone areas. With those methods, fire would likely not penetrate mesic areas, which could be severely damaged by fire, because fire intensity on lower slopes would not be unusually intense. This method of burning would also create both temporal and spatial heterogeneity. Lower slopes would burn in some years and not in others - depending on weather and fuel conditions - thus producing heterogeneity in the fire return interval. That heterogeneity would allow different species adapted to the full continuum of fire return intervals

to survive rather than only those adapted to frequent fire or no fire. Pockets within burn areas would also escape. Those areas would add heterogeneity in and of themselves and help sustain biodiversity by helping re-colonization of adjacent areas.

i. Soil health considerations

The Draft EA states that "the importance of retaining organic matter to soils is included in objectives of prescribed fire prescriptions by identifying desired burning conditions that consume above ground fuels in low intensity burning, with low severity. The desired result is to burn the L-layer or Oi layer." EA at 49. The EA goes on to state that "maintenance of the Oe + Oa layers is critical for site nutrient retention (nitrogen and carbon) and soil stabilization. Burning to keep Oe + Oa layers intact provides protection to the soil surface from erosion loss. This desired condition meets the direction of the Forest Plan Standard FW 202 (page 2-55 Forest Plan); "*Prescribed burning, other than slash burns, will be designed to retain litter and/or duff material on at least 85% of the project area, excluding fire lines*." *Id.*

Alternatives 2 and 3 are proposing to change the seasonality of burn from dormant to dormant + growing season, and to use high to moderate fire intensities on the south- and west-facing xeric ridges, with moderate fire intensity on the midslopes. EA at 16, 25. We caution doing this without monitoring the Oi and Oe + Oa (duff) layers over the long-term since both fire severity and intensity will impact consumption of both the litter and duff layers, since even low intensity fires have been found to reduce mass, carbon and nitrogen of the duff layer by almost 50%.[28] In another study, forest floor N in the Oi and Oe + Oa layers were reduced two years after a fell-and-burn treatment. [29] These long-term effects of prescribed burns on soil carbon and nitrogen cycles, overall soil health, and tree growth and health must be monitored to ensure compliance with the Forest Plan.

We believe the Forest Service intends to implement some of these concepts in their prescribed burns. However, the Draft EA provides few details on how burns will be implemented. Since the people who ultimately conduct some of the burns may not currently be involved and burns must be carefully planned and implemented in order to achieve the desired result, the final Environmental Assessment/Environmental Impact State and draft decision should explicitly state details of how burns will be implemented.

VI. Non-Native Invasive Species

Non-native invasive species are a leading threat to biodiversity conservation. According to the Draft EA, the proposed actions in Alternatives 2 and 3 "would increase the risk of introduction, establishment, and spread of non-native invasive species compared to the No Action Alternative by increasing the amount of ground disturbance in the project area." EA at

[28] Elliott KJ, JM Vose, BD Clinton, and JD Knoepp. 2004. Effects of understory burning in a mesic mixed-oak forest of the Southern Appalachians. Pp. 272-283 in RT Engstromm, KE Galley, and WJ de Groot (eds.). Proceedings of the 22nd Tall Timbers Fire Ecology Conference: Fire in Temperate, Borea, and Montane Ecosystems. Tall Timbers Research Station, Tallahassee, Fl.

[29] Elliott KJ, JM Vose. and BD Clinton. 2002. Growth of eastern white pine (*Pinus strobus* L.) related to forest floor consumption by prescribed fire in the Southern Appalachians. *Southern Journal of Applied Forestry* Vol 26(1) 18-24.

162. Establishment and range expansion of NNIS are facilitated by disturbances, particularly anthropogenic disturbances, including fire, road building, logging and other forest-related management techniques. These disturbances often increase light levels, reduce competition for soil resources from native species, and/or increase seedling germination and establishment through changes in the soil microenvironment.

The Draft EA acknowledges the presence of various NNIS along road corridors, wildlife openings, campgrounds, and other disturbed areas in the Cooper Creek project area. It also identifies precautions that will be taken during road reconstruction/construction, and ground-disturbing activities such as temporary roads, log landings, and fire lines. EA at 161-162 and Appendix I. Monitoring Plan. However, it is unclear whether continued monitoring and mitigation activities would occur after all these ground-disturbing activities are completed, particularly within treatment areas and prescribed burn units. The Monitoring Plan focuses on "roadsides and along high risk habitats and adjacent areas (fire lines, roads, trails, log landings, skid trails, wildlife openings, etc."

As a measure of responsible land stewardship, the District should perform a comprehensive NNIS inventory, both pre- and post-treatment, in *all* the proposed treatment areas (vegetation management, daylighting and prescribed burns) to ensure that NNIS are not inadvertently spread into areas of the forest that are currently free of NNIS infestations. Monitoring and eradication of NNIS prior to any disturbance activity is important, but it must continue throughout the duration of the treatment. With the increase in prescribed burning throughout CONF over the last decade, and proposed changes in the seasonality and intensity of burning, monitoring for NNIS is particularly critical. Prescribed fire is being used in the Cooper Creek Watershed Project to open the canopy and expose mineral soil to promote regeneration/restoration of native oak/yellow pine forest types, with the highest intensities in woodlands. Unfortunately, some of the worst NNIS in the region require similar conditions for establishment.

The best protection a forest has against the invasion by NNIS is its closed canopy. The low light levels found in forest interiors prevent most NNIS from establishing. The closed canopy surrounding small-scale disturbances like tree fall gaps, helps protect against invasion by exotic species. Additionally, the transient nature of such small high light (gap) environments minimizes NNIS persistence and spread.

All the vegetation management, prescribed burn and ESFH treatments proposed in the Draft EA will open the forest canopy and increase the likelihood of NNIS spreading. Of the three alternatives, Alternative 1 (No Action) is the only alternative that is expected to have no direct or indirect effects on the spread of NNIS and no impact to habitats since it does not propose any ground disturbing activities.

The Forest Service recognizes that the most effective strategy against invasive species is to prevent them from being introduced and established (http://www.fs.fed.us/invasivespecies/prevention/index.shtml), identifying prevention of the introduction and establishment of noxious weed infestations as an agency objective (USDA – Forest Service Guide to Noxious Weed Prevention Practices, 2001). The first goal listed in the

Forest Service Guide is to incorporate weed prevention and control into project layout, design, alternative evaluation, and project decisions.

The final EA should: commit to NNIS monitoring and eradication; disclose the degree of success or lack thereof in eradicating or controlling NNIS in prior, similar projects on this Forest and the additional steps that will be taken if initial NNIS treatments are not successful; and commit that the project's vegetation management, daylighting and prescribed burning activities will not be implemented unless it is certain that any associated NNIS treatments can be carried out too. An NNIS mitigation plan is an essential part of this project, and NEPA requires the frank disclosure of the realistic likelihood of mitigation measures being successfully implemented and back-up plans in the event of poor results.[30]

VII. MONITORING

The Forest Plan "represents an adaptive management approach for the Chattahoochee-Oconee National Forests" and "[m]onitoring (and constant evaluation) is the heart of adaptive Management. Forest Plan at1-1 to 1-2. Monitoring, evaluation and adaptive management are particularly critical to the success of restoration projects. *See* FSM at § 2020.5 ("Adaptive management, monitoring, and evaluation are essential to ecological restoration."). By definition, adaptive management requires "clearly identified outcomes and monitoring to determine if management actions are meeting desired outcomes and if not, to facilitate management changes…." (*Id*.) The environmental analysis for this project should: (1) clearly define the reference condition, the existing condition and the desired condition for the proposed restoration and regeneration treatments; (2) set specific, measurable objectives for the vegetation structure and composition that the treatments will achieve; (3) commit to project-level monitoring that can and will measure whether and to what extent those objectives have been met; and (4) commit to evaluating the monitoring results, including considering the need to adjust later phases of this project and/or future projects.

The prescribed burning monitoring is particularly insufficient. The monitoring determines if the fires opened the canopy enough to create early successional habitat and restore woodland . EA at Appendix I – Monitoring Plan. This monitoring implies that lower intensity fires that did not open the canopy would be deemed a failure. However, such lower intensity fires better match historical fire patterns, and can return understory competition to historical levels, one of the most important benefits of reintroducing fire. The monitoring also glosses over potential harm by fires. No monitoring is planned specifically to determine if oak and pine saplings are killed by the fires or if fires are damaging mesic areas. A monitoring plan that can suggest only that more fire is needed but ignores potential harm is a recipe for future damaging fires. The prescribed burning monitoring plan needs to be amended to identify any damage

[30] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) (incomplete discussion of mitigation measures violates NEPA); *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) ("Without analytical data to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices."); *National Audubon Soc'y v. Hoffman*, 132 F.3d 7, 30 (2nd Cir. 1997) (Without "substantial evidence to support the efficacy" of the mitigation measure at issue in that case, including monitoring to determine how effective it was, and detailed alternatives in the event that it failed, the Forest Service's consideration of the proposed action was inadequate and violated NEPA).

caused by the proposed changes in the fires regime (growing season burns and higher intensity fires), including the spread of NNIS, loss of critical forest-floor wildlife (particularly amphibians), and impacts on aquatic species dependent on cool, clear headwaters, in particular native brook trout.

Even more deficient is the monitoring of the effectiveness of silvicultural treatments. There is none. Success is far from certain, so monitoring seems only prudent. Adaptive management, as required by the Forest Plan, is impossible without monitoring.

Finally, monitoring is at the heart of forest restoration. If forest restoration is being promoted as a means of recreating historical forest stand structure and ecological function (and ecological integrity) in ecosystems harvested by timber harvest and fire suppression, then monitoring is necessary to determine whether this ecological function and integrity has been met.[31] However, most federal forests that have undergone restoration treatments have lacked any systematic monitoring, thereby eliminating the ability to assess the efficacy of forest restoration efforts and learn from the experience.[32] Failure to conduct monitoring on forest restoration projects may lead to unintended long-term impacts and deviations from the restoration goal. Current financial constraints should not be allowed to eliminate ecosystem monitoring on forest restoration activities.

VIII. NFMA AND FOREST PLAN COMPLIANCE

i. Timber Harvest And Related Activities Proposed on Lands Unsuitable for Timber Production in Management Prescription 7.E.1

1). Introduction

Alternatives 2 and 3 contain substantial logging and related activities in management prescription 7.E.1, Dispersed Recreation Areas. The Forest Plan classified lands within 7.E.1 as unsuitable for timber production. Alternative 2 would entail about 850 acres of commercial logging and about 861 acres of non-commercial midstory treatment to prepare for future logging, as well as non-commercial vegetation management, in 7.E.1. Alternative 3 reduces this, but would still involve 327 acres of commercial harvest and 233 acres of midstory treatment, as well as 181 acres of other non-commercial activities, within 7.E.1. Commercial logging would also require system road reconstruction and maintenance, as well as construction of temporary roads, skid roads/trails, and log landings.

Specifically, Alternative 3 would include the following within 7.E.1:

- 101 acres of timber harvest (two-aged shelterwood with reserves harvest) to a low, 20 sq. ft. residual BA, to create "early successional habitat"

[31] DeLuca HD, GH Aplet, B Wilmer & J Burchfield. 2010. The unknown trajectory of forest restoration: A call for Ecosystem monitoring. *Journal of Forestry*. September, pp.288-295.

[32] US GENERAL ACCOUNTING OFFICE (GAO). 2006. *Wildland fire rehabilitation and restoration: Forest Service and BLM could benefit from improved information on status of needed work*. US Government Accountability Office, Washington DC. 43 pp.

- 226 acres of timber harvest (heavy thinning to residual 60-80 sq.ft. BA) to manage various oak and pine stands and to thin and create canopy gaps
- 233 acres of midstory treatment "in preparation for stand regeneration" in older oak forest (93 to 108 yrs. old)
- 104 acres of non-commercial canopy gap creation
- 77 acres of non-commercial release of desirable trees (crop tree release) in previously clearcut stands
- Reconstruct .25 mile segment of FSR 4 Mulky Gap Road (ML3) to accommodate timber haul, assume maintenance on remainder of road
- Reconstruct .75 mile segment of FSR 287 Gillespie Branch Road (ML2) to accommodate timber haul, assume maintenance on remainder of road
- Assume maintenance on FSR 4D Spencer Mountain Road (ML2)
- Locations of temporary roads are not disclosed, however, we assume some would be needed within 7.E.1, as not all stands proposed for commercial harvest are adjacent to existing roads.

The extensive vegetation management, of various kinds for various reasons, proposed on unsuitable lands – 741 acres in Alternative 3 – without explanation suggests the District has given little regard for the constraints of this prescription. While this attitude is worrisome, we primarily are concerned with and object to the commercial harvest and midstory treatment in preparation for future harvest and will focus the following discussion on those activities.

Our scoping comments raised a number of concerns regarding timber harvest and related activities proposed in 7.E.1, because the Forest Plan classified those lands as unsuitable for timber production. Among other points, we explained our view that the commercial harvest and midstory treatment do not comply with the NFMA and the Forest Plan. We urged the District to drop those activities from the proposed project. If the District insisted on attempting to proceed with them, we stated our belief that, under NEPA and the National Forest Management Act (NFMA), the EA must forthrightly disclose the fact that timber harvest and related activities were proposed on unsuitable lands in 7.E.1 and address whether and how those activities are consistent with the NFMA and the Forest Plan. We also urged the District to consider alternatives that avoided commercial logging and preparation for future logging in 7.E.1, given that the lands are unsuitable for timber production and in light of the prescription's emphasis on recreation, scenic views, and water quality.

Instead, the Draft EA makes only one oblique reference to this issue at all, in the course of rejecting our request to consider alternatives, with the bald assertion – and non-sequitur – that logging is permitted in 7.E.1:

> "Commercial logging and non-commercial activities are permitted in Management Prescriptions 7.E.1(Dispersed Recreation Areas) and 11 (Riparian Corridors) to meet Forest Plan Goals and Objectives which would be substantially reduced if restricted in this manner." EA at 28.

For the reasons further discussed below, we continue to believe that the proposed harvest does not comply with the NFMA and the Forest Plan and should be dropped from the project.

Certainly the Draft EA has not shown such harvest is proper. If the District insists upon proceeding with these activities, NEPA and the NFMA require that the Draft EA be revised to disclose and address the commercial logging, and activities to prepare for future logging, proposed in 7.E.1 and the consistency of such activities with the NFMA and the Forest Plan and to consider alternatives that don't include such activities. The revised Draft EA should be offered for another round of public review and comment on this information, which is fundamental to the project's development and analysis, before developing and releasing the draft decision.

2) The NFMA generally prohibits timber harvesting on lands unsuitable for timber production, with certain exceptions which this proposal does not fit.

All projects or activities in national forests must be consistent with the forest management plan. 16 U.S.C. § 1604(i); *see, e.g., Sierra Club v. Martin*, 168 F.3d 1, 4-5 (11th Cir. 1999); *Cherokee Forest Voices v. U.S. Forest Serv.*, 182 F. App'x 488 (6th Cir. 2006). The NFMA directs the Forest Service, when developing forest plans, to "identify lands within the management area which are not suited for timber production, considering physical, economic, and other pertinent factors to the extent feasible …." 16 U.S.C. § 1604(k). The agency "shall assure that, except for salvage sales or sales necessitated to protect other multiple-use values, no timber harvesting shall occur on such lands . . ..." *Id.* Note that, once lands are identified as unsuitable for timber production, the NFMA prohibits all timber harvest, of any type, there, except under two narrow circumstances: (1) salvage sales or (2) "sales necessitated to protect other multiple use values." 16 U.S.C. §1604(k).

Other than timber, multiple uses and values include: outdoor recreation, streams and watersheds, wildlife, fish, the diversity of plant and animal communities, and soil productivity. *See* 16 U.S.C. § 528 (1960); § 1604(e), § 1604(g)(3). All of these are likely to be adversely affected, not protected or enhanced, by logging proposed in 7.E.1.

The CONF Forest Plan classified lands within prescription 7.E.1, Dispersed Recreation Areas, as "unsuitable for timber production; not appropriate." Forest Plan at 3-125. The Forest Plan's Appendix F explains that 7.E.1 and other "not appropriate" lands were identified as unsuitable for timber production because "a planned, periodic timber harvest would preclude the achievement of other non-timber management objectives." Plan, Appx. F-12.

The Cooper Creek project, Alternative 3, proposes 327 acres of commercial timber harvest on unsuitable lands. This logging is not salvage. Therefore, the logging could only be permitted under the NFMA if it is necessary to protect other, non-timber multiple use values and is consistent with the Forest Plan. The Forest Service bears the burden of demonstrating this compliance. *See* *Lands Council v. McNair*, 537 F.3d 981, 994 (9th Cir. 2008) (Forest Service must support its conclusions that a project meets the requirements of the NFMA and relevant Forest Plan); *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1377 (9th Cir. 1998) ("Forest Service must demonstrate that a site-specific project would be consistent with the land resource management plan").

The agency has not shown this here, nor could it. Logging of the proposed intensity and scale, proposed to further general goals, cannot meet that standard, particularly since such logging is likely to degrade, not protect, other values, including values prioritized for the 7.E.1 prescription.

a. General goals that apply broadly across the forest are not sufficient to justify logging on lands unsuitable for timber production.

This "necessary to protect" exception to the NFMA's prohibition on timber harvest on unsuitable lands must have boundaries – it cannot be an infinite loophole. Otherwise, harvest on unsuitable lands could be limitless, defeating the purpose of identifying suitable and unsuitable lands on the CONF and rendering meaningless this Forest Plan's distinct management direction for suitable and unsuitable lands.

Logging at Cooper Creek is proposed to meet general goals that apply broadly across the forest. The stated Purpose and Need for the project is to "restore native plant communities, enhance wildlife habitat conditions, and improve forest health." EA at 2. The EA asserts the project is needed because many stands in the project area are dense and overcrowded, thus lacking understory and plant diversity, and, because of the lack of prescribed fire, oak regeneration is limited and white pine is encroaching upon hardwood stands. EA at 2-3. The EA further asserts that the activities proposed to fix these asserted problems will help to meet certain goals and objectives outlined in the Forest Plan. EA at 3. All of the Plan goals and objectives listed in the EA are chosen from the list of general, forest-wide goals and objectives which apply across the entire CONF. EA at 3-5; Forest Plan at 2-2 ("Forestwide goals, objectives, and standards apply to the entire forest").

According to Forest Service analysis, these allegedly dense, overcrowded conditions are widespread across the project area. *See* EA at 89-90. Indeed, we expect these conditions are widespread across the entire forest, because of the history of widespread, unregulated logging on the CONF and across the Southern Appalachians prior to Forest Service acquisition in the early 1900s and the CONF's own subsequent clearcutting program carried out until the late 1990s. As these forests age, natural growth and disturbance processes are diversifying these conditions (as discussed elsewhere in these comments).

The Draft EA goes on to summarize each type of activity within each alternative. Although some activities have non-timber goals, the goals are very general, such as: creating early successional habitat for "grouse and other early successional species"; heavy thinning in oak and pine stands to encourage or release oak regeneration and to "improve the health and vigor" of these stands; and canopy gaps and heavy thinning to "enhance habitat for a variety of bird species". EA at 18-21. The midstory treatment has a timber goal – to prepare for stand regeneration. EA at 23.

The discussions of purpose and need and alternatives make no distinction between activities proposed on suitable or unsuitable lands, or between harvest proposed within 7.E.1 or in other prescriptions.

None of the proposed harvests meet the bar set by the NFMA's exception to its general prohibition on harvest on unsuitable lands. Two of them are particularly egregious attempts run around the NFMA's and Forest Plan's limits on harvest on unsuitable lands on the CONF: intensive, even-aged logging to create early succession, and midstory cutting to prepare for such logging in future.

Creation of early succession is the primary means by which timber will be produced from the CONF, and vice versa, under this Forest Plan. Plan FEIS at 3-541 to 542. The Plan designated approximately 367,000 acres of the Chattahoochee National Forest[33] as suitable for timber production (about 49% of the Chattahoochee). Plan Appx. F-10. Most of the suitable acreage, approximately 270,000 acres (about 36% of the Chattahoochee) was placed within management prescriptions with minimum objectives to create early succession, primarily through timber harvest. Plan FEIS at 3-160 to 161[34]. Thus many thousands of acres on suitable lands are allocated to the type of harvest for ESH proposed here, and it is on those lands, not on 7.E.1, that the plan intended such harvest to occur.

In contrast, Prescription 7.E.1 and similar unsuitable prescriptions have no minimum ESH objectives and were not expected to provide a regular amount of ESH or timber. *See, e.g.*, Forest Plan at 3-123. Clearly the Forest Service intended something different for the unsuitable management prescriptions, and wholesale creation of ESH here is not appropriate or consistent with the Plan. See further discussion below regarding planning for unsuitable lands.

The proposed midstory reduction is proposed for the sole, explicit purpose of stimulating oak seedlings and saplings "in preparation for stand regeneration" in the future, i.e. in preparation for the next cycle of intensive, even-aged, commercial logging here. EA at 23. There is no asserted purpose or need to reduce the midstories of over 230 acres of older oak forest (93-108 years old) other than preparation for future harvest. This is precisely the type of planning and management for periodic entries of large-scale timber harvest which the Plan does not intend, and may not occur, on unsuitable lands.[35] See further discussion below.

These two activities illustrate the District's disregard for the unsuitable designation and the District's apparent view that it may freely proceed with timber management on unsuitable lands, which runs contrary to the letter and spirit of the Forest Plan and to the NFMA.

The Forest Service has not demonstrated that the proposed logging is "necessary to protect" other specific, compelling values or objectives in this particular area of 7.E.1, in contrast with instances where courts have permitted harvest on unsuitable lands. *See Native Ecosystems*

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[33] Excluding the Oconee.

[34] 7.E.1 does not have a minimum ESH objective. Prescriptions with minimum ESH objectives set goals to create 4-10% or 10-17% of ESH therein. Plan FEIS at 3-159.

[35] Plan Appx.F-12 (unsuitable-not appropriate lands were designated as unsuitable because "a planned, periodic timber harvest would preclude the achievement of other non-timber management objectives" on those lands); *see also* Plan Appx.F-2 (discussing "orderly, planned and recurrent harvest" on suitable lands, while unsuitable lands have "no timber program plans for harvest volume" and harvests on "'unsuitable' lands are incidental, generally not 'regular' in occurrence") and Plan Appx. F-26, F-32 to 63 (discussing timber harvest and production methods used on the CONF, wherein midstory removal is a "prep cut" for timber harvest and is a recommended, systematic precursor to most types of harvests in most forest types on the CONF).

Council v. U.S. Forest Serv., 428 F.3d 1233, 1235-37, 1247-48 (9th Cir. 2005) (within a Montana national forest, allowing thinning and removal of small-diameter trees, prescribed burning, and weed management on lands unsuitable for timber management, in order to lower the risk of catastrophic wildfire in a specific area identified as prone to high intensity wildfire; large trees would be retained and project plans did not even specify a commercial timber sale, rather, a contractor would be required to remove trees regardless of commercial value); *Glisson v. U.S. Forest Serv.*, 876 F.Supp. 1016, 1032 (S.D. Ill. 1993) (permitting harvesting of planted, non-native pines in order to restore hardwoods, per Forest Plan direction, in an area designated as "unsuitable for timber production"); *see also Native Ecosystems Council v. Kimbell*, 304 F. App'x 537 (9th Cir. 2008) (allowing hazardous fuels reduction project on unsuitable lands on another Montana national forest).

Thus, this proposal has not been shown to fit within – and we believe it cannot fit within – the exceptions allowing commercial timber harvest on unsuitable lands as set forth in this Forest Plan and the NFMA. The limits of these exceptions must be respected.

Moreover, rather than "protecting" a use or value here, the proposed harvest would negatively impact the very uses and values which are prioritized in prescription 7.E.1 and which presumably led to these lands being identified as unsuitable in the first place.

> b. Harvest on unsuitable lands is not permitted by the NFMA and the Forest Plan when it damages, not protects, non-timber multiple uses and values, especially those uses and values prioritized in Forest Plan direction for the prescription area.

We believe that any logging in an unsuitable prescription must not adversely affect the priority uses and values there – the uses and values which presumably led to designating those lands as unsuitable for timber production in the first place, such as, for 7.E.1, trail use, recreational experiences and settings, scenic beauty, and water quality. Lands within Prescription 7.E.1, Dispersed Recreation Areas, are managed with an emphasis on providing recreation opportunities and scenic views, while protecting and restoring water quality:

> These areas receive moderate to high recreation use and are managed to provide the public with a variety of recreation opportunities in a setting that provides quality scenery, numerous trails and limited facilities. The management emphasis is to improve the settings for non-formal outdoor recreation in a manner that protects and restores the health, diversity, and productivity of the watersheds.
> Plan at 3-123.

The direction for 7.E.1 can be contrasted with the direction for prescription 7.E.2, Dispersed Recreation Areas with Vegetation Management, which is suitable for timber production and emphasizes a balance of recreation, water quality, wildlife, and forest management goals. Plan at 3-126. Certainly forest management and timber harvest must be more limited under 7.E.1 than under 7.E.2, or there would have been be no reason for the Plan to draw up suitable and unsuitable Dispersed Recreation Areas.

Within prescription 7.E.1, Alternative 3 would log hundreds of acres now and in the future. Road reconstruction and temporary road construction will be required to access these stands, and further ground disturbance will result from construction of skid roads/trails and log landings. Logging is proposed near or visible from trails, primary recreational access roads, and areas designated for High and Moderate scenic integrity and logging will negatively impact recreational use, access, and scenic views (EA at 164-168).[36] Logging will increase sediment in streams (EA at 70, 73, 77, 79-80, 114-115), which adversely affects aquatic species and habitat (EA at 108-109, 114-118). Although efforts will be made to mitigate these adverse effects, they cannot be eliminated.

The scale and intensity of proposed and future harvests and their adverse effects on other uses and resources, including those prioritized in 7.E.1, cannot be distinguished from the effects of regular, large-scale timber production. Indeed, these impacts are the very type of logging impacts that the Forest Service had in mind and wished to avoid on these lands when, during forest planning, it determined that periodic timber harvest would preclude achievement of other, non-timber objectives for these lands, and designated the lands unsuitable.

Moreover, we believe these logging impacts are likely to be greater than the mild picture the EA attempts to paint, as discussed elsewhere in these comments. These impacts will be particularly excessive and detrimental to the present uses and values of these 7.E.1 lands, as evidenced by the outcome at Brawley Mountain on unsuitable, 7.E.1 lands within this same ranger district.

The Brawley Mountain Project offers a vivid example of the harsh effects of large-scale, intensive, commercial harvest of the very type proposed here. This project also is located within the 7.E.1 prescription and it involved timber harvest of similar intensity. Because that project was proposed for the specific purpose of improving habitat for a golden-winged warbler population known to exist at that specific site, we ultimately chose not to dispute whether it qualified for the narrow exceptions for timber harvest on unsuitable lands. The District also promised a "light hand on the land" approach there. This light approach did not come to pass, as broad access roads were constructed and large log landings cleared of trees. Bare soil on these sites, or many of them, still had not revegetated as of fall 2015 and does not look likely to revegetate soon. In fact, the project failed to comply with the basic limitations of the project plans (e.g., no whole tree harvesting) and mitigation measures (e.g., revegetating access roads, skid roads/trails, and log landings). See further discussion in attached July 8, 2014, letter and photos.

The EA, the additional information and analysis presented in these comments, and the documented impacts of the Brawley project demonstrate that the proposed logging on 7.E.1 lands in Cooper Creek would negatively impact scenic views, recreational experiences, and soil and water quality, and that such logging is not appropriate or compatible for these 7.E.1. lands,

[36] The assertion that the midstory cutting will not impact recreation or scenic views because midstory removal does not affect the overstory (EA at 168) is specious. It fails to acknowledge that the midstory cutting is proposed for the express, admitted purpose of preparing for overstory removal in future. As such, future overstory removal is reasonably foreseeable and NEPA requires that the cumulative impacts of both midstory and overstory cutting on recreational experiences, access, and scenic views, as well as on other uses and values in 7.E.1, be considered.

would conflict with the Forest Plan, and run contrary to the purposes for which 7.E.1 was established, and therefore is not permitted.

3. The District's brief defense of its proposal, in the Draft EA, does not pass muster.

Based on the Draft EA's only oblique reference to this issue, we expect the District will contend that the proposed harvest is permitted to meet other Forest Plan goals and objectives, and that such harvest must have been contemplated when those goals and objectives were set.

First, the relevant standard in prescription 7.E.1 states in full as follows:

> "These lands are classified under NFMA as unsuitable for timber production; not appropriate; however, salvage sales, sales necessary to protect other multiple use values, or activities that meet other Plan goals and objectives are permitted." Plan at 3-125.

The first two clauses track the narrow exceptions set forth in the NFMA – salvage salvage sales and sales necessary to protect multiple use values other than timber. The last clause, regarding activities that meet other Plan goals and objectives, ties back to the NFMA planning regulations in effect when the CONF plan was revised, commonly referred to as the 1982 regulations. Those rules provided that:

> "No timber harvesting shall occur on lands classified as not suited for timber production . . . except for salvage sales, sales necessary to protect other multiple-use values or activities that meet other objectives on such lands *if the forest plan establishes that such actions are appropriate*." (emphasis added).
> 36 C.F.R. § 219.27(c)(1).

These regulations, therefore, reinforce the NFMA's requirement that projects must be consistent with forest plans and aid in interpretation and application of the 7.E.1 standard – harvest on unsuitable lands to meet other Plan objectives is permitted only if the forest plan establishes that such actions are appropriate. *See also* 16 U.S.C. § 1604(i) (all projects must be consistent with forest plans). In this case, as discussed above, a complete reading of the Forest Plan direction for prescription 7.E.1 shows that the proposed Cooper Creek harvest is not appropriate, because it would degrade, rather than protect or enhance, the uses and values that are prioritized in 7.E.1.

Second, the NFMA regulations and the Forest Plan ultimately must comply with the NFMA. Therefore, the Forest Plan's allowance for timber harvest to meet other Plan goals and objectives must be read together with the "necessary to protect" language of the NFMA. Clearly mere agency desires for harvest to meet Plan goals that can be met on suitable lands elsewhere in the forest, as the Plan intended, do not meet the standard for when harvest may occur on unsuitable lands on this Forest.

Third, contrary to the district's apparent suggestion that it must harvest unsuitable lands to meet its Plan goals and objectives, the CONF did not rely on timber harvest on unsuitable lands when calculating Plan goals and objectives.

Regarding the District's apparent belief that it needs to harvest unsuitable lands to meet Plan goals, and that the goals were set based on the assumption that such harvest would occur, a review of the Forest Plan's Appendix F and the FEIS for the plan shows that harvest on unsuitable lands generally, and 7.E.1 lands in particular, was not relied upon in developing Plan goals or objectives for timber harvest, early succession, and other forest management.

In the Forest Plan, goals and objectives for timber harvest and for early successional habitat were connected. Timber harvest primarily would occur as a result of creating ESH, and vice versa. FEIS at 3-541 to 542. During forest planning for timber and for wildlife habitat, prescription 7.E.1 and other unsuitable-not appropriate management prescriptions were not relied on or modeled for timber harvest and were not predicted to contribute any substantial, regular amount of ESH. FEIS at 3-158 to 160; FEIS at 3-542;[37] Forest Plan, Appx. F at F-12. In fact, the Plan and FEIS make clear that any timber cutting on unsuitable lands would be salvage harvest or small-scale, incidental harvest. Plan FEIS at 3-569 to 569; Plan Appx. F-2.

It is important to underscore that 7.E.1 has no minimum objective level of ESH. It has a goal of 0-4% ESH.[38] In 7.E.1 and other prescriptions with 0-4% ESH goals, some amount of ESH was expected to be provided in the course of other management, such as through salvage, incidental activities, and natural disturbances. FEIS at 3-568 to 569. As the FEIS explains, some unsuitable prescriptions "permit harvest to occur on an irregularly scheduled, case-by-case basis. An example might be a developed recreation prescription in which timber is cut and removed to clear for campground road construction. However, much of it is likely to be salvage of insect, disease, wildfire, or storm killed trees." FEIS at 3-568. In prescriptions with a 0-4% ESH objective (like 7.E.1), the Plan FEIS explained "it is likely that much of the habitat creation activity will be done in response to natural mortality of one kind or another and thus be salvage." *Id.* Therefore, the Plan EIS estimated that an average of approximately 0.5% of the unsuitable prescriptions, like 7.E.1, would contain early succession, and that it would vary widely from year to year. FEIS at 3-568 to 569. The type and scale of harvest proposed on unsuitable lands at Cooper Creek goes far beyond the expectations, intent, and examples described during forest planning, such as harvest that truly is incidental to another activity central to the purpose of a recreation prescription, such as cutting timber to clear the way for campground road construction. Based on all this, it is unclear why the District believes it must cut on these 7.E.1 unsuitable lands to meet Plan goals and objectives or why the District believes such cutting was intended by the Plan.

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[37] "Within each alternative, management prescriptions with early-successional wildlife habitat objectives of none were not modeled for an estimate of timber yields. . . . Timber harvest was modeled for some but not for all management prescriptions with a 0 to 4 percent early-successional habitat objective. . . . Within this group, those prescriptions not modeled, and the acreage of each for each of the Chattahoochee and the Oconee, are identified as 'not appropriate' in Appendix F of the plan for Alternative I ." Plan FEIS at 3-542. 7.E.1 is included within the list of unsuitable-not appropriate prescriptions that were not modeled.

[38] As discussed further elsewhere in these comments, the results of all proposed activities here would exceed the allowable amount of ESH.

If the CONF wishes to press forward with the proposed logging here, a significant forest plan amendment[39] and additional environmental analysis likely would be required. The CONF cannot simply decide that it needs or wishes to target unsuitable lands for massive logging project such as this, throwing out a forest planning structure that assumed such logging would not occur on unsuitable lands, without thorough analysis of the implications for the forest plan and its effects as a whole. As discussed above, harvest of this type and scale on unsuitable lands exceeds the amount that was estimated and considered in the EIS for the Forest Plan. If the CONF insists on proceeding with this proposal, that would signal a substantial change in the implementation of the Forest Plan, a change which would significantly affect unsuitable lands in ways not considered in the Plan EIS. Such a change likely would require environmental analysis, such as a supplement to the Plan's EIS, *see* 40 C.F.R. § 1502.9(c), to disclose the agency's current intentions for logging on unsuitable lands and to analyze, consider and disclose the effects on the uses and resources for which the Plan designated those lands as unsuitable. Complicating matters, since forest planning assumed the unsuitable lands would be generally left undisturbed, these lands likely were relied upon in the plan EIS' analysis of effects on various other resources, e.g., mature and interior forest wildlife habitat and species, cumulative effects on water quality and aquatic species and habitat, old-growth, etc. These conclusions will be cast into serious question, and would need to be reanalyzed, if extensive commercial harvest is now intended for the unsuitable lands.

4) Lower Logging and No Logging Alternatives in 7.E.1

Particularly in this prescription where timber harvest generally is not permitted, less damaging alternatives that would meet, or contribute to meeting, the project's asserted purposes must be considered. Reasonable alternatives include: dropping all tree cutting proposed in 7.E.1; dropping all commercial harvest in 7.E.1; moving desired tree cutting to locations outside 7.E.1; and using non-commercial methods and/or less intensive methods instead in 7.E.1. Given that 7.E.1 has no minimum ESH goal, another action alternative that does not include harvest in 7.E.1 is an eminently reasonable alternative that would meet the stated purpose and need (working towards Plan goals), better fulfills the intent of this prescription, and must be considered.

In particular, avoiding commercial timber harvest here and instead using non-commercial cut-and-leave to manipulate stand structure and composition is an alternative(s) that would avoid or greatly reduce the negative impacts of commercial logging and associated ground disturbance on recreation, scenery, and water quality. Such an alternative(s) would also avoid the need to invest in reconstruction and maintenance of roads that access unsuitable lands (which seems an unwise investment).

The District's refusal to consider alternate, non-commercial means to achieve its goals here further shows that timber harvest and production is driving this project.

5) NEPA issues regarding needs for environmental analysis and consideration of alternatives presented by proposed harvest on unsuitable lands.

[39] Any plan amendment would be subject to the new NFMA regulations. 36 C.F.R. § 219.17(b)(2) (2012) (transition provisions).

The proposed logging in an unsuitable prescription also gives rise to NEPA obligations. The fact that logging is proposed on lands unsuitable for timber production is highly relevant to the project – to the public's understanding of the proposal and to the agency's analysis of its environmental effects. Yet the EA does not address it. Environmental analyses must evaluate the significance of the project's effects, which includes consideration of both the context and intensity of the impact. 40 C.F.R. § 1508.27. The regulations implementing NEPA explain that "the significance of an action must be analyzed in several contexts such as . . . the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action." *Id.* The fact that logging is proposed on lands unsuitable for timber production, where recreational, scenic, and water quality goals are prioritized, is obviously relevant to the context of the proposed project and to the analysis of the significance of its impacts within that setting. The alleged benefits of the project must be weighed against the risks to these other resources and values, and those other values should be given greater weight on the scale since they are, after all, prioritized here.

These 7.E.1 lands, moreover, are located in a region of the forest that contains especially significant and important recreational, scenic, and water resources. The project area and its immediate surroundings include: Cooper Creek, which is recognized and protected within Cooper Creek Scenic Area (designated by the Regional Forester in 1960) and Forest-Designated Outstandingly Remarkable Stream corridors and is eligible, although was not recommended, for Wild and Scenic River designation; Duncan Ridge, with its long-distance, remote hiking trail running along the boundary of the 7.E.1 prescription; many other trails; and the Coosa Bald National Scenic Area, the Appalachian Trail Corridor, and Forest-Designated Scenic Areas. Effects should be considered in this context as well.

Logging on unsuitable lands is relevant to several other factors of significance, too, such as the unique characteristics of the geographic area, and the degree to which the project's effects are likely to be controversial. § 1508.27(b)(3), (4). It is also relevant to whether the action may set a precedent or represent a decision in principle about a future consideration. The District's complete disregard for the constraints of unsuitable prescriptions identified in the CONF Forest Plan may set a precedent for logging on unsuitable lands across the CONF. It certainly represents a major change in the studies and expectations underpinning this Forest Plan and the ways in which the CONF has implemented this Plan for more than a decade. We seriously question whether the Forest Service as a whole wishes to go down this road. Certainly such a significant move, at a minimum, must be disclosed and squarely addressed in the project's analysis. The midstory cutting also makes a decision in principle about another 233 acres of logging here, since preparation for that future logging is the purpose of the midstory cutting.

Finally, another factor of significance is whether the proposal threatens a violation of state, Federal, or local law. The project's compliance with the NFMA and Forest Plan, therefore, is directly relevant to the NEPA analysis.

Therefore, under NEPA, if the District wishes to proceed with its proposed timber harvest and midstory cutting in 7.E.1, the environmental analysis must forthrightly acknowledge and address this issue, fully disclose and consider whether logging there is permitted by the NFMA

and Forest Plan, and thoroughly analyze the effects of logging there on other resources and uses, particularly those prioritized in 7.E.1.

Under NEPA, the agency also must consider reasonable alternatives that would respond to or address this issue, such as dropping commercial harvest and midstory removal in 7.E.1, moving such activities to alternate locations on lands suitable for timber production, and other options discussed above. NEPA requires the consideration of all reasonable alternatives, including those that would avoid or minimize negative environmental impacts. In this case, such reasonable options clearly include alternatives that avoid timber harvest on 7.E.1 lands.

ii. Compliance With Additional Forest Plan Direction

The National Forest Management Act ("NFMA") requires forest management decisions to be consistent with the forest plan. 16 U.S.C. § 1604(i) ("Resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands shall be consistent with the land management plans."). This project is likely to violate the Forest Plan in several additional ways and, moreover, the District has not provided sufficient evidence to prove its compliance with the Forest Plan and NFMA.

1) Alternatives 2 and 3 Exceed Forest Plan Limits for Early Successional Habitat in Violation of NFMA

The CONF Forest Plan objective for early successional forest conditions in Prescription 7.E.1 is "up to 4 percent" "created both naturally and through management." Forest Plan at 3-123. Four percent is a ceiling: to comply with the Forest Plan the agency cannot create additional ESH if it would exceed the four percent threshold though any lower percentage of ESH is compliant. These limits must be met at local and landscape scales and specifically "percentage objectives apply to blocks of over 1,000 acres of contiguous prescriptions with the same successional objectives." Forest Plan at F-31.

The agency has generally identified the management prescriptions where project activities will take place (EA at 3) but has not disclosed how much of the project area is within each prescription. Based on GIS data it appears that approximately 2,565 acres of the project are located in Prescription 7.E.1 (compartments 398 and 399). Four percent of 2,565 acres is approximately 103 acres – the upper limit of ESH allowed in the Prescription.

According to the agency approximately 0.8% of the project area currently exists as early successional forest. EA at 97. The EA does not disclose if that percentage differs by prescription, but assuming it does not, approximately 20 acres of ESH currently exists in Prescription 7.E.1. As a result, the agency is limited to creating no more than 83 acres of ESH in 7.E.1.

But the Draft EA discloses that the agency plans to create 102 acres of ESH in Prescription 7.E.1. under Alt. 2 (EA at 10-11) and 101 acres of ESH in Prescription 7.E.1 under Alt. 3 (EA at 21). This will cause the ESH limits in Prescription 7.E.1 to be exceeded by at least 19 and 18 acres respectively.

Additionally, the Draft EA provides that canopy gap thinning treatments will "create small pockets of [early successional forest habitat]." EA at 98. Alternative 2 includes 466 acres of canopy gap thinning treatments and Alternative 3 includes 100 acres of canopy gap thinning treatments in Prescription 7.E.1. EA at 98-99. Not all of the acreages subjected to these treatments should be considered ESH but the agency must calculate and disclose how much ESH will be created and include that in its assessment of compliance with Prescription 7.E.1 ESH limits.

The Draft EA also acknowledges that prescribed fire creates and maintains ESH. *See, e.g.,* EA at 94, 98, 139, and 148; *see also* Forest Plan at F-32 (noting that prescribed burning may create early successional forest). There is currently prescribed fire in Prescription 7.E.1. *See* Cooper Creek Watershed Burn Units Maps (produced with EA). The agency must assess and disclose the degree that fire will create ESH and that must be included when assessing compliance with Forest Plan ESH objectives. Moreover, the assessment of ESH by other treatments, particularly fire, must be completed to demonstrate that the agency is not exceeding ESH limits in other prescriptions, such as 7.E.2.

Finally, the agency must consider early succession existing on adjacent private lands when developing alternatives and before choosing the level of early succession to create with the project. Forest Plan at F-31. "[H]igh amounts of quality early-successional forest on surrounding private land might result in decisions to provide such habitats on national forest land at the low end of the objective range." *Id.* at F-31-32. Based on the agency's analysis, it appears that this key step was overlooked. When assessing the "effects on forest successional stage and habitats" the EA purports to have considered a 60,371 acre area including 26,353 acres of privately owned land. EA at 97. But data on successional stages is only included for 29,626.6 acres. *Id.*, Table 3.8.1. The agency must consider the extent of early successional forest on private and public lands that were not assessed in the EA before choosing how much ESH to create as part of the project, particularly in Prescription 7.E.1 which will exceed allowable ESH limits under both alternatives. At a minimum that analysis should be expanded to include all 60,371 acres identified in the EA. Adequate assessment of ESH on private lands is also necessary to evaluate the cumulative impact of transitioning older forests to younger forest on National Forest system lands as discussed further below. Failure to consider early succession existing on adjacent private lands and surrounding public lands violates Forest Plan direction and NFMA.

As currently drafted alternatives 2 and 3 both exceed limits for early successional forest conditions in management Prescription 7.E.1 (and possible other prescriptions) in violation of the CONF Forest Plan and NFMA. The alternatives must be withdrawn or altered and the agency must provide sufficient evidence with the revised alternatives to prove compliance with Forest Plan ESH limitations.

2) Alternatives 2 and 3 Violate Forest Plan Standards for the Riparian Corridor

The CONF Forest Plan establishes an embedded Riparian Corridor Prescription that "encompasses riparian areas, as well as adjacent associated upland components." Plan at 3-175. Riparian Corridor widths are "measured in on-the-ground surface feet perpendicular from the edge of the channel or bank (stream, water body, etc.) and extend out from each side of a stream" and are slope dependent. *Id*. In other words, the higher the degree of slope the larger the Riparian Corridor. For perennial streams, the Riparian Corridor is 100 feet for slopes of 0-10%; 125 feet for slopes of 11-45%; and 150 feet for slopes over 46%. Forest Plan at 3-176.

"Major human actions or activities that create long-term impacts or permanent changes to water drainage, soil exposure and productivity, create impervious surfaces, or permanent removal of vegetation cover are prohibited within the Riparian Corridor." Forest Plan at 3-178. Riparian corridors are also "classified under NFMA as unsuitable for timber production." Forest Plan 3-180/181, Standards 11-020, 11-028. Limited silvicultural activities are allowed as long as they meet the exceptions for timber harvesting in unsuitable prescriptions under NFMA discussed previously, and meet Forest Plan requirements for harvesting in the Riparian Corridor.

Activities within the Riparian Corridor must clear two hurdles. First, all management practices, including silvicultural activities, must be "specified to maintain riparian functions and values." Forest Plan 3-175. Any management activity which is not "specified to maintain riparian functions and values" is prohibited. Certainly any activity which harms riparian functions and values explicitly violates this standard. Second, for activities that clear the initial hurdle, certain discrete activities are allowed. In terms of silvicultural activities, tree removal is allowed "if *needed* to enhance the recovery of the diversity and complexity of vegetation, rehabilitate both natural and human-caused disturbances, provide habitat improvements for TES or riparian-associated species, reduce fuel buildup, provide for visitor safety, or for approved facility construction/renovation." Plan at 3-181 (emphasis added). Reading these requirements together, tree removal which maintains riparian functions and values by enhancing the recovery of the diversity and complexity of vegetation is allowed. Traditional timber harvest "[is]not allowed in riparian areas." CONF Revised Land and Resource Management Plan Appeal Decision (July 25, 2006) at 30. The basis of any activity in the Riparian Corridor must be maintaining riparian functions and values.

The Draft EA discloses that "treatment of riparian corridors would occur." EA at 75. But compliance with the Forest Plan is addressed almost as an afterthought: "treatments are permitted within riparian corridors." EA at 77. The EA does not correctly identify, much less protect, the riparian corridor. The "Minimum Riparian/Water Protection Zones" chart on page 67 is erroneous and inconsistent with the Forest Plan – it shows widths for riparian corridors on the Chattahoochee National Forest that are more narrow than those prescribed by the Plan. Plan at 3-175; Plan Appx. C. According to the Plan, along both perennial and intermittent streams, where slopes are 0-10% riparian corridors must be at least 100 feet wide, and when slopes are between 11-45% riparian corridors must be at least 125 feet wide. *Id.* The Draft EA incorrectly classifies slopes up to 30% as only requiring a riparian corridor of 100 feet. EA at 67. We expect most riparian zones in the project area will be located within the 11-45% slope class, therefore, they will require a minimum riparian corridor of 125 feet.

Regarding cutting within riparian corridors, the agency commits itself to abiding by the less strenuous (but still applicable) Georgia Forestry BMP standards of avoiding harvest within 25 feet of a stream and limiting harvest between 25-100 feet of a stream to a reduction of no greater than 50 basal area but that commitment is insufficient to meet Forest Plan requirements which go above and beyond the requirements of Georgia Forestry BMPs . EA at 73, 77. The EA lacks discussion of compliance with Riparian Corridor standards altogether.

Practically, it is unclear why the agency has a Riparian Prescription at all if it believes it is only bound by the Georgia Forestry BMPs. To put it more coarsely, why embed a Riparian Prescription in different prescriptions throughout the forest if the designation has little or no import? The answer must be that these areas require additional protections and analysis under NEPA and the Forest Plan prior to implementation of activities that may affect the "riparian functions and values" it is to be managed for. We can think of few activities with the potential to impact those values more adversely than commercial timber sales. To implement this timber project, the Forest Service must explain how its planned silvicultural activities within the riparian corridor meet NFMA exceptions for harvesting in unsuitable areas and meet the Forest Plan requirement "to maintain riparian functions and values."

iii. The District's Analysis of Impacts to Soil is Inadequate to Comply with NFMA

Under NFMA, the Forest Service must "insure that timber will be harvested from National Forest System lands only where . . . soil, slope, or other watershed conditions will not be irreversibly damaged . . . ." 16 U.S.C. § 1604(g)(3)(E)(i). The agency also must "insure research on and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land." § 1604(g)(3)(C). Courts have explained that the Forest Service must "maintain" and "ensure" soil productivity. *See Ecology Ctr. v. Austin*, 430 F.3d 1057, 1062 (9th Cir. 2005) (Among the "substantive requirements" of NFMA, "the Forest Service must maintain soil productivity. 16 U.S.C. § 1604(g)(3)(C)."), *cert. denied sub. nom. Mineral County v. Ecology Ctr., Inc.*, 549 U.S. 1111 (2007), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008); *Friends of the Columbia Gorge, Inc. v. Elicker*, 598 F. Supp. 2d 1136, 1155 (D. Or. 2007) ("NFMA also requires USFS to ensure . . . the productivity of the soil.").

Courts have found violations of this prohibition on irreversible damage where logging practices, which "compact the soil, displace nutrient-rich organic matter and upper mineral soil, and cause accelerated erosion" were located on sensitive soils contrary to the Forest Plan, and where the Forest Service engaged in timber harvesting practices "eroding nutrient-rich soil from the forest land," failed to "require post-harvest restoration of some areas affected by and contributing to erosion," and engaged in "management practices substantially and permanently reducing organic and other essential matter in the forest soils…." *Alleghany Def. Project, Inc. v. U.S. Forest Ser*v., No. 01-895, 2003 U.S. Dist. LEXIS 27151, at *88-*89 (W.D. Pa. Dec. 24, 2003)**,** *adopted*, 2004 U.S. Dist. LEXIS 29698 (W.D. Pa. Mar. 24, 2004), *aff'd*, 423 F.3d 215 (3d Cir. 2005); *Sierra Club v. Glickman*, 974 F. Supp. 905, 924-25 (E.D. Tex. 1997), *aff'd*, 185 F.3d 349 (5th Cir. 1999), *vacated*, 228 F.3d 559 (5th Cir. 2000). Ultimately, the question comes down

to whether "the evidence shows that, on-the-ground, the Forest Service is []protecting the soil resource." *Glickman*, 974 F. Supp. at 926. The information in the EA shows that impairment of soil productivity, at least in some portions of the harvest area, are likely to violate this substantive requirement of NFMA.

Soils in the project area are already degraded. "Soil condition in the three 6th level hydrologic unit (HUCs) was rated as Fair (1.7 to 2.0) or functioning at risk." EA at 40. "Soil productivity is . . . impaired and the ability of the soil to maintain resource values and sustain outputs is compromised in 5 to 15 percent of the watershed." *Id.* "Most of this disturbance is the result of past management activities such as timber harvesting, road construction and maintenance, fire, and recreation use." *Id.*

Now the agency proposes to implement the very same activities which degraded soil in the past. The Draft EA concludes that Regional Forest Service standards requiring at least 85% of an activity area to be left in a condition of acceptable soil productivity will be met, largely relying on mitigation measure. As explained in Section IX(ii)(3), the mitigation analysis itself is deficient, and thus there is insufficient basis upon which to assert that mitigation would prevent substantial and permanent impairment to the soil resource. But even assuming that the analysis in the Draft EA is correct, if the project leaves an additional 15% of the activity area in a condition of unacceptable soil productivity it risks converting 30% of the areas soils into a state where "the ability of the soil to maintain resource values and sustain outputs is compromised." EA at 40.

Particularly given the acknowledgement that existing soil conditions are impaired, the Forest Service lacks the site-specific data necessary to conclude that Regional Forest Standards requiring at least 85% of an activity area to be left in a condition of acceptable soil productivity will be met. The Forest Service must conduct stand specific studies to determine if the proposed action will cause soil productivity to be reduced below the 85% threshold. *See Rocky Mountain Wild v. Vilsack*, 843 F. Supp. 2d 1188, 1195 (D. Colo. 2012). This does not necessarily require hand surveys of each stand "but [the Forest Service] must, however, at least have some reliable methodology for estimating soil compaction [or productivity loss in this instance] in every land unit" to meet NEPA's "hard look" requirement and to demonstrative compliance with NFMA *Id.* at 1198.

Given the highly erodible soils in the project area, this same analysis must be applied to the potential for erosion to violate NFMA standards. Nearly every stand in the project area has a "severe" erosion risk rating and utilizing ground-based logging techniques on steep slopes is likely to accelerate erosion, potentially to a point where "soil, slope, or other watershed conditions [are] irreversibly damaged." § 1604(g)(3)(E)(i). The evidence before the agency shows that soil productivity may be impaired through loss of productivity and/or erosion, in violation of NFMA. At a minimum, in the face of its own evidence, under both the NFMA and NEPA, the District must demonstrate how it will avoid such impairment, which it has not done.

iv. Proposed woodland creation presents issues regarding compliance with the NFMA and Forest Plan which are unaddressed in the Draft EA.

In our scoping comments, we raised concerns that the proposed woodland creation may violate provisions of the NFMA and the Forest Plan related to: (1) protecting the soil resource and the productivity of the land; (2) preserving existing tree species diversity and avoiding forest type conversations; (3) limiting the size of individual even-age cut areas and separating such openings; and (4) restocking after any type of timber harvest. *See* Scoping Comments at 23-27 for further discussion and citations. We explained these potential problems could be avoided if the District would restore woodlands on ecologically appropriate sites. The Draft EA does not address these issues, however.

Attempting to impose woodlands on inappropriate sites (e.g. mostly all of those proposed) through logging, herbicide, and prescribed burning in perpetuity likely would, over time, damage the existing quality of the soil resource and substantially impair the existing productivity of the land. In Alternative 3, timber harvest to create woodlands is proposed on 490 acres, in many stands over 40 acres in size, many of which are contiguous or nearly so and many of which are adjacent to stands proposed for non-commercial cutting as well. *See* EA 22-23 and Map of Alt. 3 Commercial and Non-commercial Treatments. Harvest down to 15-20 sq. ft. BA on the ridges and 30-60 sq. ft. on the slopes (EA at 22) clearly would have effects comparable to even-aged harvest methods, for example, shelterwood harvest. Therefore, it should be subject to the NFMA and Forest Plan limitations on the size and spacing even-age cuts.[40] Occurring within this sea of logging, the lower slope "thinning" to 60-80 sq. ft. BA would only contribute to the excessive forest openings. These sites would be prescribe burned indefinitely to prevent tree regrowth, exacerbating the negative effects of these overlarge, contiguous cuts which the NFMA and Plan limits were intended to avoid.

The District's insistence on creating woodland via intensive commercial harvest of mostly older forest, and refusal to consider alternate, more suitable sites for woodlands, is inexplicable. We wonder whether this is occurring because true woodland-type sites tend to be, by definition, less productive and contain lower value timber. If this is the case, such an approach would run contrary to other NFMA requirements regarding timber management. *See* 16 U.S.C. § 1604(g)(3)(E)(iv) (A timber harvest system may not be chosen "primarily because it will give the greatest dollar return or the greatest unit output of timber.");[41] 16 U.S.C. § 1604(e)(1); *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 234 F. App'x 440, 443-45 (9th Cir. 2007) (pursuant to § 1604(e)(1), forest management projects must "include *coordination* of" timber and the other values and timber cannot be elevated over the others, particularly when doing so constrains the alternatives considered and excludes alternatives that might better meet forest plan

[40] *See, e.g.*, Forest Plan at 2-25 to 26 (standard FW-86 limits each opening created by even-aged or two-aged harvest to 40 acres in size and FW-87 requires such cuts be separated by 330'). While the Plan suggest woodlands are not subject to standard FW-86, we can find no such exception for woodland conditions in the NFMA itself and, moreover, excepting harvest of this intensity and size would impermissibly conflict with the intention behind the NFMA's direction to limit the size of even-aged harvest areas. If the District has obtained higher official approval to expand the size of each opening, a revised EA should disclose that and we request a copy of all related documentation.

[41] In fact, the Draft EA admits that the proposed woodland stands contain lower slope, mesic portions which would not, in fact, become woodlands at all, but would still be harvested for other vague goals, which appear driven by commercial harvest. Draft EA at 22. 633-024 is an example of this. It is our understanding that District staff have determined that most of this stand is a mesic site (i.e. non-woodland site), so very little of the stand would receive a woodland treatment. Most of the stand is on a steep slope, and the Duncan Ridge trail passes through it. Yet it would still be commercially harvested.

goals). The District should consider alternate sites that would better meet woodland goals or explain the refusal to do so.

These problems could be remedied by relocating woodland creation to ecologically appropriate sites, where the existing type, structure, and productivity of forest are more consistent with woodlands, where soils are already poor, and where other characteristics of woodland sites exist. Yet, rather than do so or explain the refusal to do so, the Draft EA does not address or consider these troublesome issues at all. For example, the Draft EA does not disclose the NFMA's and Plan's normal requirements for timber harvest and even attempt to explain why the District believes the proposal is permissible.

IX. COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT

"Section 101 of NEPA declares a broad national commitment to protecting and promoting environmental quality. To ensure that this commitment is infused into the ongoing programs and actions of the Federal Government, the act also establishes some important 'action-forcing' procedures." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348, 109 S. Ct. 1835, 1844-45, 104 L. Ed. 2d 351 (1989)(citations omitted). Chief among those "action-forcing procedures" are requirements sufficiently evaluate alternatives, consider and disclose relevant data, and adequately consider impacts including cumulative impacts. Unfortunately, the EA fails to give these issues the analysis they require.

i. Evaluation of alternatives

Adequate consideration of alternatives is the "heart" of the NEPA process because it defines the issues and provides a clear basis for choices by the decision maker and the public. 40 C.F.R. § 1502.14. According to NEPA:

> Federal agencies *shall, to the fullest extent possible*: [u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.

40 C.F.R. § 1500.2(e) (emphasis added). Therefore, the Forest Service must consider a "broad range of reasonable alternatives." *Curry v. United States Forest Service*, 988 F. Supp. 541, 554 (W.D. Pa. 1997); *see also Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1225 (9th Cir. 1988), *cert. denied* 489 U.S. 1066 (1989) (stating NEPA requires federal agencies to "study, develop, and describe appropriate alternatives"). This requirement applies to EAs as well as EISs. *Bob Marshall Alliance*, 852 F.2d at 1229; *see Save Our Cumberland Mountains v. Kempthorne*, 453 F.3d 334, 343-44 (6th Cir. 2006) (discussing NEPA requirements to consider alternatives in environmental assessments). The failure to consider a "viable but unexamined alternative" renders an EA inadequate. *Alaska Wilderness Recreation and Tourism Association v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995) (internal quotations omitted); *accord Dubois v. USDA*, 102 F.3d 1273, 1289 (1st Cir. 1996), *cert. denied* 521 U.S. 1119 (1997).

We presented the agency with a viable alternative that met the project's purpose and need in our June 6, 2014 scoping comments. *See* Scoping Comments at 33. That alternative allowed the agency to meet its project objectives while reducing adverse effects upon the quality of the human environment. We met with the agency to explain our concerns on March 5, 2015 as well as to talk about alternative proposals for the project area. On June 22, 2015, we provided additional information related to the alternative we suggested by submitting a detailed letter identifying specific treatments for individual stands that would further the agency's objectives. The outline of the alternative we asked the agency to consider is reproduced in the Draft EA verbatim. EA at 28. Instead of giving the alternative informed and meaningful consideration as required by NEPA, the agency dismissed the alternative out of hand for two main reasons: 1) that avoiding cutting mature oaks would limit the ability to provide early successional forest habitat, and 2) that Forest Plan goals and objectives may not be achieved to the same degree under the alternative proposal. "A cursory dismissal of a proposed alternative, unsupported by agency analysis, does not help an agency satisfy its NEPA duty to consider a reasonable range of alternatives." *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 234 F. App'x 440, 443 (9th Cir. 2007).

Agencies must consider viable alternatives to proposed actions. The justification employed by the agency to reject our suggested alternative demonstrates that the alternative is, in fact, viable. The purpose of the Cooper Creek project is to "restore native plant communities, enhance wildlife habitat conditions, and improve forest health" and our alternative is consistent with that purpose. EA at 2. The alternative was eliminated based on assertions that it "limit[s]" or "reduce[s]" the agency's ability to meet project objectives as compared to the proposed action. EA at 28. Under that reasoning, anything less than the proposed action, including new Alternative 3, should be rejected because it may not allow the agency to meet its objectives to the same degree or in the same manner as the proposed action. To the contrary, like Alternative 3, the alternative we outlined is a viable project alternative that furthered the project's purpose and must be considered. *See Native Fish Soc. v. Nat'l Marine Fisheries Servs.*, 992 F. Supp. 2d 1095, 1110 (D. Or. 2014), *appeal dismissed* (May 13, 2015) ("Where a feasible alternative would meet the project's purpose and need, it should be considered.").

Instead, the agency dismissed the alternative by prematurely weighing its benefits against the proposed action and concluding that the alternative was not worth pursuing. This puts the cart before the horse. Weighing the benefits and adverse effects of viable alternatives is precisely the function that alternative consideration under NEPA is meant to perform; and the step the agency skipped here. *See* 40 C.F.R. § 1500.2 ("Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment"). Prematurely rejecting the alternative, without "informed and meaningful" consideration, denied the public and the decisionmaker a "clear basis for choice among options." 40 C.F.R. § 1502.14.

Even if the agency could dismiss the alternative as not viable (which it cannot and has not done here), the justification for that dismissal must be reasonable. The conclusory and unsubstantiated justification provided in this instance misses that mark. The agency asserts that "eliminating the cutting of mature oaks would limit the ability to provide early successional forest habitat" without explaining why cutting *mature oaks* is *necessary* to create early successional habitat. EA at 28. As explained previously, this explanation lacks a firm

foundation. As the agency knows, early successional forest habitat can be created almost anywhere on the forest by removing any variety of trees, not specifically oaks. Over 3,500 acres in the analysis area contain stands less than 40 years old. Since these stands have been logged recently, road templates exist to access them and most are likely suitable for ground-based logging under Georgia forestry best management practices. The 3,500 acres far exceeds the area proposed for commercial logging in either Alternative 2 or 3.

Related, the agency asserts that avoiding harvesting mature oaks limits its ability to create young oak stands in the future. *Id.* This justification suffers from a similar flaw in that the basis for requiring harvest of mature oaks specifically to create young oaks is unclear and unsubstantiated. Past harvests in the 3,500 acre area mentioned previously were largely without plans for regeneration, so these stands are likely depauperate in oaks. Hence, cutting these younger stands instead of mature oak stands would not limit the ability to provide early successional forest habitat and would create better opportunities for restoring oaks and increasing their extent.

Finally, the agency asserts that avoiding commercial logging in the 7.E.1 Prescription and logging generally in the Riparian Prescription would "substantially reduce" the agency's ability to meet Forest Plan Goals and Objectives. *Id*. It is unclear what Forest Plan Goals and Objectives this is referring to, regardless the Draft EA fails to explain how avoiding those specific activities reduces the agency's ability to meet any Forest Plan goals. Presumably this is not referring to goals and objectives related to early successional habitat because unsuitable areas were not considered when setting those objectives during the Forest Plan revision, as discussed previously. *See supra,* Section IX(i)(2)(a). Stated differently, there is no Forest Plan ESH goal or objective for unsuitable areas thus it cannot be reduced or limited. As we provided in the alternative we suggested, to meet other goals and objectives in these areas, the agency should consider management techniques with less adverse impacts (e.g., prescribed fire, non-commercial cutting) in lieu of commercial timber sales.

In addition to the requirement to meaningfully consider viable project alternatives presented directly to the agency, the agency has a general obligation to "identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" "to the fullest extent possible." 40 CFR § 1500.2(e); see 42 U.S.C. § 4332(2)(E) ("study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternate uses of available resources."); 40 CFR § 1502.14 ("rigorously explore and objectively evaluate all reasonable alternatives").

Alternative development and consideration begins with an analysis of the project's purpose and need. As stated previously, the given purpose of the Cooper Creek project is "to restore native plant communities, enhance wildlife habitat conditions, and improve forest health." EA at 2. The project is needed purportedly "because many of the stands in the project area are dense and overcrowded, with limited understory or ground cover diversity." *Id.* Assuming that those needs are accurate and the purpose is appropriate, the agency must consider alternatives that can be employed to meet those objectives while "avoid[ing] or minimize[ing] adverse effects . . . upon the quality of the human environment." 40 C.F.R. § 1500.2(e)

Specifically, the agency should consider the following changes to the project as part of its alternatives analysis:

- Creating early successional forest habitat from stands less than 40 years old
- Avoiding cutting mature oak trees
- Avoiding cutting in unsuitable prescriptions
- Reducing commercial harvest in the Bryant Creek watershed
- Creating woodlands only where site-specific conditions suggest woodlands are appropriate
- Avoiding all ground-based logging on slopes over 35%
- Increasing mitigation measures to avoid sedimentation of streams

Implementing these changes will still allow the agency to meet its purpose and need for this project. Consideration of these reasonable alternatives is necessary to fulfill agency obligations to "emphasize real environmental issues and alternatives," 40 C.F.R. § 1500.2(b), and "avoid or minimize adverse effects." 40 C.F.R. § 1500(e). Without consideration of reasonable project alternatives, the Draft EA cannot (and does not) meaningfully compare the effects of the possible alternatives available to the agency to meet its objectives, denying the public and the agency itself a clear basis for choice among these several options.

ii. The Agency's Analysis of Impacts to Soils is Inadequate Under NEPA

To meet NEPA's "hard look" requirement the Forest Service must: 1) provide site-specific information on the susceptibility of soils in the project area to erosion, sedimentation, and productivity loss and then 2) assess impacts associated with the action alternatives given those site-specific characteristics. *See Leavenworth Audubon Adopt-a-Forest Alpine Lakes Prot. Soc'y v. Ferraro*, 881 F. Supp. 1482, 1489-90 (W.D. Wash. 1995) (Even though Forest Service assessed percentage of soils in disturbed condition, agency still violated NEPA because it failed to adequately consider and document project's impact on those soil conditions.). This analysis requires use of "high quality" information and "accurate scientific analysis" 40 C.F.R. § 1500.1(b). Once risks have been identified, the EA must also disclose how the agency plans to mitigate those risks. *See* 40 C.F.R. §§ 1502.14(f), 1502.16(h); *see also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) ("[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action forcing' function of NEPA."). Perfunctory descriptions of mitigating measures, without sufficient detail to ensure that environmental consequences have been fairly evaluated, are also inconsistent with the "hard look" required under NEPA. *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998) (citations omitted). Here, the District's soil analysis is inadequate because it fails to provide sufficient site-specific information, fails to adequately assess impacts of the action alternatives, and relies on a general and inadequate discussion of mitigation measures.

1) The General Description of Soil Conditions is Inadequate

The District's analysis of existing soil conditions provides a helpful, but only general, overview of soils/slopes in the project treatment areas. The area is steep: 54.5% of the treatment stands are on slopes greater than 25% gradient and nearly 10% are on slopes over 45% gradient. EA at 41-42. "Soils on the steeper slopes have more runoff than soils in the less sloping areas." EA at 38. "As a result, they are more susceptible to erosion." *Id.* All soils on slopes over 25% gradient are rated as "poorly suited" for roads and log landings and have erosion and soil rutting hazard risk ratings of "moderate" to "very severe." EA at 43. In other words, over half of the treatment stands are unsuitable for roads and log landings with a significant likelihood of erosion and rutting. "Very severe [erosion hazard risk ratings] indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical." EA at 44-45. All soils on slopes over 45% are rated as "poorly suited" for operating any ground-based logging equipment. *Id.* "These soil map units have high erosion potential, slope failure potential and present challenges to equipment operation." EA at 42. According to the CONF Forest Plan "[t]hese slopes *require* an overhead cable or helicopter logging system." Plan at F-11 (emphasis added). Yet the agency appears to be planning to conduct ground-based logging in these and other problematic areas.

It only "appears" that the agency is planning to conduct ground-based logging in many of these areas because it is unclear. The EA fails to describe soil conditions in combination with the treatments proposed for those soils/slopes. As an example, the EA discloses that some type of treatment is proposed on 350 acres with slopes over 45% (EA at 42) but does not disclose if those treatments will be commercial or non-commercial, the purpose of the treatments, or the degree of basal area reduction. Presumably less treatment is planned on areas with slopes over 45% under Alt. 3 given agency commitments to "modif[y]" stand boundaries to "minimize" disturbance on those slopes, but that too is unclear and unexplained. *Id.* Any treatment on erosive soils over 45% gradient is likely to cause adverse impacts but commercial harvesting, requiring skid trails, temporary roads, log landings, etc., is likely to be significantly more impactful than non-commercial treatment. Without information relating specific treatments to site-specific conditions the public and the agency cannot weigh the risks inherent in each action alternative. *See* 40 C.F.R. § 1502.14.

The factual descriptions of soil types and hazard ratings are also inadequate because they fail to convert ratings into potential effects on soil and water resources. For example, the agency discloses that much of the treatment area has "moderate," "severe," of "very severe" erosion risk ratings but does not explain what those ratings mean in terms of on-the-ground consequences; with one exception, the agency does disclose that a "[v]ery severe [erosion hazard risk rating] indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical." EA at 44-45. To understand the import of these ratings the public must seek out separate NRCS soil data that is not coherently discussed in the EA as NEPA requires. *See Environmental Defense Fund, Inc. v. Andrus*, 619 F.2d 1368, 1375 (10th Cir. 1980) ("The thrust of NEPA is that all pertinent environmental data be gathered in one place, i.e., the 'statement', there constituting a discussion of all relative environmental impacts of a proposed course or alternative courses of action which reflects that the agency has given all pertinent environmental matters a 'hard look'…").

Finally, we note that analysis of soil slumpage, mass wasting, or landslide risk appears to be missing from the Draft EA entirely. Given the steep slopes, erosive soils, and very high rainfall in the project area the District must assess and disclose the potential for project activities to lead to mass wasting events.

2) The Assessment of Impacts to Soil Conditions is Inadequate

"Ground-disturbing activities from forest management practices have the greatest change [sic] in impacting soil productivity through erosion, compaction, rutting, soil displacement and removal of the organic surface." EA at 40. As the description of soils in the treatment areas generally illustrates, the likelihood of those impacts increases with slope gradient and erosion hazard potential. But the agency's assessment of impacts from ground-based harvesting suffers from the same shortcoming as the agency's disclosure of soil conditions – it lacks the site-specific information necessary to constitute a "hard look." The Draft EA describes the impacts of ground-based logging uncoupled from the site specific conditions at Cooper Creek, e.g., steep slopes and highly erosive soils, in violation of NEPA.

The Draft EA's general discussion of potential impacts from ground-based logging could be used to describe impacts from logging anywhere in the Southeast: "Potential effects of Alternatives 2 and 3 on soil productivity would include compaction, rutting, displacement, erosion, loss of soil organic matter, short-term changes in soil moisture content and changes in nutrient cycles. Introduction of invasive weeds can also be detrimental to native plant growth on soils." EA at 47. Discussion of the relationship between ground-based harvesting, slope, and soils is limited to the general maxim that "the steeper the slope gradient, the higher the potential for soil disturbance to operate ground based systems." EA at 52. This only underscores the need for actual analysis of the impacts of ground-based logging on the steep slopes and erodible soils at Cooper Creek.

A particularly striking shortcoming is the agency's assessment of sedimentation and soil productivity impacts associated with permanent and temporary roads. Both alternatives involve building/rebuilding up to at least five miles of temporary roads. EA at 45. Roads both produce ("Runoff from road surfaces can detach and transport the fine material (soil particles) from road prisms and ditches, particularly during storm events") and deliver ("Sediments delivered to streams from roadside ditches may have originated from sheet or rill erosion in upland areas prior to entering road surfaces or ditches") sediment to streams. EA at 50. "Roads within the project area intersect numerous streams, of all types." *Id. Over 98% of the treatments stands are on soils/slopes "poorly suited" for roads*. EA at 43 (emphasis added). At least 0.7 miles of temporary road are planned for the most problematic soils, on slopes in excess of 45%. EA at 42. Nevertheless the District foregoes this analysis altogether because "[s]ediment delivery directly from road surfaces to water courses is difficult to estimate since it occurs as non-point runoff." EA at 50. This does not approach compliance with NEPA's "hard look" requirement. The agency must assess and disclose the impact of road building and use on the steep slopes and erosive soils at Cooper Creek including an estimate of sediment yield to streams under any project alternative.

Similarly, the agency discloses that between 84 and 116 log landing and loading areas will be required under Alternatives 3 and 2, respectively. EA at 52. The Draft EA also discloses that 97% of the soils in treatment areas are "poorly suited" for log landings. EA at 43. The agency must assess the likely impacts of siting numerous log landings on soils that are "poorly suited" to accommodate them.

The Draft EA dismisses other concerns without adequate explanation as well. "The Forest Service, in soil quality monitoring protocols (USDA Forest Service 2009) has developed thresholds for compaction, displacement, rutting, severe burning, surface erosion, loss of surface organic matter, and soil mass movement." EA at 44. As an initial matter, it is unclear what these thresholds are. Will the agency disclose them? Given the site-specific conditions, is the project likely to exceed them? Analysis of these two questions is critical as exceedance of threshold values "result[s] in significant change to soil productivity levels" potentially in violation of both NEPA and NFMA. *Id.* Finally, what is the relationship between these thresholds and project monitoring requirements? The agency determined that "[f]or the Cooper Creek Project, the DSD categories of compaction, rutting, displacement, and surface erosion would be the thresholds of most concern" and focused most of its analysis on those issues. *Id.* Nowhere does the Draft EA explain why loss of surface organic matter and soil mass movement, in particular, are not concerns at Cooper Creek. NEPA requires the agency to assess these risks or explain in sufficient detail why they are not a concern at this specific site.

Ultimately, the Draft EA evidences the inadequacy of its own analysis. The Draft EA recognizes skid trails as a "primar[y]" source of soil erosion. Soil disturbance associated with skid trails "*depends on site-specific characteristics*." EA at 52 (emphasis added). But the analysis of site-specific characteristics is missing from the Draft EA; as a result, soil disturbance associated with skid trails cannot be adequately or accurately disclosed. Moreover, erosion from equipment use, including skidders, is related to "the number of trees being harvested" but the Draft EA also fails to disclose what treatments (including intensity of harvest) are proposed for which soil types. *Id*. To comply with NEPA, the EA must assess the impacts from individualized treatments given site-specific conditions.

3) Discussion of Mitigation Measures for Soil Impacts is Inadequate

Finally, the District's discussion of mitigation measures is also inadequate. Perfunctory descriptions of mitigating measures, without sufficient detail to ensure that environmental consequences have been fairly evaluated, are inconsistent with the "hard look" required under NEPA. *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998) (citations omitted). Mitigation measures can only be used to justify a FONSI when their efficacy is "supported by substantial evidence. . . ." *National Audubon Soc'y v. Hoffman*, 132 F.3d 7, 17 (2nd Cir. 1997) (Without "substantial evidence to support the efficacy" of the mitigation measure at issue in that case, such as a study of the measure's likely effects, monitoring to determine how effective it was, and detailed alternatives in the event that it failed, the Forest Service's consideration of the proposed action was inadequate and violated NEPA); *see also Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) ("Without analytical

data to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices.").

Unfortunately, the agency frequently resorts to a "mere listing" of good management practices to mitigate impacts. The District repeatedly cites pre-operation planning as meaningful impact mitigation. On slopes over 45% "[p]ossible Design Criteria . . . include *pre-operation location and design of access routes* [and] avoiding existing or predicted unstable slope areas where possible." EA at 42 (emphasis added); 47. "To effectively mitigate the hazard of erosion on treatment activity areas will require *pre-operation planning* to identify suitable access routes (skid trails, temporary roads) that can minimize erosion and sediment movement on steep slopes into riparian areas." EA at 45 (emphasis added). "Landings will need to be *planned prior to construction* to identify optimum locations." *Id.* "Mitigation measures to minimize soil compaction on proposed treatment activity areas *include pre-operation planning and design* to minimize operations on soils rated moderate to severe during wet periods of the year." *Id.* (emphasis added).

The commitment to consider the placement of various aspects of the project prior to project implementation is a good, common sense requirement but the commitment does little to ensure impacts are properly mitigated at Cooper Creek. Given the high risk of impacts at Cooper Creek due to steep slopes, erodible soils, and concentration of treatments in three smaller watersheds, it is unclear how impacts can be reduced to an acceptable level at all. The terrain at Cooper Creek makes it difficult to implement commercial timber harvest without causing significant adverse impacts even with the highest quality pre-operation planning. Further, in most instances the commitment is only to "minimize" or "reduce" impacts "where possible" without explaining the degree of impact reduction that can likely be achieved. We appreciate the agency's commitment to use pre-operation planning to evaluate ways to reduce impacts but the result of that evaluation is yet unclear and thus provides no information or basis upon which to assess claims that impacts will, in fact, be sufficiently mitigated.

Moreover, the evidence before the agency casts doubt on this approach. Presumably the agency utilized pre-operation planning to mitigate impacts as part of the Brawley Mountain timber sale but impacts far exceeded the "light hand on the land" approach promised by the agency. Many parts of the Brawley sale remain unvegetated even 3-5 years after treatment, particularly temporary roads, skid trails, and log landings. At the least the agency must disclose its experience at Brawley and explain why it will be more successful mitigating impacts at Cooper Creek.

For similar reasons, reliance on the "skill and experience of project managers, such as timber sale layout technicians, timber sale administrators, and skilled equipment operators" is not a reasonable mitigation measure. EA at 45. Again, the experience at Brawley suggests that simply employing the right people is ineffective to sufficiently mitigate impacts. Moreover, countering this commitment the agency should disclose that it was unable to sufficiently monitor timber contractors at Brawley leading to violations of the project EA, Decision Notice, and timber sale contracts. *See* Letter from Sarah A. Francisco and Patrick Hunter, SELC, to Andrew L. Baker, Blue Ridge District Ranger (July 8, 2014)(attached).The public should be able to safely assume that the Forest Service will always employ highly-skilled staff and contractors so it is

unclear what this specific commitment is adding. Finally, this commitment appears particularly ineffective at mitigating impacts in areas of the project where "erosion-control measures are costly and *generally impractical*." EA at 44-45 (emphasis added).

As a mitigating factor, the District discloses that some "[s]tand boundaries were modified to minimize ground disturbance on steep slopes in excess of 45%" but does not disclose which stand boundaries or how they were modified. EA at 42. This is a positive step but insufficient to meet NEPA's "hard look" requirement. Recently, the agency has assured the public via its website that it will not conduct "ground based commercial thinning on steep slopes (35 percent sustained grade or more.)"[42] The closest thing we can find to this assertion in the Draft EA is a commitment not to operate skidders on sustained slopes over 35%. EA at 29. The assertion seems inconsistent with other sections which contemplate use of temporary roads and ground-based equipment to log on slopes over the 35% threshold. *See, e.g.*, EA at 42 (identifying need for at least 0.7 miles of temporary roads on steep slopes). We ask that the agency to explain this commitment in more detail to allow the public to evaluate its significance. What constitutes a "sustained" slope? Will the agency commercially log these lands via methods that are not reliant on skidders such as chain logging with winches?

The District also relies on time constraints to mitigate impacts. Namely, sequencing treatments so that "the likelihood of large-scale soil erosion or sediment delivery to streams is minimal" (EA at 50) and utilizing "shut down" periods "for roads and mechanical vegetation treatments during wet weather" (EA at 47). As discussed elsewhere, the commitment to sequencing treatments does not necessarily mitigate impacts but changes the type of impact from a short, intense impact to a more prolonged impact. Additionally, this commitment will be completely ineffective if areas of past treatment have not sufficiently healed so as not to exacerbate the impacts of active treatments. The agency must explain why its failure to revegetate areas at Brawley will not be replicated here. Finally, a commitment to utilizing shut down periods may help mitigate some impacts, rutting for instance, but is ineffective to combat others, such as erosion. Again, the agency has demonstrated an inability to sufficiently monitor these activities as demonstrated by noncompliance with timber sale contracts at Brawley.

The most specific commitment made in the Draft EA is that "[w]oody debris from forest thinning (i.e. slash, tops, branches) would be lopped and scattered on skid trails, log landings and temporary roads after operations end to provide ground cover and erosion control, further reducing potential adverse effects to soils." EA at 48. But the Draft EA contains no data regarding the efficacy of that commitment. Moreover, taking forest thinning from treated stands and placing it on skid trails, log landings, and temporary roads would seem to leave those stands more vulnerable to erosion because they would lack the protective cover.[43]

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[42] http://www.fs.usda.gov/detailfull/conf/home/?cid=FSEPRD490276&width=full

[43] The Draft EA asserts that whole tree harvest is not proposed for this project and relies upon the retention of logging slash (tree tops and branches) as a mitigation measure. EA at 28, 48. The EA should explain how whole tree harvest will be prohibited. Will logging contracts include a provision requiring the retention of slash on site? If so, how will the Forest Service oversee and enforce it? The EA should also disclose that whole tree harvest occurred, impermissibly, at Brawley Mountain and explain how the Forest Service will ensure the same does not occur at Cooper Creek. For further discussion, see Letter from Francisco and Hunter to Baker (July 8, 2014) (attached).

Overwhelmingly the Draft EA resorts to relying on unspecified BMPs to "minimize adverse impacts to soils and water quality" without providing any evidence that those BMPs will minimize adverse impacts at Cooper Creek specifically to an acceptable degree. EA at 47, 53. The inadequacy of this approach is illustrated with a typo (and discussed in sections IX(iv)(2) and IX(ii)(3). According to the Cooper Creek Draft EA, with "implementation of applicable BMPs as outlined in Table 2.16 – Design Features and Mitigation Measures for Action Alternatives, most adverse effects to soils would be minimized, mitigated or treated to begin restoration to desired conditions." EA at 47. There is no Table 2.16 in the Cooper Creek Draft EA. Unsure of this commitment we looked at other projects on the CONF to see if they included a Table 2.16 and we found one – the Sumac Creek project. The Sumac Creek project was located on a different district on the CONF with different soil and slope concerns and different proposed treatments. Yet, Table 2.16 in the Sumac Creek EA and Table 2.4.1 in the Cooper Creek Draft EA – both of which set out design features necessary to mitigate impacts to soil and water - are identical. The agency is relying on exactly the same BMPs to mitigate impacts in areas of the forest with different slope gradients, soils, aspects, precipitation patterns, forest communities, etc. While these BMPs may have some impact, simply referencing the BMPs fails to explain how or why they will be successful at Cooper Creek. The District is only committing to implementing standard mitigation measures incorporated in multiple EAs across the forest.

Documents referenced in the Draft EA to explain soil and slope concerns belie the efficacy of this approach. NRCS soil data explains that ratings of moderate or severe erosion hazard "indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment." Soil Survey of Fannin and Union Counties, Georgia 45.[44] In other words, soils with at least a moderate erosion hazard risk rating – 96% of the treatment area - require above standard mitigation measures. *See* EA at 45. Moreover, the Draft EA discloses that some treatment areas have "very severe" erosion hazard risk ratings where "erosion-control measures are costly and *generally impractical*." EA at 44-45 (emphasis added). To meet its NEPA obligations the agency must either commit to specific, above standard measures to mitigate impacts to soil and water, or demonstrate why "standard" measures will be effective will sufficiently mitigate impacts on soils/slopes with unusual, higher than standard risks.

In sum, the lack of site- or project-specific analysis, the reliance on general, ill-defined mitigation standards that cannot be fairly assessed for their efficacy, and the District's cursory assumptions and explanations, render the District's analysis inadequate under NEPA. For examples of the types of analysis that we believe are missing *see, infra,* Section IX(iv)(2).

iii. Agencies must consider relevant information

As mentioned previously, a core objective of NEPA is to "ensure that the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Friends of the Clearwater,* 222 F.3d 552, 557 (9th Cir.2000). The EA and/or EIS requirements further that objective by "ensur[ing] that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts" and by "guarantee[ing] that the relevant information will be made available to the larger audience that

[44] http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/georgia/GA637/0/Fannin_union.pdf

may also play a role in both the decisionmaking process and the implementation of that decision." *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 768, 124 S. Ct. 2204, 2215-16, 159 L. Ed. 2d 60 (2004)(citation omitted). When relevant information about a project and its impacts is available, the agency must consider and disclose it.

Agencies also have an affirmative duty to research, uncover, and disclose information about potential impacts from projects. Agencies cannot research impacts "in a cursory manner nor sweep[] negative evidence under the rug." *Nat'l Audubon Soc'y v. Dep't of Navy*, 422 F.3d 174, 194 (4th Cir. 2005). "[A]gencies violate NEPA when they fail to disclose that their analysis contains incomplete information." *N. Carolina Wildlife Fed'n v. N. Carolina Dep't of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012); *see also State Farm*, 463 U.S. at 43, 103 S.Ct. 2856 (holding that an agency acts arbitrarily and capriciously when it fails to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made") (internal quotation marks omitted). Withholding "up-front disclosures of relevant shortcomings in the data or models" violates NEPA. *Lands Council v. Powell*, 395 F.3d 1019, 1032 (9th Cir.2005). Here, the District has relevant data about its efforts to create woodlands as part of the Brawley Mountain project that it has not considered nor disclosed in violation of NEPA.

The Brawley Mountain Project was an approximately 400-acre woodland development project located on the Blue Ridge Ranger District. Authorized in 2009, harvesting began in 2010 and lasted through 2014. According to the agency, woodland conditions should exist at the site after two burns if there was no herbicide treatment or one burn if there was herbicide treatment; approximately three to five years. Brawley EA at 81. At the least, the EA provided that "woodland conditions would be created . . . by about five years post-harvest." *Id.* at 82. According to that projection, woodland conditions should exist across large parts of the project area. The Forest Service also committed to conducting post-project monitoring to evaluate the agency's success at creating woodlands at Brawley. *Id.* at 20 ("Standard Forest Service procedure includes monitoring for achievement of objectives. These include post-burn monitoring, vegetation composition monitoring, and implementation and effectiveness monitoring of mitigation measures"); *see also* 23-24, 183.

Information regarding the District's ability to create woodlands at Brawley Mountain is directly relevant to its new effort to create woodlands at Cooper Creek. NEPA requires this information to be considered in the Cooper Creek environmental documents and disclosed to the public. But information regarding the District's efforts at Brawley Mountain is completely missing from the Cooper Creek Draft EA. This leaves critical questions unanswered including: What indicates that the agency was successful at creating a woodland ecosystem at Brawley? Are woodland associated species present, and if so, to what degree? Does the agency intend to change its approach to future woodland projects in response to its adaptive management responsibilities? If the agency was not successful, what indicates a probability of success at Cooper Creek? The agency should have information to answer these questions that must be considered and disclosed in the EA. Alternatively, if the agency has not collected sufficient information to evaluate success at Brawley it must disclose that its analysis at Cooper Creek contains incomplete information. *See N. Carolina Wildlife Fed'n v. N. Carolina Dep't of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012).

Given the recent emphasis on woodland "restoration" on the CONF, we have been working with an expert biologist to evaluate the agency's efforts to create woodlands at Brawley mountain. We hope this work is useful to the agency and leads to better adaptive management, appropriate selection of woodland "restoration" sites, and a generally healthier forest. Professor Evans' initial scientific review of the Brawley Mountain Project (attached) also contains directly relevant information which NEPA requires the agency to consider before the agency moves forward with creating additional woodlands at Cooper Creek.

One of Prof. Evans' key findings was that there was no "evidence to suggest that natural woodland communities ever existed at the Brawley Mountain site" and that as a result **"**there is no basis to support the idea that the simple manipulation of forest structure (opening the canopy, suppressing resprouting, controlled burns) would result in the appearance of any of the 64 Woodland dependent species" mentioned in the Brawley EA. *Id.* at 4. Agency records do not reveal the recruitment of any of these indicator species to the Brawley site in significant numbers. At best this is inconclusive evidence regarding the agency's ability to create a woodland community. If that is the case, it begs the question why the District is choosing to create nearly 700 additional acres of woodland on questionable sites before it has shown it can be successful creating woodlands at all. In fact, the evidence before the agency indicates that it created temporary woodland canopy structure but failed to create a woodland community. Prof. Evans evaluation suggests that the agency can be much more successful at creating self-sustaining woodlands where individual site-specific characteristics lend themselves to a woodland community. In other words, whether or not the CONF as a whole has a shortage of woodlands, creating woodland communities can only be successful where site-specific conditions prescribe them. What site-specific characteristics at Cooper Creek does the Forest Service believe suggests woodlands are appropriate here?

From our perspective, there is minimal site-specific evidence that woodlands are appropriate for many of the sites considered as part of the Cooper Creek project. *See, supra*, Section III(iii). We fear this will repeat mistakes made at Brawley and fail to create a sustainable woodland community. Information about the agency's success or lack thereof at Brawley is relevant information about the agency's ability to create woodlands which must be considered and disclosed as part of this project. Additionally, as the agency has justified this project with general promises of mitigation, it must also disclose that it was unable to sufficiently monitor the Brawley sale to insure mitigation measures were in place. The agency must examine the data before it "and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made," in this instance, the choice to create additional woodlands at Cooper Creek. *State Farm*, 463 U.S. at 43, 103 S.Ct. 2856.

iv. Cumulative impacts analysis

Under NEPA, an agency must take a "hard look" at a project's environmental consequences. *California v. Block*, 690 F.2d 753 (9th Cir. 1982). The "hard look" includes an examination of direct, indirect and cumulative impacts. A "[c]umulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. Here, the agency's assessment of cumulative impacts fall short on multiple fronts.

One overarching shortcoming is that the agency has completely failed to assess impacts from private lands which plainly fall within the definition of "cumulative impact." *See* 40 C.F.R. § 1508.7. Table 3.2.1 provides a helpful overview of other agency actions in the vicinity that may lead to cumulative impacts but they are only that – *agency* actions. EA at 33-34. While the agency may not have control over impacts from activities on private lands, the cumulative impact of those activities in combination with impacts from this proposed activity must be assessed to comply with NEPA. Relevant questions include, but are not limited to: what is the cumulative effect, both in terms of forest communities and wildlife use, of transitioning older forest to younger forest on public lands given conditions on private lands? And what is the cumulative impact to soil health in the area (including private lands) given soil productivity decline that is predicted to occur as part of the project?

Assessment of cumulative impacts inclusive of impacts from private lands is likely most critical for water quality considerations. These concerns will be discussed further below but are worth flagging here. Most of the area subject to ground-based logging as part of this project drains into Cooper Creek. Cooper Creek is listed as impaired by the state of Georgia (EA at 64), flows downstream onto private property and ultimately into the Toccoa River. The EA must consider the cumulative impact of this action, in combination with activities on private lands, on water quality of Cooper Creek and potential impact on the Toccoa River. The question of whether the sum of activities on private and public lands, including activities being considered as part of this project, may impact these water bodies to an unacceptable degree is unanswered.

1) Cumulative impacts and soils

First, the agency has spatially limited its analysis of cumulative impacts to soils in violation of NEPA. We appreciate that "[a]ssessing soil quality within too large an area can mask site-specific effects" (EA at 36) but similarly, assessing soil quality within too small an area can mask *landscape*-scale effects – both assessments are necessary. "Analysis of direct and indirect effects for soil quality and productivity was [only] applied to the land area within the boundaries of proposed treatment units" and cumulative effects were only assessed where there were direct or indirect effects, i.e., also only within the boundaries of the proposed treatment units. EA at 36. The agency illustrated its assessment with an example: "if one acre of land receives soil impacts – resulting in reduced soil porosity, water holding capacity, aeration, long-term productivity – and a second management activity is planned for the *same site*, then soil cumulative effects are possible." *Id.* (emphasis added). This approach is inadequate because it ignores the combined effect of harmful impacts to soils from a landscape perspective; the Draft EA admits as much: "there are many present and reasonably foreseeable activities that are not considered for the soils cumulative effects analysis because they do not occur within unit boundaries." EA at 53. To use the agency's example, if one acre of land has received soil impacts causing a reduction in long-term productivity, and this project would cause the adjacent acre to also experience a reduction in long-term productivity, the cumulative effect of that action (two acres with reduced productivity) must be considered. In other words, cumulative effects analysis must assess the environment as a whole, not only specific sites where direct effects attributable to the project will occur.

The assessment of cumulative impacts within individual treatment units is also inadequate. The Draft EA asserts that "[m]ost of the proposed units for Alternatives 2 and 3 have had prior entries, and the effects of a secondary entry do not necessarily add to effects of the earlier harvests because existing landings and temporary roads would be used again." EA at 54. Reusing existing log landings and temporary roads will cause a cumulative impact by, for example, further compacting previously compacted soil thereby making vegetation reestablishment in that particular footprint even more difficult. To be clear, we support the approach of utilizing old roadbeds and log landings whenever possible, but the impact of that use is a cumulative effect that must be assessed under NEPA.

2) Cumulative impacts to water quality and aquatic habitat

An initial step of cumulative impacts analysis is to identify the likely sources of impacts including sources of direct and indirect impacts associated with proposed alternatives, and past, present, or reasonably foreseeable impacts which may "add to, modify, or mitigate" the impacts of proposed alternatives. *See* 36 C.F.R. § 220.4. Here, the agency has done a commendable job of identifying potential sources of impacts to water quality including: permanent and temporary roads and road building (EA at 70); prescribed burning (EA at 71); timber harvests/silvicultural treatments (EA at 73-76); herbicide (EA at 76); other past or planned agency actions (EA at 33); impacts from dispersed recreation (EA at 79); impacts from climate change (EA at 79); impacts from the loss of hemlocks due to hemlock wooly adelgid (EA at 80); and impacts associated with long term acidic deposition (EA at 80). The agency should also consider sources of impacts to water quality on private lands. Ultimately however, consideration of these potential impacts is lacking and some, impacts from recreation for instance, are not assessed at all.

Compounding that problem, in some instances the agency has confused the obligation to consider cumulative impacts with an obligation to mitigate events beyond the scope of this project. The EA acknowledges that "[t]he greatest concerns to water resources come from effects of climate change, loss of hemlocks from HWA, and long term acidic deposition" but dismisses those concerns because "[t]he ability to address these issues extends beyond the scope of this document." EA at 80. This brings the wrong lens to the analysis. The agency's obligation is not to alter outside events to mitigate impacts, but to weigh those impacts in combination with those of the proposed action, and where necessary, *change the proposed action* to mitigate overall impacts.

This is not just a paper consideration. Elsewhere the Draft EA acknowledges that the loss of hemlock and climate change have the potential to cause an increase in water temperature in streams. EA at 66. The Draft EA also discloses that the vegetation treatments proposed in Alternatives 2 and 3 have the potential to "increase water temperature" (EA at 73) and that prescribed burning can lead to changes in water temperature (EA at 71). The agency must assess and provide detailed information on the cumulative effect of hemlock loss, climate change, and prescribed burning, in combination with the proposed vegetation treatments on in-stream water temperature. Where the likely impact is substantial, the agency should adjust the vegetation treatments to mitigate the cumulative impact.

"To 'consider' cumulative effects, some quantified or detailed information is required. Without such information, neither the courts nor the public, in reviewing the Forest Service's decisions, can be assured that the Forest Service provided the hard look that it is required to provide." Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998). Simply providing, "[g]eneral statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." *Id.* at 1380; *see, supra,* Section IX(ii)(3). Unfortunately, the agency has employed that approach repeatedly in the Cooper Creek EA.

Given the size of the Cooper Creek project and concentration of soil disturbing mechanical treatments in a roughly 5,100 acre area with steep slopes and very high rainfall, there is a strong possibility of cumulative impacts to water quality and riparian habitat from sedimentation. The Draft EA repeatedly dismisses these concerns with general statements about possible effects and risk, such as: "[i]mplementation of best management practices during and post treatment helps reduce the risk" (EA at 79) and unspecified "design criteria would minimize the risk of effects being of magnitude and extent to impact beneficial uses." EA at 80. Further, to reduce detrimental impacts to soil which may lead to sediment entering streams, the EA relies on "the skill and experience of project managers, such as timber sale layout technicians, timber sale administrators, and skilled equipment operators." EA at 45. As discussed elsewhere, these general, unspecified commitments are insufficient in multiple ways.

First, summarily relying on BMPs to mitigate impacts, without some analysis of the effectiveness of those BMPs, runs afoul of NEPA. *See Wilderness Soc'y v. Bosworth*, 118 F. Supp. 2d 1082, 1107 (D. Mont. 2000) (holding summarily relying on BMPs to mitigate a high risk of landslides, when those measures have not been specifically assessed for effectiveness against landslides, inadequate under NEPA); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) (finding incomplete discussion of mitigation measures violates NEPA); *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) ("Without analytical data to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices."); *see, supra ,* Section IX(ii)(3).

Second, unquantifiable commitments to reduce or minimize risk are inadequate to allow the public and the decisionmaker an opportunity to compare risks under different alternatives. Simply stating that risks will be reduced or minimized does not provide any information about the level of risk or the degree it can be reduced. This approach is especially concerning in this instance where risks are particularly high due to site-specific conditions. In some instances, even a minimized risk may be too great. In others, additional mitigation measures beyond BMPs may be required to reduce risk to acceptable levels. The agency must have data supporting its assertions about risk and minimizing risk and that data must be disclosed to the public to allow it to weigh those considerations.

The agency's analysis also has a problem of scale. Analysis of effects on water quality and aquatic species and habitats must consider adequately the impacts at all relevant scales – impacts on tributaries, impacts on Cooper Creek itself and on the overall health of the Cooper Creek watershed, and the cumulative impacts on rivers downstream. The Draft EA's analysis of

effects on water quality and aquatic species and habitat relies primarily on the theory that sediment impacts are diluted as sediment-laden water flows from smaller streams into larger ones, downplaying impacts to Cooper Creek and the Toccoa River. The analysis of impacts to Cooper Creek is particularly sparse which is all the more problematic because Cooper Creek is already listed as impaired by the state of Georgia. The Draft EA fails to consider that Cooper Creek itself is essentially at the bottom of the funnel of all of the tributaries that feed it. Cooper Creek will receive all of the sediment from its tributaries, therefore, while it is a larger stream, it will receive a greater total volume of sediment, and perhaps a greater concentration of sediment. The Draft EA's failure to consider and address this is a major flaw. A revised EA should address this issue, with quantified estimates of the sediment likely to be produced in the tributary watersheds and in Cooper Creek as a whole and a detailed analysis comparing such sediment increases to the baseline current conditions and considering how the sediment increases may affect water quality and aquatic species and habitat.

Compounding this error is the assumption that sediment moves through the stream system in an even manner. The cumulative impacts analysis implicitly assumes that sediment flows evenly and constantly through the stream system, in the same amount all the time. But in reality sediment moves episodically. Once delivered to a stream, sediment may persist for years, decades or centuries, depending on the amount. Sediment may accumulate in upper stream reaches and then be delivered downstream in storm events, causing damaging pulses of sediment. It is likely that sediment will accumulate in the tributaries' streambeds, damaging aquatic habitat and species, and be delivered downstream in storm events, dumping periodic, concentrated sediment loads into Cooper Creek, where it will persist in the streambed, damaging habitat and species there, and then be delivered to the Toccoa River, perhaps to do the same. The analysis of effects on water quality completely avoids analysis of impacts on Cooper Creek and the cumulative impacts on rivers downstream in violation of NEPA.

The Draft EA also dismisses concerns over cumulative impacts to smaller tributaries despite data leading to the opposite conclusion. Burnette Creek, a small stream in the project area already has a high percentage of fine sediment that does not appear to be flushing out of the stream. EA at 117. "This suggests that if sediment is introduced into other streams in the project area *it also has the potential to persist and this would negatively affect aquatic habitat and fauna*." *Id*. (emphasis added). The importance of consideration the cumulative impact on these small streams with concentrated treatments cannot be overstated.

a) Bryant Creek Watershed

Indeed, one of our primary concerns with the proposed project are the cumulative, unacceptable risks posed to the Bryant Creek watershed, which includes its tributary Pretty Branch. Bryant Creek is likely Georgia's largest and best native brook trout stream and home to a state-threatened aquatic species. Despite this value, the Bryant Creek drainage, which comprises 2,048 acres, is scheduled for 1,510 acres of silvicultural treatment in Alternative 3 – 74% of the drainage - of which approximately 1,239 acres are commercial and will involve ground-based logging. EA at 117. In Alternative 2, silvicultural treatment is proposed on 1,611 acres of these same drainages. EA at 115. The Draft EA acknowledges that "[o]verall, there is the potential for negative cumulative effects to aquatic habitat and associated species under both

Alternatives 2 and 3, *especially in drainages where treatments are concentrated*" such as Bryant Creek and Pretty Branch. EA at 118 (emphasis added). The negative impacts of sedimentation on aquatic fauna are well documented and discussed in the Draft EA on pages 84, 117, and elsewhere. Analysis of cumulative impacts to water quality and riparian habitat in this watershed is critical and dismissal of concerns over cumulative impact to water quality and riparian habitat is not supported by analysis in the Draft EA.

The concentration of treatments, particularly commercial treatments, seems likely to result in a cumulative increase of sediment to Bryant Creek. Averaging all the treatments, this project, as currently proposed, will remove about half of all trees in the Bryant Creek drainage making the underlying soil more susceptible to erosion. Nearly all the temporary roads, log landings, skid trails and haul road realignments planned for the project in Alternative 3 will be constructed in the Bryant Creek drainage. The Draft EA acknowledges that these actions will cause an increase in erosion and increased delivery of sediment to Bryant Creek, but, as discussed elsewhere in these comments, the Draft EA unjustifiably relies on general commitments to implement BMPs to mitigate the impact.

The Draft EA also acknowledges that most current sources of sedimentation come from roads. EA at 68. The existing road system is judged to be inadequate for the timber haul planned, and road realignment and "curve widening" are contemplated. EA at 70. This is puzzling, as the existing road system served for the timber haul in the 1970s and 1980s, when over 3,000 acres were clear-cut in the analysis area. In the Draft EA and on field visits, the agency has stated that tractor trailers will not be used for the haul. From an engineering standpoint, curve widening is problematic on the steep narrow roads found in the project area. Additional fill material has to be found, and most often this material is removed from the cut side of the road and deposited on the fill side. This procedure weakens the cut bank and makes it more prone to erosion. Depositing the removed material on the fill side to widen the road raises another issue as it is nearly impossible to compact the material sufficiently without building a road below the fill side. Road construction, reconstruction, and use, whether temporary or permanent is also likely to lead to increased sedimentation and potentially slope failures which could dramatically increase sedimentation.

In assessing the project's impacts to Bryant Creek, all of the negative factors have to be considered in light of cumulative impacts associated with global climate change. The Draft EA devotes most of the climate change analysis to the loss of carbon storage, forest resilience, pests and fire but fails to include an analysis of changing precipitation patterns, incorrectly stating that precipitation patterns are predicted to be stable. EA at 84. In fact, though the annual total precipitation may remain nearly the same, cycles of precipitation are likely to change substantially. Both very dry and very wet summers have become more common over the past 60 years, and that pattern is expected to continue.[45,46]

[45] Wang, H, R Fu, A Krumar and W Li. 2010. Intensification of summer rainfall variability in the southeastern United States during recent decades. *Journal of Hydrometeorology* 11(4):1007-1018.
[46] Li, L, W Li, and Y Kushnir. 2012. Variation of the North Atlantic subtropical high western ridge and its implication to Southeastern US summer precipitation. *Climate Dynamics* 39(6):1401-1412.

More specifically, on examining 75 years of temperature and precipitation data in the Coweeta Basin, Coweeta scientists have confirmed that local temperature and precipitation trends are following those predicted for the southeastern USA. [13] Their analysis has revealed a significant increase in temperatures since the late 1970s, an increase in drought severity and frequency, and more extreme precipitation distribution. The southeastern United States is predicted to be the most susceptible to novel climates (combinations of seasonal temperature and precipitation that have no historical or modern counterpart). Any forest project within the Chattahoochee-Oconee National Forests must consider the cumulative impact of these environmental changes and should consider how to best maintain forest health and diversity in light of these changes.

Additionally, the recently released National Climate Assessment (http://nca2014.globalchange.gov/) predicts an increase in violent, torrential rain events, such as the 1,000 year flood in South Carolina this past fall. Locally, over 20" of rain fell in parts of north Georgia in the month of December 2015. These uncommonly heavy rains scoured streams and did an enormous amount of damage to Forest Service roads as the agency is well aware. All of the activities proposed for the Bryant Creek watershed should be analyzed in light of this prediction. This includes activities intended to mitigate impacts from the proposed actions as well, such as the efficacy of BMPs to deal with non-standard precipitation events.

All of the ground disturbing activity associated with this project, spread over an extended period of time, makes it very likely that an extreme weather event will occur while a good deal of soil is exposed; consequently, unacceptable levels of sediment will be deposited into Bryant Creek. The Draft EA recognizes this reality: "The concern with so much activity in [sic] drainage at once is that if there is a storm event and areas have not revegetated sediment could be introduced into aquatic habitats. While a slight increase of sediment into these streams probably would not be detrimental to aquatic fauna a larger increase would be." EA at 115. Despite "the potential for negative cumulative effects to aquatic habitat and associated species under both Alternatives 2 and 3, especially in drainages where treatments are concentrated" the Draft EA dismisses these concerns almost solely relying on unspecified "BMPs and mitigation measures" to "minimize" "the potential for negative cumulative effects to aquatic fauna and habitat." EA at 118. "Minimize" is unqualified and BMPs have often been overwhelmed by extreme weather events. Even with BMPs in place, acres of exposed soil still exist at the Brawley project years after the timber cutting ended. If Brawley, in its current condition with large unvegetated areas, was adjacent to Bryant Creek as much of this project is, the impacts from rainstorms in December 2015 would have been quite significant.

As mentioned in the Draft EA, ground-based logging, prescribed fire, and herbicide use will result in increased flows due to the reduced transpiration, interception, and infiltration. EA at 72-76. The Draft EA goes on to say that "in smaller watersheds, with palmate patterns, such as Bryant Creek, peak flows may be affected somewhat more." This certain rise in water yield, coupled with extreme rain events, makes it likely that Bryant Creek will experience major flooding during the course of this project. In addition to sedimentation delivery, this can

[13] Laseter, SH, CR Ford, JM Vose, and LW Swift jr. 2012. Long-term temperature and precipitation trends at the Coweeta Hydrologic Laboratory, Otto, North Carolina, USA. *Hydrology Research* 43(6):890-901.

negatively affect the native brook trout population directly. A study in the Monongahela National Forest in West Virginia found that "[brook trout] were scoured during the January 1996 flood. Few age-0 trout were found in summer 1996, and their density averaged about 98% less than the previous year. Age-1 and older trout also declined; their density in 1996 was about 84% less than the previous year."[47]

The native brook trout population in Bryant Creek is at the very southern limit of its range, constrained by water temperature. The Draft EA states on page 66 that "[w]ater temperature of streams in the project area are likely to rise as a result of both climate change and loss of the eastern hemlock." Increased sediment delivery will also increase turbidity which in turn will raise water temperatures.[48] The Draft EA predicts that timber harvesting in the Bryant Creek watershed will not raise water temperatures because of the 25-foot no harvest riparian buffer. Trees to be harvested along Bryant Creek and Pretty Branch frequently have branches exceeding 25 feet and hemlocks in the area are dying, creating natural canopy gaps. Additionally, the sun is never directly overhead at temperate latitudes, so preserving the canopy directly over streams would not be sufficient to maintain shading. A study in a Maine brook trout stream found that an 11-meter buffer during a timber harvest resulted in a rise in water temperature of 1.0-1.4 °C.[49] Aside from the requirements of the Georgia Forestry BMPs, on what basis did the District conclude that a 25-foot riparian buffer was sufficient for streams in this area?

The Draft EA also states that "acidic deposition is still above natural background levels [in the Blue Ridge province]. Studies in the Appalachian Mountains, including the project area, indicate sulfate concentrations in streams have increased over the last decade while the acid neutralizing capacity (ANC) has decreased (Elwood et al., 2012, Webb, 2004). Streams within the project area are considered vulnerable to acidification. Multiple water quality samples for acidity, anions, and major cations were collected in Cooper Creek in 2012. The results show a vulnerability to acidity." EA at 65.

Despite this vulnerability to acidification, this project proposes to remove approximately half the trees in the Bryant Creek watershed. This will result in a short-term reduction of nitrogen uptake with a corresponding increase of nitrates deposited into Bryant Creek. Removal of the boles will also remove a major calcium source and disrupt the cycling of this critical, base cation from the immediate area. Loss of organic base cation sources, both from fallen leaves and boles and woody debris, may impact the buffering capacity of the area from ongoing sulfate and nitrogen deposition. Critically, brook trout prey, primarily insects, are also more sensitive to acidification than trout, and are adversely affected at ANC below 100[50]. In 2012 the ANC was

[47] Carline, RF, and BJ McCullough. 2003. Effects of Floods on Brook Trout Populations in the Monongahela National Forest, West Virginia. *Transactions of the American Fisheries Society* 132(5): 1014-1020.
[48] Paaijmans, KP, W Takken, AK Githeko, and AF Jacobs. 2008. The effect of water turbidity on the near-surface water temperature of larval habitats of the malaria mosquito *Anopheles gambiae*. International Journal of Biometeorology52(8):747-753.
[49] Wilkerson, EJM Hagan, D Siegel, and AA Whitman. 2006. The effectiveness of different buffer widths for protecting headwater stream temperature in Maine. Forest Science 52(3):221-231.
[50] Reynolds, KM, PF Hessburg, T Sullivan, N Povak, T McDonnell, B Cosby, and W Jackson. 2012. Spatial decision support for assessing impacts of atmospheric sulfur deposition on aquatic ecosystems in the Southern Appalachian region. *45th Hawaii International Conference on System Sciences (HICSS).*

measured at 70 in Pretty Branch and 84 in Bryant Creek (personal communication with J. Wentworth). The assurances in the EA that stream acidity will not reach levels adversely affecting brook trout are meaningless if their food source is eliminated.

The sedimentation, rising stream temperatures, and increased acidity that would result from this project threaten the continued survival of one of Georgia's largest native brook trout populations. Even if those changes do not independently eliminate brook trout, their combined effects or interaction may prove fatal. As explained by the Ninth Circuit Court of Appeals when assessing a cumulative impacts analysis looking at salmon viability: "the addition of a small amount of sediment to a creek may have only a limited impact on salmon survival, or perhaps no impact at all. But the addition of a small amount here, a small amount there, and still more at another point could add up to something with a much greater impact, until there comes a point where even a marginal increase will mean that *no* salmon survive." *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994 (9th Cir. 2004)(finding NEPA requirement to take a "hard look" at cumulative impacts unsatisfied)(emphasis in original). Here, trout will be exposed to numerous stressors, not just sediment, and exposure to one stressor can increase an organism's susceptibility to another. The Draft EA fails to analyze the combined effects of all the stressors affecting the brook trout population in Bryant Creek in violation of NEPA.

With 34,018 acres of Forest Service land available in the project planning area, why must timber harvest and the resulting disturbance be concentrated in the watershed (as close as 25 feet from the very banks) of one of the best, but also one of the most vulnerable brook trout streams in Georgia, and on the upstream edge of the healthiest population of an aquatic, state-threatened species?

The mitigation measures the agency relies on to alleviate concerns on cumulative impacts to water quality at both local and landscape scales are inadequate. For additional discussion of the legal requirements applicable to mitigation measures, *see, supra*, Section IX(ii)(3). The agency significantly relies on the "timing of timber sales and sequencing of entry into units" to mitigate risks. EA at 118. This approach is problematic as discussed above, given the likelihood of intense precipitation events during that time period and potential for compounding impacts from previously treated but unhealed, unvegetated areas. The approach also introduces a new problem – prolonged introduction of sediment into the stream as a result of years of sequenced timber sales. Both approaches will generate impacts: potentially some more acute and some more chronic. The assurance of stretching out entry into units is more of a trade-off of impacts than a mitigation of impacts.

The agency overwhelming resorts to the inadequate explanation of BMP reliance to dismiss concerns over cumulative impacts. EA at 118. Sole reliance on general BMPs is particularly insufficient here where impacts are highly concentrated. Additionally, the agency commits to reseed and revegetate potential areas of erosion once a sale unit is completed. *Id.* Relying on the agency's ability to reseed and revegetate areas of erosion as a key factor in reducing cumulative impacts to water quality is problematic given the agency's experience at Brawley Mountain. There, efforts to revegetate areas of erosion were unsuccessful and now, years after entry, many of the temporary roads, log landings, and skid trails remain bare. Blindly relying on the agency's assertion that cumulative impacts to water quality will be prevented by

revegetating areas is unreasonable when the agency has not shown that it can be consistently successful in those endeavors. Regardless the "generalized conclusory statements that the effects are not significant or will be effectively mitigated" are insufficient to meet NEPA's requirements. *See Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 996 (9th Cir. 2004). To fulfill its "hard look" requirement, that agency must present "some quantified or detailed information" demonstrating that it considered cumulative impacts and efforts to mitigate them. *Neighbors of Cuddy Mountain*, 137 F.3d at 1379.

We have seen other Forest Service environmental assessments for projects likely to affect important streams and rare or vulnerable aquatic species that included much more thorough discussions and quantified analyses of current conditions and predicted future conditions regarding erosion, sedimentation, and effects on water quality and aquatic species and habitat. These analyses were specific to the project's watershed (usually 6th level watersheds, such as the Cooper Creek watershed), not generic discussions of possible types of effects. Examples of the types of information and analyses that we have seen in some other EAs include:[51]

- Using tools and models for estimating erosion and sediment delivery that are widely used and available to the Forest Service, such as: the Universal Soil Loss Equations; the USDA Forest Service "Guide for Predicting Sediment Yield from Forested Watersheds" which tiers to the guide "An Approach to Water Resources Evaluation of Non-Point Silvicultural Sources" (WRENSS); the Water Erosion Prediction Project model; and others. The tools and models we have seen used take into account key factors such as the soil types and their erodibility factors and slopes involved.
- Estimating the erosion rates and quantity of sediment likely to be produced in the watershed if the watershed were in an undisturbed condition (e.g., pounds per acre per year of soil loss; total loss in smaller tributary watersheds and entire watershed).
- Estimating the current erosion rates and quantity of sediment produced in the watershed, given known existing disturbances, such as roads (e.g., pounds/acre/year of soil loss; total loss in tributary watersheds and entire watershed; current loss compared to undisturbed levels).
- Estimates of the erosion rates and quantity of sediment likely to be produced by project activities, such as timber harvest, roads, skid roads/trails, log landings.
- Estimates of the total (cumulative) erosion rates and quantity of sediment likely to be produced by existing sources, project activities, and reasonably foreseeable ongoing or future activities (e.g., pounds/acre/year of soil loss; total loss in tributaries and entire watershed; percent increase over undisturbed conditions and percent increase over current conditions).

[51] See, e.g., Environmental Assessment for Middle Citico Vegetation Management Project, Cherokee National Forest (Jan. 2013), available at http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/51740_FSPLT2_309529.pdf; Environmental Assessment for Lower Cowpasture Restoration and Management Project, George Washington National Forest (July 2015), available at http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/95412_FSPLT3_2551640.pdf; Environmental Assessment for Wells Branch Timber Sale, Clinch Ranger District, Jefferson National Forest (Mar. 2012). We are not suggesting that all of these documents included all of this information, indeed, some were more thorough than others. Rather, this provides an example of more thorough pieces of analysis included in other Forest Service EAs which should be considered for inclusion in this EA..

- Discussion of BMP implementation *and* effectiveness rates in the state and/or national forest.
- Estimates of current streamflows and predicted increase in water yield and storm flows; scientific literature regarding consequences of various intensities of timber harvest and ground disturbance.
- Assessment of existing condition of stream habitat for sediment-sensitive species, e.g., pebble counts or other assessments of the degree to which stream substrate is covered by fine sediments.
- Consideration of scientific literature regarding the effects of sediment on aquatic species, including sediment-sensitive and/or endemic species and the amount of sediment such species can tolerate before they are negatively impacted.

The District should conduct some or all of these analyses here. The high risk associated with this project and high quality resources that may be impacted demand more than vague promises of mitigation. To move forward with the project the District must assess and disclose these risks using actual data to allow the public and the agency an opportunity weigh the impacts of what is being proposed.

4) Cumulative impacts to wildlife habitat and corridors

The Draft EA discusses some of the potential cumulative impacts of combining silvicultural treatments with prescribed burns, but fails to discuss how the impacts of treatments change as the area of contiguous treatments increases. Abundance of both late successional and generalist birds is negatively associated with treatment size[52]. As treatment size increases, dispersing to the interior of the treatment area becomes more difficult and migrating across the area becomes more difficult for many species. Many forest herbs are dispersal limited[53], and maintaining connectivity of habitats can be important for minimizing adverse impacts to salamanders.[54] Timber harvests consistently decrease salamander populations, and dispersal from adjacent areas is likely a key factor in recovery, which may take 100 years.[55] The last point is particularly relevant when the impacts of the proposed treatments are considered in the context of past harvests in the project area; as proposed, only three and half stands in the Bryant Creek watershed would be left with canopies dominated by trees over 60 years old. The impact of proposed treatments cannot be assessed without considering the effects of scale and past management. Especially alarming, the effects of some harvest techniques appear non-linear with more dramatic effects above threshold sizes.[56]

[52] McDermott, ME, and PB Wood. 2011. Post-breeding bird responses to canopy tree retention, stand size, and edge in regenerating Appalachian hardwood stands. *Forest Ecology and Management* 262(3):547-554.
[53] Ehrlen, J and O Eriksson. 2000. Dispersal limitation and patch occupancy in forest herbs. *Ecology* 81(6):1667-1674.
[54] Landscape level connectivity needed for dispersal of climate-sensitive amphibians for dispersal and recolonization (Depuis 1995).
[55] Connette GM and RD Semilisch. 2013. Life history as a predictor of salamander recovery rate from timber harvest in southern Appalachian forests, USA. *Conservation Biology* 27(6:1399-1409.
[56] Pawson, SM, EG Brockerhoff, DA Norton, RK Didham. 2006. Clear-fell harvest impacts on biodiversity: past research and the search for harvest size thresholds. *Canadian Journal of Forest Research* 36(4):1035-1046.

X. THE DRAFT EA'S ANALYSIS OF THE PROJECT'S EFFECTS ON PROPOSED, ENDANGERED, THREATENED, AND SENSITIVE (PETS) SPECIES AND OTHER RARE SPECIES, IS INADEQUATE UNDER NEPA, THE NFMA, AND THE ESA.

i. The Biological Evaluation (BE) has not yet been prepared, therefore the Draft EA's analysis and conclusions regarding effects on PETS species are unsupported and inadequate.

The Biological Evaluation (BE) is the primary process by which effects on PETS species are analyzed, considered, and documented. *See, e.g.*, FSM § 2672.4 and § 2672.41. BEs are conducted in order to ensure that Forest Service actions do not contribute to a loss of any species' viability or a trend towards federal listing, or jeopardize species listed under the Endangered Species Act (ESA) or adversely modify designated critical habitat for listed species. A project's BE usually contains a more detailed analysis of effects on PETS species than is found in an EA, and the BE informs the project EA's analysis of effects of rare species under NEPA and analysis of project compliance with the NFMA and ESA.

We were disappointed to learn that the BE for this project has not yet been completed or drafted. Without the BE having been prepared, the basis for the Draft EA's conclusions are unclear. It also appears that the District has predetermined the outcome of the BE process. A Forest Service staff member informed us, in response to our request for the BE, that "The BE hasn't been written but the analysis and determinations will be the same as what is disclosed in the TES portion of the EA."

The Draft EA's analysis and conclusions regarding effects to PETS, therefore, is premature. For example, the Draft EA sets forth conclusions about effects on federally-threatened and endangered (T&E) species, yet the Forest Service has not yet consulted or coordinated with the U.S. Fish and Wildlife Service regarding the northern long-eared bat (and possibly other T&E species that may be affected by this project), as required by the ESA.[57]

In another example, the Draft EA contains little information about the District's survey and analysis methods for PETS here. Presumably the BE will explain in more detail the information and surveys relied upon. For example, how did the agency decide which species to conduct field surveys for within project stands, and which species were found and which were not.[58] This information is important for the public to understand, particularly given the contentious history around the Southern Region's failure to conduct required field surveys for PETS and then the agency's improper attempts to change its regional vegetation management

[57] The District must ensure that its plans and mitigation measures to avoid or protect the northern long-eared bat (NLEB) are consistent with the final rule issued pursuant to the ESA, section 4(d), on Jan. 16.

[58] For example, given the generally high diversity and number of salamanders in high elevations in the Blue Ridge (EA at 108), and given that this project area provides "habitat for a number of salamander species" (EA at 112), we are surprised that no sensitive, locally rare, or state-listed salamanders are considered in the PETS analysis in the EA, other than the brief reference to the hellbender, discussed further below. Perhaps none of those salamanders are PETS/LR/rare species, but the BE (and revised EA) should explain this.

standards, regional Manual, and many forest plans, including the CONF's prior plan, to try to eliminate the requirement.[59] Presumably this information will be described fully in the BE.

We wish to note that conducting the BE after releasing a Draft EA is not the usual practice among the national forests in the Southern Appalachians. We know of no other national forest in the region that writes BEs after releasing draft EAs for public comment. On prior projects on the CONF, for example, the Conasauga District and former Tallulah District have completed and provided draft BEs while draft EAs were out for public comment. Elsewhere in the region, the Cherokee National Forest in Tennessee routinely places the BE in an appendix to the EA and posts the complete draft EA, with BE, to the website during the public comment period, as does the Nantahala-Pisgah National Forest in North Carolina.

The ability to review and comment on the BE, and on more detailed EA analysis that is based on the BE and includes the additional information and analysis recommended below, is necessary to provide an opportunity for well-informed, meaningful public comment on this project, as required by NEPA.

ii. Sensitive Species

Three of the Sensitive animals and plants that were found, or could exist, within the project stands are associated with streams or riparian areas: the star-nosed mole, the rough sedge, and kidney leaved twayblade. EA at 134-135. The Draft EA claims there will be no impacts to the mole or its habitat or to these plant populations, because streams and riparian areas will be protected by the riparian prescription 11 and BMPs. EA at 134-135. As discussed further elsewhere in these comments, considerable logging is proposed within the riparian prescription 11. *See, supra,* Section VIII(ii)(2). Therefore, it cannot be relied upon to protect these species and their habitat.

One Sensitive tree and severally Locally Rare plants and trees were found in project stands. The Draft EA asserts they will not be harmed at all, because logging will avoid them and they will be protected by a buffer. A revised EA should disclose the size of the buffer and explain how it will be adequate to protect these sites. Moreover, it appears that each species was found in only a few the stands, all in mesic, north-facing slopes or riparian areas. EA at 135. We expect there is considerable overlap among the stands supporting these rare plants. The EA

[59] *See Sierra Club v. U.S. Forest Serv.*, 535 F.Supp.2d 1268 (N.D. Ga. 2008) (summarizing history of litigation; vacating supplements to regional vegetation management EISs and related forest plan amendments regarding PETS surveys; among other determinations, finding that the regional supplement to the Forest Service Manual regarding PETS surveys did not comply with NEPA); *Sierra Club v. U.S. Forest Serv.*, 593 F.Supp.2d 1306, 1312-1313, 1323 (N.D. Ga. 2008) (issuing injunctive relief, including enjoining the Forest Service from using or relying upon the regional Manual for PETS surveys, in the absence of proper NEPA compliance). These decisions struck down a "decision tree" that most Southern Region forests, including the CONF, had been using to determine whether to conduct site-specific surveys of project areas for particular PETS species. For example, the decision tree purported to allow the Forest Service to skip site-specific surveys, even for species which are likely to be present and adversely affected, and, instead, to make certain assumptions about the project's effects on the species and its viability. Thus, a full explanation of the district's approach to PETS analysis for the Cooper Creek project, particularly the surveys conducted or not conducted and other information considered, is needed for the public to fully understand the basis for the PETS analysis and any uncertainties, assumptions, or limitations inherent within it.

should disclose how many stands, total, contain these species and should consider an alternative that drops them from tree cutting entirely. These may be among the highest-quality stands, from an ecological standpoint, in the project area and should be considered for complete avoidance. These stands may also be good candidates for inclusion in small old-growth patches, as well.

Additionally, there are two Sensitive fish, the wounded darter and the olive darter, and at least four locally rare fish, the tangerine darter, blotched chub, banded darter, and bigeye chub, that occur downstream of the project area, in the Toccoa River Watershed, into which Cooper Creek flows. EA at 112. These species are not considered further because the area of cumulative effects analysis was cut off at the Cooper Creek watershed. This cut-off was not adequately supported and seems questionable (as discussed below and elsewhere in these comments). While the reason given for the cut-off – that cumulative effects on water quality "begin to be diminished" once water flows from a "6th level" watershed, such as Cooper Creek, into a larger watershed, such as the Toccoa River – may be generally correct, it does not fully deal with the problem.

First, "begin to be diminished" does not mean zero, therefore, there obviously is likely to be some cumulative impact on the Toccoa River, and perhaps on these species and their habitat, which should be described and assessed more specifically. A revised EA should conduct further analysis of: the proximity of Sensitive and Locally Rare aquatic species in the Toccoa River to the mouth of Cooper Creek; the condition and vulnerability of these populations; the estimated quantity of sediment that may be delivered to the Toccoa River and its cumulative effects on the water quality and rare aquatic species and habitat, given current conditions (e.g., existing sources of sediment, current sediment loads, water flows, etc.). Further consideration of the potential cumulative effects on the Toccoa is needed before it can be assumed that the cumulative effects of sedimentation on rare aquatic species and their habitat there will be insignificant.

XI. CLEAN WATER ACT

The Forest Service must ensure its proposed activities comply with the Clean Water Act. Based on analysis in the Draft EA it is unclear if the project qualifies for the silvicultural exemption in Clean Water Act § 404 and meets Georgia's antidegradation requirements.

i. Clean Water Act § 404

Under the Clean Water Act, the discharge of any pollutant by any person into a water of the United States is unlawful unless the discharger complies with the permitting requirements under the Act. *See* 33 USC § 1311(a). To discharge "dredged or fill material" an applicant must obtain a permit under Clean Water Act § 404. *See* 33 USC § 1344. Construction and maintenance of forest roads, which require the discharge of dredged of fill material, are exempt from Clean Water Act § 404 permit requirements as long as those "roads are constructed and maintained . . . to assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired . . . and that any adverse effect on the aquatic environment will be otherwise minimized." 33 U.S.C. § 1344(f)(1)(E). If a road is

causing an adverse effect on the aquatic environment by contributing sediment that is harming aquatic resources or not providing for unimpaired flow it cannot meet the exception.

The Draft EA lacks sufficient analysis to reach conclusions at this point, it is likely that several roads are also causing disproportionate impacts to water quality by contributing sediment. If so, these roads do not meet the requirements for the § 404 exemption and as a result the Forest Service must either fix the organism passage and/or sedimentation problems or obtain a § 404 permit to complete work on the roads.

To obtain a permit, the Forest Service must show that there is no "practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem." 40 C.F.R. § 230.10(a). Army Corps Section 404 Guidelines establish rebuttable presumptions that (i) alternatives for non-water dependent activities that do not involve special aquatic sites exist; and (ii) alternatives that do not involve special aquatic sites have less adverse impact on the aquatic environment. (40 C.F.R. § 230.10(a)(3)). Streams in the project area are defined by riffle and pool complexes (EA at 110) which are considered "special aquatic sites." 40 C.F.R. § 230.45. Because a roadway is not a water-dependent activity, no permit may be issued to impact a special aquatic site unless the Forest Service clearly demonstrates that there is no practicable alternative. *See* 40 C.F.R. § 230.10(a)(3).

ii. Antidegradation

The Clean Water Act also requires states to "develop and adopt a statewide antidegradation policy." 40 C.F.R. § 131.12(a). The antidegradation policy shall, "at a minimum," maintain and protect existing instream water uses and water quality. *Id.* For the most part, "[w]here the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected." *Id.*

Georgia's antidegradation policy requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses [to] be maintained and protected." Ga Comp. R. & Regs. 391-3-6-.03(2)(b). The Forest Service must comply with this state requirement. 33 U.S.C. § 1323(a).

Several streams in and downstream of the project area are already not complying with existing instream water uses and the level of water quality necessary to protect the existing uses. *See* EA at 64. Those streams are listed as impaired on Georgia's 303(d) list though the cause of impairment has not been determined. *Id*. For streams listed on the 303(d) list, Georgia must develop a "total maximum daily load" ("TMDL") which is "established at a level necessary to implement the applicable water quality standards." 33 U.S.C. §1313(d)(1)(C). Once established, point and nonpoint source discharges cannot exceed their waste load allocation in the TMDL. Limitations on nonpoint source discharges are specifically enforced through state water quality management plans. *Anacostia Riverkeeper, Inc. v. Jackson*, 798 F. Supp. 2d 210, 217 (D.D.C. 2011).

Approximately 10 miles of Cooper Creek is impaired, nearly all of which is downstream of the project area. EA at 64. The entirety of the impaired section of Cooper Creek is on National Forest System Lands. Approximately 93% of the Cooper Creek watershed consists of National Forest System Lands. *Id*. at 62. Given the high percentage of Forest Service ownership of the watershed it is very likely that the impairment of Cooper Creek is attributable to source(s) on agency-owned land.

Instead of working to recover designated uses as required by the State's antidegradation policy the Forest Service dismisses the impairment listing by pointing to allegedly inadequate sampling procedures. EA at 110. This is a hollow attempt at explaining the impairment. If the agency believes the listing is in error, a better approach – indeed the only approach with any impact - would be to conduct the sampling necessary to have the stream segment delisted during the next § 303(d) revision. Without explanation the agency also asserts that "[a]n inference that following the guidance for managing non-point source with Best Management Practices is adequate to address the current stream listings can be made." EA at 65. Nothing supports that approach; the Forest Service has not provided any evidence or reasoning to support its "inference." To the contrary, the evidence before the agency suggests that Cooper Creek is impaired (i.e. water quality standards are not being maintained), and that the source of impairment is mostly likely coming from Forest Service land. Therefore, even if Forest Service lands have functioning BMPs now, the "inference" is that those BMPs are insufficient to maintain water quality. This casts doubt not only on the agency's capacity to protect water quality in this area but also on the ability of BMPs to sufficiently mitigate impacts from the Cooper Creek project. Certainly BMPs to *mitigate* the negative effects of this project cannot actually *improve* water quality over its current condition.

As a result of the 303(d) listing, Georgia will prepare a TMDL allocating waste loads to different sources within the Cooper Creek watershed. The only "source" we are aware of upstream of the impaired segment belongs to the Forest Service. If the Forest Service is subject to a TMDL, it will be required to reduce waste loads to the stream to bring it back into compliance with water quality standards. Many of the activities associated with this project, particularly those that are likely to increase sedimentation, are inconsistent with that requirement. The Forest Service may not increase the waste load to Cooper Creek, as it appears likely as part of this project, and maintain compliance with Georgia's antidegradation policy.

XII. UNINVENTORIED ROADLESS AREAS

Logging and presumably temporary road construction is proposed in three areas included in the *Georgia's Mountain Treasure's* publication: Duncan Ridge, Board Camp, and the Cooper Creek Scenic Area Extensions. The Board Camp area in particular was recognized for its roadless values as a RARE II area and portions of it were included in the Coosa Bald National Scenic Area designation. Large portions of these areas were not evaluated for roadless characteristics during the last Plan revision due to controversies surrounding the directives in place at the time. Those directives have now been revised and all or portions of these areas likely meet the new criteria for inclusion in the potential wilderness inventory to be completed during the next Plan revision. *See* FSH 1909.12, Ch. 71 (2015). Other parts of the project area meet this criteria as well. Under NEPA, the Forest Service must consider and disclose the effects

of logging and road construction/reconstruction on roadless areas' characteristics, even when those areas not included in current, official roadless inventories. The failure to do so renders an EA inadequate.

i. The Forest Service Must Assess this Project's Impact on Roadless Characteristics

Courts have recognized that "roadless areas have certain attributes that must be analyzed" when projects may impact those values. *Lands Council v. Martin*, 529 F.3d 1219, 1230 (9th Cir. 2008) (emphasis added); *see* Special Areas, Roadless Area Conservation, 66 Fed. Reg. 3244,3245 (Jan. 12, 2001) (discussing characteristics values of roadless areas). Because of the independent environmental significance of the values characteristic of areas that meet roadless criteria - whether officially inventoried pursuant to the 2001 Rule or uninventoried - they must be assessed pursuant to NEPA. As explained by *Lands Council*, whether an area was officially inventoried or uninventoried, and whether it contained less than 5,000 acres, did "not provide a meaningful legal distinction" for purposes of complying with NEPA. *Id.* at 1231. Prior to logging and road upgrades which could degrade roadless areas and alter their status, NEPA requires consideration of these areas' unique values and the effects of this project upon them.

As explained below, much of the project area currently qualifies for inclusion in the next potential wilderness inventory to be completed with the CONF Forest Plan revision. The agency must acknowledge and assess the impacts of the proposed action that may preclude a significant portion of this area from the possibility of future wilderness classification. If the assessment of the proposed actions' impacts on roadless areas' characteristics reveals that those impacts are significant, the Forest Service will be required to prepare a full Environmental Impact Statement. 42 U.S.C. § 4332(C); *see* 40 C.F.R. §§ 1502.3, 1502.4. An alternative that avoids commercial logging and road construction in areas that quality for the potential wilderness inventory, in order to avoid impacts to the roadless or remote characteristics of an area with significant public interest and concern, is a reasonable alternative which, under NEPA, must be considered. *See Alaska Wilderness Recreation and Tourism Association v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995) (failure to consider a "viable but unexamined alternative" renders an EA inadequate).

ii. The Eligibility of Areas that Meet Criteria for Inclusion in the Potential Wilderness Inventory Should Be Maintained

At a minimum, no action should be implemented as part of this project which might preclude areas from being included in the potential wilderness inventory as part of the next Plan revision. There are at least two such areas that will be impacted by the Cooper Creek project. Now that "roadless" or "potential wilderness inventory" criteria have been clarified and revised, these areas should be evaluated and management considered accordingly.

Eligibility for the inventory will be evaluated during the next Forest Plan revision according to new directives found at Forest Service Handbook (FSH) 1909.12, Ch. 70 (2015) – hereinafter referred to as "Ch". As an initial step, the directives require the Forest Service to complete an inventory of "all lands that may be suitable for inclusion in the NWPS [National Wilderness Preservation System]." (Ch. 71.1). Recognizing that the controversies surrounding

previous roadless inventories were caused by the subjective use of narrow criteria, the new directives restrain the agency's inventory consideration to three objective factors: size, roads improvements, and other improvements. (Ch. 71.2). These factors are described briefly below.

a. Size

Areas included in the inventory must have "at least five thousand acres of land or [be] of sufficient size as to make practicable its preservation and use in an unimpaired condition." (Ch. 71.21 (quoting 16 U.S.C. § 1131c)). As stated above, the Cooper Creek project will impact at least two areas that meet this initial size threshold

b. Roads Improvements

Unlike past roadless inventories which assessed areas based on road density, the new directives instruct that certain roads may be included in potential wilderness areas, while other roads may not. Areas that include maintenance level 3, 4, and 5 roads are to be excluded from the inventory with few exceptions. Ch. 71.22a. However potential wilderness areas may *include*:

- Maintenance level 1 roads;
- Decommissioned, unauthorized or temporary, or forest roads that are identified for decommissioning in a previous decision document, or identified as likely unneeded in a travel management plan (36 CFR 212.51) or a travel analysis;
- Areas with forest roads that will be reclassified to maintenance level 1 through a previous decision document, or as identified in a travel management plan (36 CFR 212.51) or a travel analysis;
- In eastern national forests, maintenance level 2 roads "that are identified as closed to motor vehicles yearlong in a previous decision document."

Ch. 71.22a.

Because the Cooper Creek project does not contemplate new road construction it will not disqualify any of the areas that currently qualify for the potential wilderness inventory at least according to the road criterion.

c. "Other Improvements"

The final inventory criterion is "other improvements." Ch. 71.22b. The two most applicable to areas within the Cooper Creek project area are vegetation treatments and timber harvests. *Id.* Whether "improvements" serve as disqualifying features turns on whether they are "substantially noticeable." *Id.* In other words, the question is not whether vegetation treatments and timber harvests have occurred, but whether when viewed in light of the impact to the area *as a whole*, they are substantially noticeable. *See id.* Additionally, vegetation treatments and timber harvests in eastern national forests must be viewed in light of the "potential need to provide for passive or active restoration of wilderness character in previously modified areas, consistent with the intent of the Eastern Wilderness Act." *Id.* Further assessment is necessary

to confirm the presence of any "substantially noticeable" "improvements" which could invalidate portions of the currently qualifying areas but we are not aware of any at this point.

However, several aspects of the Cooper Creek project would likely disqualify portions of areas. Widespread commercial harvest, particularly regeneration harvest to create ESH, and associated access road construction could disqualify areas or portions of them. The impact of ESH creation on an area's qualifications to be considered for the potential wilderness inventory must be disclosed under NEPA. On the other hand, treatments, particularly non-commercial, that are actually restorative may not disqualify any portions of an area from the inventory. Consistent with the directives, treatments in eastern national forests which seek to *restore* areas should not be considered "substantially noticeable" because they are justified as returning the land to a more natural condition. *See id.* Therefore, some of the appropriate non-commercial treatments proposed for this project should not disqualify any portion of these areas from the next inventory.

The Forest Service should avoid implementing actions in these areas which may preclude their inclusion in the next potential wilderness inventory and consideration for appropriate protection during the next forest planning process. At the very least, NEPA requires the EA to recognize, disclose and fully consider that these actions would probably adversely affect the special attributes of these areas (*see* 66 Fed. Reg. 3244,3245 (Jan. 12, 2001)).

XIII. TRAVEL ANALYSIS

There are two types of travel analysis: "Travel analysis for purposes of identification of the minimum road system [and] travel analysis for purposes of designation of roads, trails, and areas for motor vehicle use. " FSM 7712. Both are implicated as part of this project. Each national forest was required to identify the "minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands" by the end of fiscal year 2015. 36 C.F.R. § 212.5(b)(1). That process resulted in recommended changes to the forest road system which Alt. 3 in this project plans to implement. For that same reason – the proposed changes to the forest road system - "travel analysis for purposes of designation of roads, trails, and areas for motor vehicle use" is also necessary.

As an initial matter, we request that the agency produce two documents. First, the Cooper Creek Draft EA references and implements the Chattahoochee-Oconee Transportation Analysis Report (TAR) and Transportation Analysis Plan (TAP). EA at 177-178. To the extent those are different documents, neither have been produced as part of the project record. In fact, we are not aware that either document has been made widely available to the public at all. The most recent version of the TAR we have been able to obtain is labeled "draft" and dated May 2013. If the Forest Service is going to rely on and incorporate those documents as part of its analysis of this project it must release those documents to the public for review. It is impossible for us to square the recommendations in the TAR/TAP with the changes to the transportation system considered in Alternative's 2 and 3 without being able to review and reference the agency TAR/TAP.

Second, to comply with the requirements to conduct travel analysis "for purposes of designation of roads, trails, and areas for motor vehicle use" (FSM 7712) "[a]ny change to [road] management [will] be evaluated through the Roads Analysis Process (RAP) during the decision-making and NEPA process;" in other words, this process. Draft CONF TAR at 5; see also Draft CONF TAR at 16 ("Completing a RAP on each road that was evaluated in the TAR process was not accomplished since it will be completed during the next step of evaluating the TAR implementation."); *id.* ("A roads analysis for each watershed will be completed as part of the NEPA and decision-making process"). We are not aware that a RAP has been completed for this specific project or watershed. If not, it must be completed to comply with the Travel Management Rule and the Forest's TAR/TAP. If it has, we ask that it be released immediately. NEPA requires public dissemination of relevant agency documents which mandates that the TAR/TAP and RAP be released for public review.

Unable to review the RAP, most of our comments focus on the implications of the forest-wide TAR/TAP for this project. We commend the District for implementing many of the recommendations of the TAR in Alternative 3.[60] These changes will help produce a more practical road network that can be maintained in good condition while still meeting administrative and public access needs. We are particularly pleased that the district has recognized that even the recommendations in the TAP would leave a maintenance budget shortfall and has identified additional maintenance level reductions. Permanently or seasonally closing Mark Helton Branch, Duncan Ridge Branch and Dixon Branch roads are the kind of changes needed to ensure that more important roads can be kept in good condition and ensure safe public access. We believe these actions, in addition to those recommended in the TAP should be included in every project alternative.

However, more is needed to achieve a sustainable road system here. The road system in the project area is deteriorating, leading to adverse environmental impacts and jeopardizing public safety. "Many of the roads within the project area do not meet current standards for safety or environmental protection." EA at 174. "Much of this transportation system does not meet Forest Service design standards and would not sustain continued motorized use at current levels. Poor drainage, encroaching vegetation, and lack of adequate surface material have created conditions that limit vehicle access for public and administrative uses and have contributed to sediment loads through erosion." *Id.* at 175. If no action is taken, "road conditions would continue to worsen *to an eventual point of catastrophic failure and/or extensive resource damage in locations*" including "pos[ing] a chronic threat to water quality." EA at 176.

In light of the funding shortcomings identified in the TAR and Draft EA and the deteriorating roads discussed in the Draft EA, we particularly question the reasonableness of upgrading roads to facilitate commercial timber harvest in the unsuitable 7.E.1 Prescription. *See* EA at 174 ("current funding levels are not adequate to maintain existing roads to the standards originally planned"). Because these roads access an unsuitable prescription, where periodic timber access is not expected, it seems unlikely they will be utilized for timber harvest again.

[60] Any additional, reasonable project alternatives the Forest Service considers should include implementing all the recommendations of the TAR. We also assume that the district intended to include the TAR decommissioning and road maintenance level reductions in Alternative 2 as well.

Additionally, increasing road size to accommodate import of heavy machinery and potentially tractor trailers seems incompatible with the "dispersed recreation" values the 7.E.1 Prescription is to be managed for. A better use of taxpayer money would be to concentrate road improvements on roads that are causing the most adverse resource impacts, and likely to be frequently used both now and in the future. We question whether this expenditure of funds meets the requirement to "direct" "[c]onstruction and maintenance work on forest transportation facilities . . . to what is necessary and economically justified for protection, administration, development, and multiple-use management of the federally owned lands and resources served." 36 C.F.R. § 212.4(a).

Improving aquatic organism passage in the project area should also be a focus of transportation funding and an alternative which improves aquatic organism passage should be assessed as a reasonable project alternative under NEPA. Construction and maintenance of forest roads are exempt from Clean Water Act § 404 permit requirements but only as long as those "roads are constructed and maintained . . . to assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired . . . and that any adverse effect on the aquatic environment will be otherwise minimized." 33 U.S.C. § 1344(f)(1)(E). Failure to adequately provide for aquatic organism passage violates this requirement leading to loss of the Clean Water Act exemption. The Forest Service should prioritize ensuring that appropriate aquatic organism passage is provided for at all stream crossings.

Finally, for a variety of reasons the CONF TAR itself was inadequate. *See* Letter from Sam Evans and Hugh Irwin to Tony Tooke (June 12, 2015)(attached). Most problematically, the CONF TAR failed to set forth a minimum road system that "minimizes adverse impacts" while "reflect[ing] long-term funding expectations." 36 C.F.R. § 212.5(b)(1). Under the best case scenario, the CONF predicts it will have only 38% of the necessary budget to maintain the existing road system. As admitted in the Draft EA, failure to balance expected budgets with actual maintenance costs will lead to "road conditions [which] continue to worsen to an eventual point of catastrophic failure and/or extensive resource damage in locations." EA at 176. This is unacceptable and likely violates the Clean Water Act and National Forest Management Act. Similarly, reductions in user access to the forest should be minimized or avoided. Nevertheless, to balance its budget the agency will have to decommission and reduce the maintenance level of significantly more roads than are identified in the current TAR. While we hope and expect that the TAR will be brought up to standard, in the meantime the work of identifying the additional, needed changes to the road system must now be completed at the district level on a project-by-project basis. We are pleased to see that this work has begun; the district must continually take a hard look at its transportation system and close or downgrade those roads with the least use, particularly those with low use and high impacts. Priority in keeping roads in a sustainable condition should be given to high traffic roads that receive significant recreational use; not roads which only or mainly serve to extract timber from the forest including those intended for upgrades which access the 7.E.1 Prescription and other unsuitable areas.

Finally, as we noted in our June 2014 scoping notice response (attached), temporary roads can have both dramatic immediate impacts and long lasting effects. Temporary roads in this project are particularly pertinent to the TAP, because several of them appear to be managed

as de facto system roads. The roads proposed for daylighting in these project lead to permanent wildlife openings, and the roads in the project area that were previously daylighted are similarly maintained in drivable condition. These roads are not "temporary" in any meaningful sense. As far as we can tell they are indistinguishable from maintenance level one system one roads, and should be analyzed as such in the broader context of road network needs and constraints.

The treatment maps identify more than eight miles of "existing temporary roads" in the vicinity of commercial treatment stands. However, the Draft EA lists only five miles of temporary road construction, three and a half of which are on existing road templates. It appears these mapped roads have not been included in the temporary road construction. While some of them are indeed existing roads, as described in the preceding paragraph, many of them have trees growing in them and are not passable by any kind of transportation vehicle. Reconstructing those roads will adversely impact soil and water resources. The analysis of temporary road construction on soil and water resources is incomplete without including these "existing temporary roads."

As a related matter, the EA must also consider the potential effects of illegal ATV use of temporary roads, roads to wildlife openings, skid roads/trails, and other openings created by this project. The Draft EA acknowledges the existing illegal ATV use (EA at 175) and the potential for it on project routes/openings and proposes mitigation measures to stop it or prevent its expansion (EA at 29, 165, 167). The Draft EA does not, however, consider these risks and effects in any detail. A revised EA should consider: whether measures to prevent illegal ATV use are likely to be effective, given actual experience here or elsewhere; how the district will ensure the measures are properly implemented and effective; what the district will do if they are not effective; and the effects of illegal ATV use if the measures are not effective, especially given the difficulty in controlling illegal ATV use once it is begun and the sensitive nature of the soil and water resources in this project area. NEPA requires such analysis.

XIV. CLIMATE CHANGE

As the Draft EA acknowledges forests play a critical role in addressing climate change by acting as major carbon sinks. The Draft EA points out that forests can offset 10% or more of the nation's CO_2 emissions, and also acknowledges that Alternative 2, and presumably Alternative 3, will lead to increased carbon emissions. While this admission is appreciated, the depth of analysis is disappointing and insufficient in that it relies on generalized and conclusory statements. Federal law and policy recognize the urgent threat posed by climate change and require federal agencies to take serious steps to avert further climate disruption. The Forest Service should conduct a more detailed analysis of how much the project will increase carbon emissions and by how much it will reduce the carbon sink aspects of the forest, so that the Forest Service and the public can truly understand the full impacts of this project. The Forest Service should also consider mitigation strategies and the cumulative effects this project will have on climate change.

Late last year, North Georgia experienced record high temperatures, serious flooding, and significant erosion that left many roads in the Chattahoochee National Forest impassible. Around the same time, President Obama, Secretary of State John Kerry, and the world came

together to draft an historic agreement to combat climate change. The Paris Agreement urges parties to "take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in … the [United Nations Framework Convention on Climate Change], including forests."[61]

The Forest Service has aligned itself with this international mindset in its own publications, including its Climate Change Performance Scorecard guidance document, which explains that "[i]n addition to adapting to climate change, the Forest Service is contributing to worldwide efforts to mitigate climate change and reducing greenhouse gas emissions from its land management activities."[62] That document further reiterates that "[o]ur nation's forests and grasslands play a critical role in storing carbon and helping to reduce the amount of greenhouse gases that are released into the atmosphere. We as an Agency continue to play a strong role in helping to mitigate greenhouse gas emissions by conserving and restoring forest and grassland ecosystems."[63]

The document then stresses the importance of carbon assessments and explains that they can help the Forest Service to implement management activities with the potential to reduce carbon emissions.[64] The document also warns that climate change may "cause [the Forest Service] to reconsider whether our current goals and objectives can be met using our current management activities. Treatments may need to be adjusted in time and place, or different treatments may be needed to achieve the same goals. In some cases, goals and objectives themselves may need to be re-evaluated."[65]

The document then lays out several strategies the Forest Service may use to better manage the forest to adapt to climate change. These adaptation actions include a) resilience, which "is the degree to which systems … can recover from one or more disturbances without a major (and perhaps irreversible) shift in composition or function,"[66] b) resistance, or "the ability of an organism, population, community, or ecosystem … to withstand perturbations without significant loss of structure or function. From a management perspective, resistance includes 1) the concept of taking advantage of and boosting the inherent (biological) degree to which species are able to resist change, and 2) manipulation of the physical environment to counteract and resist physical and biological change,"[67] and c) approaches that facilitate transitions, which "are strategic actions that work directly with the changes that climate is provoking and ease

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[61] Paris Agreement art. 5(1), Dec. 12, 2015, FCCC/CP/2015/L.9 (UNFCCC, to which the United States is a party, requires parties to "(p)romote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases … including … forests." (United Nations Framework Convention on Climate Change art. 4, paragraph 1(d), May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.)).

[62] Office of the Climate Change Advisor, U.S. Forest Serv., Navigating the Climate Change Performance Scorecard 39 (2011).

[63] *Id*. at 40.

[64] *Id.* ("Carbon assessments can help you understand how much carbon is currently stored in your forest and grasslands and how the potential to reduce atmospheric greenhouse gases may be influenced by management activities and disturbance regimes.")

[65] *Id.* at 34.

[66] *Id.*

[67] *Id*.

transitions to future states by mitigating and minimizing undesired and disruptive outcomes while maintaining essential functions."[68] The actions can be included in project plans.[69]

Climate change is a function of the impacts of not just one isolated project but of the cumulative impacts from actions across the forest and around the world. NEPA regulations promulgated by the Council on Environmental Quality describe a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from *individually minor* but collectively significant actions taking place over a period of time."[70] Further, courts have explained that the "impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."[71]

CEQ regulations make clear that "NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken."[72] In this light, courts have required considerable quantified information as necessary to constitute the hard look of cumulative impacts required by NEPA.[73]

The Draft EA's climate change analysis fails to meet any of these requirements. The brevity and the conclusory nature of the analysis suggests a lack of concern for the threat posed by climate change and stands in stark contrast to the tone set by national and international leaders. Specifically, the Draft EA provides no data about how much carbon emissions can be sequestered by the forest beyond the national 10% number referenced above, and no estimate of how much the cutting detailed in either Alternative 2 or Alternative 3 will reduce the forest's capacity to sequester carbon. The Draft EA makes no estimate of how much the project will add to greenhouse gas emissions beyond the vague admission that it will lead to an increase, and while stating that climate change is one of the top threats to water resources in the project area. Rather than analyze the impacts this project may have on the climate, the Draft EA merely references general narrative comments that are not specific to this project, and the monitoring plan does not mention climate change. We recognize that this is a complex issue and that these estimates are difficult to predict, but the analysis has also overlooked an important carbon sink, soil carbon. Of particular concern is how frequent prescribed burns and moderate to high intensity fire will ultimately reduce this critical carbon storage pool. The litter layer is the precursor to the dynamic duff layer, and if this litter layer is burned with no replacement, the duff layer will diminish in size and so will its carbon storage potential.

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[68] *Id*.
[69] *Id.* at 36.
[70] 40 C.F.R. § 1508.7 (emphasis added).
[71] Ctr. for Biological Diversity v. NHTSA, 538 F. 3d 1172, 1217 (9th Cir. 2008).
[72] 40 C.F.R. § 1500.1(b).
[73] *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F. 3d 989, 993-94 (9th Cir. 2004) (quoting *Ocean Advocates v. U.S. Army Corps of Eng'rs,* 361 F.3d 1108, 1128 (9th Cir. 2004); *Neighbors of Cuddy Mountain v. United States Forest Serv.,* 137 F.3d 1372, 1379-80 (9th Cir.1998)) ("A proper consideration of the cumulative impacts of a project requires some quantified or detailed information;... [g]eneral statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." (internal quotations omitted)).

Further, no detailed explanation is provided as to the differences in climate impacts posed by Alternative 3. Instead, the Draft EA merely states that it is similar to Alternative 2 and not thought to lead to a significant difference.

The analysis is also lacking in its discussion of adaptation actions. While it is repeatedly mentioned that Alternative 2 will make the forest more resilient, this conclusion is difficult to accept in light of the definition for resiliency given above. In other words, it is hard to understand how creating habitat that may have never existed in the project area, like woodlands, could prevent a "major … shift in composition." The Draft EA also references resistance, and indicates that the previously approved burning could make the forest more resistant by reducing the fuel load, but no approaches to facilitating transitions are discussed.

Rather than discussing how the project might facilitate transitions, this project seems to be designed in spite of climate-change driven transitions. Since Northern Georgia has historically hosted only the southernmost extreme of ranges of several species, including ruffed grouse and some song birds that this project is purportedly designed to protect, it would be reasonable to assume that climate change might push these ranges out of the Chattahoochee National Forest; but the climate change analysis in the Draft EA fails to discuss this possibility.

The cumulative effects of this project are dismissed by suggesting that they are very small when viewed globally, which stands in direct contrast to federal regulations requiring agencies to consider the cumulative impacts of even "individually minor" actions, and the only past, present, or reasonably foreseeable actions mentioned are 9,693 acres of burning that took place over the last decade. Other projects currently underway or being analyzed on the forest are ignored, and other relevant projects that might have or will occur outside of the Chattahoochee National Forest are not mentioned.

Overall, the climate change analysis is very superficial and conclusory, and it fails to insure that adequate information about the climate change effects of this project is publicly available.

The impacts this project might have on climate change should be reconsidered, and provide specific, quantifiable details should be provided about how the project will affect the balance of greenhouse gas emissions and sequestration. This analysis should be provided before any decisions are made or any actions are taken. Adaptation actions should be specified so as to be sure that they are actually responsive to the realities of climate change, and the monitoring plan should be updated to take climate change into account. The cumulative impacts this project will have on climate change must be taken into consideration.

XV. EIS/REVISED EA IS REQUIRED

Under NEPA, an EIS is required if this project "may" have a significant effect on the quality of the human environment. 42 U.S.C. § 4332(2)(c) (include environmental impact statement on proposals for "major Federal actions significantly affecting the quality of the human environment"); 40 C.F.R. § 1508.3 ("'Affecting' means will or may have an effect on."). The purpose of an EA is to "provide sufficient evidence and analysis for determining whether to

prepare" an EIS or a finding of no significant impact ("FONSI"). 40 C.F.R. § 1508.9. An EIS "*must* be prepared if substantial questions are raised as to whether a project . . . *may* cause significant degradation of some human environmental factor." *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998)), *overruled, in part, on other grounds Lands Council v. McNair*, 537 F.3d 981 (9th Cir. Idaho 2008) (internal citation omitted) (emphasis in original). "If an agency decides not to prepare an EIS, it must supply a convincing statement of reasons to explain why a project's impacts are insignificant. The statement of reasons is crucial to determining whether the agency took a 'hard look' at the potential environmental impact of a project." *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998) (citations omitted). A decision not to prepare an EIS is unreasonable "[i]f substantial questions are raised regarding whether the proposed action may have a significant effect upon the human environment." *Save the Yaak Committee v. Block*, 840 F.2d 714, 717 (9th Cir. 1988) (internal citations omitted).

"Human environment" includes "the natural and physical environment and the relationship of people with that environment." 40 C.F.R. § 1508.1. Determining whether a project may "significantly affect" the human environment is the "threshold question" in determining whether to produce an EIS. 161 F.3d at 1212. In determining whether potential effects are significant, agencies evaluate their "context" and their "intensity." *See* 40 C.F.R. § 1508.27. The Council on Environmental Quality regulations provides a list of factors to consider when evaluating "context" and "intensity." A court may find substantial risk of a significant effect based on just one of these factors. *See Ocean Advocates v. U.S. Army Core of Eng'rs*, 402 F.3d 846, 865 (9th Cir. 2004). This project implicates many of those factors, yet the EA has not adequately addressed impacts to these resources or put forth convincing reasons why effects on them would not be significant, leaving "substantial questions" about the project's effects and necessitating an EIS. *See Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1213-14 (9th Cir. 1998) (EIS required to address multiple inadequacies in an EA).

In fact, the Draft EA has not assessed these factors at all. An EA is meant to assist the agency if it is unclear that a project may significantly affect the human environment. *See* 40 C.F.R. § 1508.9. If the district has actually considered the question of whether an EIS needed, that analysis is not included in the draft EA and has not been disclosed to the public. This violates NEPA the requirement that the public be entitled to an opportunity to comment in an informed and meaningful way before decisions are made. NEPA has two central purposes: first, to ensure agency decision-makers consider accurate, high quality environmental information and, second, to make this information available to the public and to encourage public involvement in decision-making. *Robertson v. Methow Valley Citizen's Council*, 490 U.S. 332, 349 (1989); *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443, 446-48 (4th Cir. 1996). To this end, federal agencies' "NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. § 1500.1(b). These "mandatory" regulations "require that an agency give environmental information to the public and then provide an opportunity for informed comments to the agency." *Sierra Nevada Forest Protection Campaign v. Weingardt*, 376 F. Supp. 2d 984, 990 (E.D. Cal. 2005). The agency should re-notice a revised draft EA with an assessment of the "context" and "intensity" of the

proposed action alternatives and allow the public to evaluate that analysis. The analysis of the significance of the project's environmental effects is not only essential to inform public understanding and comment on this proposal, but such analysis is an express purpose of an EA and explicitly is required by the Forest Service's own regulations. 40 C.F.R. § 1508.9(a) (defining EA in part as a "public document" which provides "sufficient evidence and analysis for determining whether to prepare" an EIS or a FONSI); 36 C.F.R. § 220.7(b) (Forest Service regulations implementing NEPA state that an EA "must include," among other provisions, the evidence and analysis required by § 1508.9 and "[s]hall describe the impacts of the proposed action and any alternatives in terms of context and intensity as described in the definition of 'significantly' at 40 C.F.R. § 1508.27."). A draft EA that does not include evidence and analysis assessing the significance of the effects of the proposal and alternatives is adrift from its fundamental purpose, is not complete, and cannot provide an adequate opportunity for public comment.

Re-noticing a revised EA, for public comment, is necessary for other reasons as well. Just as the public is entitled to review the agency's determination over whether an EIS is necessary, the public is also entitled to an opportunity to review and comment on the BE and on EA analysis that has been informed by the BE. Releasing a draft EA that sets forth two action alternatives, rejects other less damaging alternatives that we suggested, and supposedly analyzes the projects' effects before completing the actual analysis of PETS and rare species puts the cart before the horse, in violation of NEPA's procedures for environmental analysis, public participation and informed decision-making.

Finally, for these same reasons, re-publication of a draft EA with the requisite Roads Analysis Process, or RAP, is necessary to allow the public to meaningfully assess and comment on the roads analysis in the EA and potential changes to the forest transportation system. The ability to review and comment on the BE, RAP, consideration of EIS factors, in combination with the EA analysis of these issues, is a necessary part of informed and meaningful comment on this project. The lack of other information and analysis discussed above compounds the incomplete nature of this draft EA. Without an opportunity to review these documents in combination with the related analysis in the EA and make an informed and meaningful response to it, the public comment period is not adequate.[74] A more thorough, revised draft EA should be provided for public comment *before* a draft decision is developed and released.

Based on the information that is in the Draft EA however, it is apparent that the agency must complete an EIS to implement this project. Brief analysis of the context and intensity factors as required by the CEQ regulations, § 1508.27, is addressed below:

(a) Context: The significance an action "must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting . . . ." § 1508.27(a).

The context for this project is addressed throughout these comments. The context of this project is more significant than others due to multiple reasons including: impacts to a state-

[74] We also note that these comments could have potentially been more helpful to the agency if it had published its "Response to Comments" with the EA.

threatened aquatic speciess (*see, supra*, Section X); potential harvesting of old-growth (*see, supra*, Section IV); and harvesting in the unsuitable prescription which marks a significant departure from past agency practice as well as commitments made during the previous forest plan revision (*see, supra*, Section VIII(i)). The project is also one of the largest on the CONF in recent memory, targeting some of the least departed, healthiest stands.

(b) Intensity: "This refers to the severity of the impact." § 1508.27(b). This project implicates a number of the intensity factors:

Beneficial Impacts – "Impacts may be both beneficial and adverse." § 1508.27(b)(1). As discussed previously, the proposed activities are likely to have significant impacts on the forest, terrestrial and aquatic species, and soil and water resources, even if the Forest Service believes that, on the whole, the project will be beneficial.

Unique characteristics – "Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." § 1508.27(b)(3). This project is likely to affect unique characteristics of the area and ecologically critical areas, such as: the Forest Plan-designated outstandingly remarkable Cooper Creek and the Regional Forester-designated Cooper Creek Scenic Area, by logging hundreds of acres upstream of these stream sections and Scenic Area; the most important habitat in Georgia for a state-threatened aquatic species; Riparian Corridors by conducting significant harvesting as close as twenty-five feet from stream banks; wetlands and/or floodplains[75]; some of the last remaining old growth in the area; areas that may qualify for inventory as potential wilderness areas during the next forest plan revision;[76] and further downstream the plan-designated outstandingly remarkable Toccoa River. The project is also located near the congressionally-designated Coosa Bald National Scenic Area, as well as the Appalachian Trail Corridor.

Controversy – § 1508.27(b)(4) – The effects of this proposal are highly controversial. There are different elements on this controversy. First, the project is publicly controversial as demonstrated by press coverage and the high number of commenters at the scoping phase (and likely EA phase as well). The project is also scientifically controversial in that it seeks to "restore" woodlands to inappropriate areas without justification. As discussed above (*see, supra*, Section IX(iii)) this approach is being question by at least one expert biologist. Finally, the project is also controversial because it involves a distinct change in management of the CONF by planning repeated entries into areas labeled as unsuitable for timber production under NFMA (*see, supra*, Section VIII(i)).

Uncertainty – "The degree to which the effects on the human environment are highly uncertain or involved unique or unknown risks." § 1508.27(b)(5). Based on the analysis put forth so far in the EA, aspects of this project are highly uncertain. The potential site-specific

[75] Almost 50 acres of silvicultural activity proposed on soils which are frequently flooded or meet the criteria for hydric soils potentially supporting wetlands (EA at 41-43).

[76] The Forest Service normally requires an EIS for activities that would substantially alter the undeveloped character of a potential wilderness area (PWA). 36 C.F.R. § 220.5(a)(2). Ecological restoration and limited management would not substantially alter a PWA, but more intensive logging and road-building could.

effects of the project, such as probability of landslide or the volume of sediment likely to be produced from proposed activities have not been studied, quantified, and disclosed. The information that is provided about soil and slope conditions suggests conditions are risky, yet does nothing to dispel the uncertainty that follows. Additionally, given the District's efforts to create woodlands at Brawley Mountain, and the at best inconclusive results thus far, there is significant uncertainty about whether the District can be successful here. Implementing experimental treatments such as woodland creation without data to show that it can be successful must be supported by analysis in an EIS.

Precedential value – "The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration." § 1508.27(b)(6). This project may establish precedent for future actions with significant effects including continued woodland creation on the CONF and timber harvesting in areas labeled unsuitable under NFMA. Additionally, the midstory treatment in particular represents a decision in principle about a future consideration – whether or not to implement regeneration harvest in those stands.

Cumulative Impact – "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. " § 1508.27(b)(7). The cumulative impacts associated with this project are discussed in detail, *supra*, Section IX(iv).

Scientific, cultural, and historic resources – Many of the unique or ecologically critical resources discussed above also have significant value for science, local culture, or natural heritage, e.g., old-growth forest, , PETS and other rare species, the outstandingly remarkable streams (high quality streams are often important reference sites for scientific study), and the Cooper Creek Scenic Area (a prized area since it was set aside by the Regional Forester in 1960).

Legality – "Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment." § 1508.27(b)(10). As explained elsewhere this project threatens violation of Federal law, specifically the National Forest Management Act, and as currently drafted, the National Environmental Policy Act.

We have raised substantial questions about the significance and intensity of this proposed project. The district has refused to consider reasonable alternatives we proposed that would avoid and/or reduce effects to less-than significant levels. If the district wishes to avoid preparing an EIS, the district should develop and choose a scaled-down action alternative which avoids these impacts. As currently designed, the project will very likely have a significant effect on the human environment. Even so, in the absence of a complete assessment of environmental impacts from the alternatives under consideration, there is no rational basis for the Forest Service to conclude the potential effects are insignificant. *See Save the Yaak Committee*, 840 F.2d at 717 (finding a decision not to prepare an EIS unreasonable if the agency fails to "supply a convincing statement of reasons why potential effects are insignificant"). Given the significance of the project in several respects, an EIS must be prepared.

XVI. CONCLUSION

Thank you for considering our comments and supporting information. We look forward to answering any questions the district might have and continuing our dialogue about this project. Please continue to keep us informed of any changes in the project that are considered or further analysis that is conducted, as well.

Sincerely,

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LIST OF ATTACHMENTS TO COMMENTS
ON DRAFT EA FOR COOPER CREEK WATERSHED PROJECT
SUBMITTED BY GEORGIA FORESTWATCH, THE GEORGIA CHAPTER OF THE SIERRA CLUB, AND THE SOUTHERN ENVIRONMENTAL LAW CENTER
FEBRUARY 5, 2016

ATTACHMENT 1: Georgia ForestWatch, Georgia Chapter of the Sierra Club, and the Southern Environmental Law Center (SELC), Comments re: Cooper Creek Watershed Project (June 6, 2014)

ATTACHMENT 2: Letter from Georgia ForestWatch re: Cooper Creek Stand Comments (June 29, 2015)

ATTACHMENT 3: Jonathan Evans Scientific Review of the Brawley Mountain Project for the Southern Environmental Law Center (September 2015)

ATTACHMENT 4: Letter from Sam Evans and Hugh Irwin to Tony Tooke (June 15, 2015)

ATTACHMENT 5: Letter from Sarah Francisco and Patrick Hunter, SELC, to Andrew Baker, Blue Ridge District Ranger, re: Implementation of the Brawley Mountain timber sale (July 8, 2014)

ATTACHMENT 6: Photographs of Brawley Mountain Project (Summer 2014)

ATTACHMENT 7: Selected References