

Georgia ForestWatch

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Dear Alan,

Thank you for the opportunity to comment on the Environmental Assessment (EA) for the Brawley Mountain Golden-Winged Warbler Habitat and Woodland Restoration Project. Georgia ForestWatch (GFW) considers the Brawley Mountain Woodland Project very important, since it is likely the best chance to maintain a population of golden-winged warblers in Georgia, if only in the short or medium term. Furthermore, this project has the potential to set an important precedent for creation of woodland through artificial management practices (“timber harvest, chainsaw felling, prescribed burning, selective herbicide use and supplemental seeding”), not only on this forest, but throughout the region. Despite extensive efforts, including questioning of Forest Service personnel, GFW has been unable to determine that this has been done on any remotely comparable site anywhere in the Southern Appalachians.¹ These comments are submitted on behalf of Georgia ForestWatch and the Southern Environmental Law Center.

Since the original scoping notice (December 15, 2005) and GFW’s response to it (incorporated herein by reference), progress has been made. In particular, we are very appreciative that Alternatives 3 (the preferred alternative) and 4 considerably reduce the size of the project by excluding riparian areas, lower and, partially, mid slopes, which are not well suited for golden-winged warbler habitat or woodland.

In lengthy conversations with you at the Georgia ForestWatch office in Ellijay in 2006 and more recently in conversation and e-mail communications with Jim Wentworth, GFW has indicated that, despite our strong reservations about the justification for this project and its chances of success, GFW would not present any opposition to it, provided that the western ridge is excluded.

In a letter to you dated December 8, 2006, which is in the project file, Wayne Jenkins, executive director of Georgia ForestWatch, wrote, “Georgia ForestWatch (GFW) would like to see the Brawley Mountain Project implemented with no further delay, provided that this is done within the area outlined in our original scoping response of January 30, 2006, i.e., excluding the entire west ridge. To this end, we suggest that the EA that is currently being prepared include analysis of this alternative.”

¹ The most nearly comparable project known to GFW is the Lockridge Wildlife Savannah Construction Project on the Monongahela National Forest in West Virginia. However, the methods used there were somewhat different: “The construction work included dozing/cutting of small pole and sapling size trees, removal/grinding of stumps, treatment of slash by piling, and seed bed preparation, fertilizing, and liming.”
(<http://www.notes.fs.fed.us:81/wo/wfrp/WFWPartnerships.nsf/project/wl24?opendocument>)

The EA of August 1, 2008, does state that an alternative “considered but not fully developed” “was based on comments received from Georgia ForestWatch, Southern Environmental Law Center, and the Georgia Chapter of the Sierra Club.” The alternative considered included “approximately 100 acres +/-,” and “was considered to be too limited [in scope] to provide a significant contribution to meeting the Forest Plan Goals and Objectives for woodland restoration and golden-winged warbler conservation. For this reason this alternative also was dropped from further study.”

In our response to the original scoping notice, we wrote:

“Under no circumstances should any disturbance occur in stand 619009 (eastern cove) where a number of white oaks (*Quercus alba*) are marked for sale. These trees and associated other oaks have reached full mast production and the presence of so many white oaks indicate a deep rich soil totally at odds with the soil conditions favoring an ‘open oak woodland.’

The western ridge in stands 619001, 619002, 618020 and parts of 619017² should be left alone entirely, as the forest types there also indicate soil conditions are at odds with those favoring an ‘open oak woodland’ and these stands have significant amounts of old growth³ and potential old growth.”

Since almost none of stand 619009 is included in the preferred alternative and we would have no objection to the part that is included, exclusion of the entire western ridge (~100 acres) would still leave approximately 300 acres for enhancement of GWWA habitat. At the rate of six acres per pair (taken from the project file), 300 acres would accommodate 50 pairs.⁴ This would be a great success and be worthy of emulation, especially at higher elevations more to the liking of GWWA.

In GFW’s initial scoping comments, our primary criticism of the project was its unreasonable scale. “Given the highly debatable justification for the project from a scientific standpoint, its experimental nature and high cost, both monetary and ecological, it should be implemented on a far smaller scale suitable for demonstration of an unproven theory and method.”

While we consider the reduction in size of the project area in the preferred alternative by confining it to the ridgetops and upper-mid slope a significant improvement, which we very much appreciate, we feel that the western ridge has special qualities which make destruction of the ecosystem there an unacceptably high price to pay for an uncertain and likely fleeting benefit. For the reasons mentioned in our original scoping comments and additional information presented below, Georgia ForestWatch is rather pessimistic that any management actions can preserve the small GWWA population at Brawley Mountain—or anywhere else in the state—in the long term. Nevertheless, we do support intensive efforts to enhance habitat conditions for

² Some of the boundaries of these stands have since been redrawn to create stand 619027.

³ As the EA so tortuously demonstrates on pages 83–90, although stands on the western ridge display all six of the attributes by which “... *old growth is typically distinguished from younger growth*,” there may be nothing there that qualifies as old growth under the Region 8 *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region* (Forest Service, 1997).

⁴ According to the EA, the approximately 20 acres of storm damage from Hurricane Opal and subsequent salvage logging (presumably plus roadside and power-line right-of-way) “appears to be saturated and may only be capable of supporting 10–20 pairs of golden-winged warblers,” which would seem to indicate a much higher density.

GWWA, provided such efforts are carried out **on a reasonable scale**. At Brawley Mountain, a reasonable scale **does not include the western ridge**.

* * *

One very interesting piece of information that has come out since our initial scoping comments is the USFS's own conclusion (*Atlas of Climate Change Effects in 150 Bird Species of the Eastern United States*⁵) that golden-winged warbler (GWWA) will disappear from Georgia under any credible climate-change scenario. Partners in Flight says of GWWA, "Breeding range contracting in s and e portions of range but expanding in n portion."⁶

According to the EA, concerns about the potential success or failure of the project because the project area is at the extreme southern edge of GWWA's range, GWWA hybridizes with Blue-winged warbler,⁷ and the GWWA range is shifting northward in response to global warming are not a significant issue. "This issue has already been decided by the viability requirement of NFMA and by the Forest Plan. The viability requirement of NFMA is specifically scaled to the 'planning area.' In our case that is the Chattahoochee-Oconee NF, which is also coincident on its northern boundary with the state line of Georgia."⁸

It is hard to imagine any issue that could be more significant to the success of the project than that the project area may soon be entirely outside the range of its intended beneficiary species. This is highly relevant to (1) the reasonableness of the stated purpose and need for this project, the likelihood of achieving it, and the alternatives considered; (2) the accuracy of the effects analysis; (3) the balancing of benefits against adverse effects to identify the appropriate scale and location of the GWWA habitat improvement. This also is an essential part of any cost/benefit analysis, and it is the Forest Service's responsibility to consider the likelihood of success for tax dollars spent. See below for further discussion of the NFMA viability requirement, which should lead the Forest Service to balance the desire to improve GWWA habitat with the viability needs of other species. Therefore this issue must be considered.

As for woodland, it is certainly true that the Forest Plan sets the goal of creating 10,000 acres of woodland. However, the Forest Service does have the responsibility to do so only on appropriate sites, of which the western ridge of the project area is most certainly not one. The Environmental Assessment (EA) of the Brawley Mountain Woodland Project fails to provide any evidence that open woodland, as defined in the Forest Plan, has ever existed anywhere in the project area within the last few thousand years. No adequate or credible evidence is given in the EA that open woodland has existed anywhere in the mountains of North Georgia during that period. On the contrary, it can be readily demonstrated that open woodland did not exist on the western ridge of the Brawley Mountain project area and therefore cannot be "restored."

According to the EA, "Experience in the Southern Appalachians since the earliest days of scientific forestry have [sic] shown that woodland and grassland reverts—usually rapidly—to

⁵ http://www.fs.fed.us/ne/newtown_square/publications/technical_reports/pdfs/2004/gtr318/ne_gtr318.pdf

⁶ <http://www.pwrc.usgs.gov/pif/watchlistneeds/GWWA.htm>

⁷ "Hybrids with Blue-winged Warblers, which may present a problem to the conservation of Golden-winged Warblers, were found [on Brawley Mountain] in 2002 but have not been confirmed since the implementation of the prescribed fire program." EA at 122.

⁸ "Luckily wildlife populations do not recognize political boundaries" (Klaus, "Status of the Golden-winged Warbler in North Georgia, and a Nesting Record of the Lawrence's Warbler," *The Oriole*, 2004, vol. 69, no. 1-2. p. 1-7.

closed-canopy forest without mechanisms to keep it open.” In other words, the land itself wants to and will grow forest, unless some factor impairs its productivity so severely as to make this impossible (see Appendix 2). In the vicinity of Brawley Mountain, as anywhere else, the only natural factors that could do this are soil conditions (mafic or ultramafic⁹), lack of adequate precipitation or fire.

As far as we know, no soil study has been done in the project area, but the soil appears to be deep, rich and entirely inconsistent with the poor soils that could prevent the growth of forest. Indeed the existing healthy, vigorous, mixed mesophytic forest on the western ridge, with its very large, tall, straight-boled trees, would not be possible on a site where soil conditions favored woodland. Moreover, average annual precipitation of about 60 inches in the project area (EA at 27), also contradicts the claim that woodland was historically present.

The only remaining possible cause of natural woodland on this site is fire. But lightning ignitions plays only a minor role in Southern Appalachian fire regimes, being relatively rare and occurring predominantly on xeric exposed ridges, where they are evidenced by fire-adapted table-mountain pine and pitch pine communities. So the only possibility for woodland on this site is not natural, but anthropogenic.

There is general agreement that Native Americans, including the Cherokees, did engage in cultural burning, mostly in the vicinity of their settlements. As to how frequent, extensive and intense these human-ignited fires were, there is much speculation and little certain knowledge. “The history of Amerindian burning and natural fire occurrence in the southern Appalachians has not been studied adequately to support firm conclusions.”¹⁰ Cecil Frost, in his “First approximation map of presettlement fire frequency regions of the U.S.” shows a fire return interval of 13–25 years for the mountains of North Georgia, cautioning that, “the map represents the highest fire frequencies commonly found within each region.” Fire frequency of once every 13–25 years is not nearly enough to create or maintain woodland.

Furthermore, fire that was ever frequent or intensive enough to create and maintain woodland, in spite of high annual precipitation, would have degraded the soil over time, but that is not the case. The site quality here is high, contrary to the statement (EA at 11) that, “These are the locations where site quality and fire behavior would have historically acted in combination to produce woodland habitat.”

Another issue determined to be nonsignificant is old growth. The EA’s excellent, if convoluted, analysis of old-growth criteria and requirements notwithstanding, while the proposed actions

⁹ Ultra-mafic rock outcrops are not common on the earth's surface, and the soils they form - often called serpentine soils by ecologists - are unusual, with several defining characteristics. First, they tend to be low in plant nutrients such as phosphorus, potassium, nitrogen and calcium. Second, they have unusually high magnesium levels and high magnesium to calcium ratios. The high levels of magnesium in the soil block most plants' abilities to take up other nutrients, especially calcium. Third, nickel or chromium can be present in levels toxic to plants. Fourth, the soils contain minerals formed deep in the earth that are no longer in equilibrium with their surroundings and are easily eroded. The erosion creates a distinctive, pocked landscape described by Charles Wharton as looking as though meteorites have hit it. These eroded, thin soils do not retain very water well. Finally, these soils are typically low in clay. One clay that does form, montmorillite, binds water to it so tightly that vegetation cannot access the water. All of these factors render the serpentine soils low in both moisture and nutrients, creating difficult conditions for plants. Hence, the vegetation is often thinly dispersed, so nitrogen and organic humus cannot build in the soil and the area remains open and hot, perpetuating the unfavorable conditions. (<http://www.gabotsoc.org/articleTrackrock.htm>)

¹⁰ Gary B. Blank, “The Historical Ecology of the Southern Appalachians.”

may meet the letter of *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region*, they stray far from the intent of that document.

The Forest Service on page 18 of the EA dismisses Georgia Forest Watch's scoping comments that the proposed action would eliminate potential old growth on the western ridge of the project. The Forest Service asserts that the western ridge does not meet Region 8 guidance criteria for existing old growth and apparently believes that it has no obligation to protect near old growth. We challenge the Forest Service's analysis of the old growth characteristics of the west ridge as being inadequate and suggest that by including the western ridge in this project the Forest Service is missing an opportunity to create a network of old growth across the forest as is directed by Region 8 guidance.

The EA on page 83 analyzes the effects of all the action alternatives on old growth. This analysis begins with an attempt to decipher the Region 8 guidance to the various southern forests. *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region* (Forest Service, 1997). This guidance provides a very complicated protocol and set of guidelines for determining what forest stands qualify as old growth. The fact that this guidance is less than clear is evidenced in the EA at page 84 by this statement:

“The old growth guidance further provides that the age criterion is applicable when at least 6 to 10 trees per acre for the pine forest community types and ‘at least 30 trees per acre for some deciduous community types are present.’ The ‘Guidance’ is not completely clear but it seems that this number is to be in the oldest age class, not just of any age. It also does not specify what is meant by ‘some deciduous community types.’”

Further evidence that this old growth guidance was difficult to follow is the fact the CONF was unable to follow the guidance to survey and test its CISC data to determine how accurately old growth stands were captured in CISC data across the forest. For a further discussion of this failure of the CONF to survey for old growth please see Georgia Forest Watch's discussion of this matter on pages 22 and 23 of our scoping response and incorporated here by reference.

In considering old growth on the CONF, a reasonable person has to consider not only the uncertainty reflected in the guidance provided by Region 8 as noted above but also how little old growth there is on the forest to be used as a guide as to old growth characteristics and protection in this particular area. Despite this uncertainty the EA on pages 87, 88 and 89 goes on to list the minimum ages necessary for the various forest types in the stands to be considered old growth and asserts on page 89 that none of the stands to be affected by this project reaches the necessary age to be considered old growth. The area on the western ridge that Georgia Forest Watch has suggested is **potential** old growth was surveyed by GFW and the results reported in our scoping comments on page 23. (GFW refrained from coring trees).

“GFW on a recent field survey of the Brawley Mountain “Woodland Restoration” Project identified the west ridge in stands 619001, 619002 and 619017 as potential old growth. These stands are carried as Forest type 56 in CISC (Yellow Poplar/ White Oak/ Red Oak) (this type 56 also seems spectacularly ill suited for transformation to ‘open woodland’) and exhibit all the characteristics of a mixed mesophytic forest. This can only be classified as OG type 21. The quantitative criteria for this OG type as found on page D-5 of the appendix lists the DBH of the largest trees in the stand as ≥ 20 . GFW measured a *Q. alba* at 26.5 “, a *Q. montana* at 29.5” and a *Q. rubra* at 32”. All of these trees were in stand 619002”

Since that time the Forest Service (FS) has adjusted the stand boundaries and forest types found on the western ridge. As in all cases stand boundaries are by nature somewhat approximate, but it appears that the area where a number of large trees are located is no longer in stand 619002 but in a new stand 619027 which has a forest type of 53 as opposed to 56 . Stand 619017, where more large trees are found, has had its forest type changed from 56 to 53 also. GFW agrees that this forest type is more accurate. More large oak trees are to found in parts of stand 618020 which is inaccurately typed as forest type 3 (White Pine). In the EA the FS then goes on to separate this forest type 53 into two separate old growth types, 05 and 21, based on moisture-retention characteristics (EA on page 88) . There is no mention of how this was done or what areas fall into type 05 and what into type 21. According to Region 8 old growth guidelines, old growth type 05 requires a minimum age of 140 years for the oldest trees; and type 21, 130 years. The only reason given in the Region 8 old growth guidelines for selecting this age criterion apparently is that it is the approximate half life of the dominant tree in the stand. As mentioned above the EA asserts that no trees on the western ridge met this age criteria. There was no written record kept of the analysis of old growth on the western ridge, and the core samples collected were discarded. The Region 8 protocol for sampling old growth was not followed. The EA contained no information on this survey. Georgia Forest Watch requested this information and was supplied three weeks after the release of the EA with very sketchy data, which is apparently all that exists. This data consists of a few notes scratched on a sheet and a memorandum that was recreated based on the memory of the employee who sampled the site two and a half years ago (see Appendix 1). Examining the very sketchy handwritten field notes one finds the figures 98 twice, apparently referring to the age of some species of trees in stands 619001 and 618002, and the figure 130, apparently referring to the age of some species of tree in stand 619017. Reading the memorandum one finds that two chestnut oaks were cored in stand 619017, and the approximate age of these two trees was 130 years. The memorandum then goes on to state that there were **about** 20-25 trees per acre in this age class and they were **about** 18” in diameter. We have concerns about the lack of contemporaneous field survey data and documentation and the attempt to patch this up years after the fact.

Under the guidelines for region 8 old growth standards, explained so thoroughly in the EA, these chestnut oaks on top of a ridge would fall into old growth type 21 which has an age qualification of 130 years. This conflicts with the statement made at the public meeting on the west ridge at Meeting Place Gap in the spring of 2006 that the oldest tree cored was 120 years old and appears to conflict with the conclusion in the EA on page 89 that none of the stands in the project area “met the minimum old growth age for their respective old growth type.” With all the effort given in the EA to the analysis of old growth (15 pages) and the effects on such by the proposed action, it is difficult to understand why the cores were not retained along with a proper tally written at the time of sampling to tie these cores to specific trees in specific locations. Since these stands on the western ridge were disallowed from old growth consideration on the basis of age, there apparently was no attempt to analyze these stands for other old growth characteristics such as decadence, downed woody debris, tree size or canopy gaps. The western ridge exhibits all these characteristics. The inadequate old growth sampling and the difficulty that even highly trained Forest Service personnel have in deciphering Region 8 old growth guidance speaks to the complexity and vagueness of the Regional guidance on old growth.

Beyond the quantitative measures put forth by Region 8 old growth guidance to identify old growth there is also guidance that directs the forests in the Southern Region to “develop a network of old growth areas of various sizes and . . . develop management prescriptions for these areas.” *Guidance* at 15. “National forest lands in the Southeastern United States will contain a mix of large-, medium-, and small-sized old-growth areas. The national forests in the Ozark/Ouachita

Highlands and the SAA [Southern Appalachian Assessment] area will contain a mix of all three sizes.” *Guidance* at 16. The network “will provide the ecological integrity of old growth communities, the representatives of the 16 identified old-growth forest community types, and an adequate distribution of these community types.” *Guidance* at 15. In designating old growth patches, the agency must consider the representation of the old growth community types, the distribution of patches across the landscape, and **linkages between patches**. *Guidance* at 18.

The EA goes on to analyze the direct effects of all the action alternatives on the age and simply states on page 91 that “ No affected stands in any action alternative are old enough to meet the age criteria to qualify for old growth. There are no direct effects to existing or potential old growth.” It is difficult to understand this assertion; clearly, if one reduces a stand by 80% by cutting down large trees that almost meet the Region 8 old growth guidelines, this has an effect on potential old growth. In the instance of the western ridge it will delay old growth classification for 100 years or so. The analysis then suggests improbably that harvesting 80 to 40% of the trees on the ridgetop and upper-mid slope of the western ridge will not hinder eventual development of these stands into old growth. The FS in designing this Brawley Woodland ‘restoration’ project should consider the statement in the introduction to the Region 8 old growth guidance.

“The U.S. Department of Agriculture, Forest Service, Southern Region, recognizes old-growth forests as a valuable natural resource worthy of protection, restoration, and management. Old-growth forests provide a variety of values, such as biological diversity, wildlife habitat, recreation, esthetics [sic], soil productivity, water quality, aquatic habitat, cultural values, and high-value timber products. Old-growth communities are rare or largely absent in the southeastern forests of the United States. Existing old-growth communities may represent around 0.5 percent (approximately 676,000 acres) of the total forest acreage (approximately 108,400,000) acres in the Southeast (Davis 1996).”¹¹

Sparing the near old growth on the western ridge from timber harvest will still leave nearly 300 acres for this project, which by any standard must be considered sufficient. In addition to assigning an old growth management prescription to a stand outside the project area (which GFW applauds) the FS should apply such a prescription to the western ridge, which would contribute to creating a network of old growth across the forest and the linkage between old growth patches across the forest as recommended by the Region 8 old growth guidance. To understand the importance of creating a network of old growth across the southern forests see the article “Restoring Forest Diversity in the Southern Appalachian Mountains” by Robert Zahner found in the spring 1990 issue of *Tipularia*, published by the Georgia Botanical Society. Dr Zahner, a former research scientist at the Forest Service’s Southern Research Station, professor emeritus of forest ecology at Clemson University and fellow in the American Association for the Advancement of Science, makes a compelling case for the importance of restoring a continuous network of old growth forest across the southern mountains. There are several other very large benefits to preserving the near old growth on the western ridge (which certainly must be considered late-successional) . One is that this preservation will fulfill the most important recommendation of the collaboration on bird conservation referred to as Partners in Flight.

¹¹ USDA-FS, Southern Region, *Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region: Report of the Region 8 Old-Growth Team*, Forestry Report R8-FR 62, at 1 (June 1997) (hereinafter “*Guidance*”).

“The importance of late-successional forests compared with mid-successional forest for mature forest [bird] species is not well understood. Late-successional forests, especially those exhibiting “old-growth” characteristics (i.e., trees in all size and age classes, a multilayered canopy, standing snags, downed coarse woody debris, and the presence of shade-tolerant species) would seem to provide good quality habitat for mature forest species associated with all vegetative layers. However, these conditions currently occupy a small percentage of the SBR landbase. Since future hardwood sawtimber production will likely be based upon mid-successional cover and, to some extent, northern hardwoods, increasing and maintaining late-successional acreage for these and other forest types will be among the most complex and challenging conservation issues from an economic standpoint within the SBR...”

“Two broad themes emerge for actively managed lands in the SBR in relation to bird conservation. The first is to promote the return of old-growth forests, especially in spruce-fir-northern hardwood, hemlock-white pine and cover (mixed mesophytic) hardwood forest types. Partners in Flight states : "Implementing conservation measures based on either theme would not be without controversy. Nevertheless, management to ensure the healthy future of most high-priority birds must be based on merging old-growth dynamics and frequent, large-scale disturbances. Since the bulk of publicly owned forests are currently in a state of natural regeneration, management should favor the maintenance of large areas of older age-class forests." ¹²

The other large benefit is that preserving the west ridge will assure that the CONF will possess immediately or very shortly a mixed mesophytic old growth type that is currently scarce or absent on the forest. As noted above and in our scoping comments on page 23 GFW conducted the largest and most thorough old growth inventory ever conducted on the CONF. This survey for the most part discovered only xeric old growth types. Preserving this type 53 mixed mesophytic forest will fulfill the “*Guidance*” at D-17 “...diversifying the kinds of old growth communities..”

The EA on page 19 dismisses Georgia Forest Watch’s concern about the effect of the project on mast producing trees. The importance of hard mast, particularly acorns, for the welfare of a variety of animals is well documented. (See Georgia Forest Watch’s scoping comments on page 19), and the Forest Service in the EA seems to agree that hard mast production is important. The Forest Service suggests on pages 19-20 of the EA that the reduction of the canopy and hence the number of trees by 80% will not significantly reduce mast production as existing trees may increase mast production. No evidence is cited to support this view. It is entirely possible that individual remaining trees may in fact increase their mast production for reasons described in the EA: “All of the project area will retain tree cover. The open canopy conditions will allow oak crowns to expand outward and deepen vertically, increasing flowering and fruiting of residual trees.”

¹² William C. Hunter [U.S. Fish and Wildlife Service], Robert Katz, David N. Pashley [American Bird Conservancy] and Robert P. Ford [The Nature Conservancy], *Partners in Flight Southern Blue Ridge Bird Conservation Plan*, Version 1.0, July 1999

It is impossible to imagine that a marginal increase in production by the few remaining oak trees left when 80% of the trees are removed can equal the mast production of the existing forest in the project area. Where are the studies that support this assertion? The Forest service in the EA goes on to say this about the effects of this project on mast production: “In addition, research has shown that fruiting is under at least moderate genetic control and that some trees are never good acorn producers even in otherwise good to excellent mast years so that it is not correct that the cutting of each oak tree lowers mast production.”

This is entirely true but since the Forest Service has performed no studies over the past several years of the mast producing characteristics of the various oak trees on the project area it is possible that the best mast producing oaks will be removed and the effect of the project on hard mast production will be greater than then the absolute number of trees removed. The technical paper on mast production produced by the Forest Service’s North Central Experiment Station in 1994 (cited on page 19 of Georgia Forest Watch’s scoping comments and incorporated here by reference) recommends this procedure if oak forests are to be thinned.

1. Before the first thinning, identify and reserve the good acorn producers in each stand. To do this, you'll need to observe and keep records for 5 years or more. If that is impractical, roughly assess the acorn-producing capacity of individual trees by observing production during a single year in which a good to excellent acorn crop occurs for one or more of the major species present. However, in the red oak group, many good producers may be overlooked in a single year because not all trees of those species may produce well in the same year. Criteria for identifying good producers are given by Sharp (1958) (Table 1). The best time to rank trees in the oak-hickory region is from August 10 to 25, before acorn predators begin to eat or cache many acorns. Acorns are best observed with binoculars on bright days when they are silhouetted against the sky (Sharp 1958).

Table 1. – A ranking of acorn production for individual Trees ¹

Ranking	White oak group	Red oak group
	Average number of acorns per branch ²	
Excellent	18+	24+
Good	12–17	16–23
Fair	6–11	8–15
Poor	<6	<8

¹ Adapted from Sharp (1958). Note that in any one year, excellent producers may not reach their potential because of unfavorable environmental factors.

² Based on the terminal 24 inches of healthy branches in the upper one-third of the crown.

2. During thinning, retain a mixture of oak species to minimize the impact of the large year-to-year fluctuation in acorn production in any one species.
3. Thin around the identified acorn producers to expose their crowns to full light on all sides. This facilitates crown expansion and increases branch density. Branch density increases acorn production per unit of crown area because of the increase in numbers (density) of acorn-bearing branches (Verme 1953). Among the potential acorn producers, dominant and codominant trees will be the most efficient producers. Area-wide thinning is not necessary because only 20 or fewer good seed producers are likely to occur per acre even in pure oak stands. But because these seed producers typically will be dominant and codominant trees, they may account for proportionately more basal area and stocking than their numbers alone indicate.
4. Increase or decrease the rotation (or in uneven-age management, maximum tree diameter) to include the tree diameter of maximum acorn production of the predominant species in each stand. For example, production in northern red oak peaks when tree d.b.h. reaches 20 inches and then it declines in larger trees. In contrast, white oak production is maximized at about 26 inches. Many other species, however, do not exhibit well-defined diameter-related peaks in production, at least within the diameter ranges that have been reported (Downs 1944, Goodrum et al. 1971). Large, senescent trees are usually poor acorn producers (Huntley 1983).

The Forest Service has performed no 5 year study of the mast production in the project area and in fact has performed no study at all. (Personal conversation with Jim Wentworth) The EA goes on to state that despite the possibility that the project will reduce mast capability “in a very localized area .. mast will remain abundant on the Forest.” We question what standard of

abundance this statement refers to. Certainly mast production on the Forest is below pre-European levels with the absence of the Chestnut tree. Mast production is certainly lower now than in 1970 when the Forest Service began its clear cutting on the CONF. As discussed in Georgia Forest Watch's scoping comments on page 20, the Forest Service's program of clear cutting reduced drastically the number of oaks in the regenerated stands. Studies by Fisher as cited in GFW's scoping comments and a study at the Forest Service's own Coweeta Research Station¹³ prove what all hunters and naturalists have noted as they have surveyed recovering clear cuts on the CONF and that is that the regenerating stands have far fewer oaks than existed prior to clearcutting and that long-lived poplar, locust and red maple dominate the regenerating stands. This means that not only have the silvicultural practices followed by the Forest Service in the past 40 years reduced the number of mast producing trees and therefore the mast but they have also significantly reduced mast production into the foreseeable future. The EA states that in addition to mast being 'abundant' on the forest, mast producing stands account for nearly ¾ of the analysis area (800 acres) with the inference being that mast is abundant. Have there been any on the ground surveys to confirm that these 600 acres are actually mast producing? Assuming this is based on CISC, the CISC data frequently does not correspond to "on the ground" conditions. Once again what is abundant? Oaks are extremely episodic in mast production owing to species, genetics, elevation, aspect and weather as all botanists, hunters and naturalists know. In light of this it is prudent for managers to maintain a wide range of oaks comprised of many species scattered over a variety of terrain. The map (Fig. 1) shown below shows Forest Service clear cuts in the analysis area colored in red. (stands less than 40 years of age in CISC are by default clearcuts) A quick glance at this map shows that Forest Service projects have substantially reduced mast production currently in the analysis area as the oak trees formerly standing are gone and that based on the studies cited above mast production will be impaired into the foreseeable future.

The analysis of the effects of this project on mast production has neglected to consider these cumulative effects and is woefully inadequate. A remedy would be to leave the oaks on the west ridge which is the most productive mast producing area in the proposed project.

The analysis of cumulative impacts does not consider the loss of mature and old growth forests on private land. In fact, the analysis of cumulative impacts on most other resources (soils, water, species, etc.) does not consider the impact of activities on private land. Such impacts should be considered. See 40 C.F.R. § 1508.7 (NEPA regulations define "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.").

¹³ Successional Changes in Plant Species Diversity and Composition After Clearcutting a Southern Appalachian Watershed, Katherine J. Elliott, Lindsay R. Boring, Wayne T. Swank and Bruce R. Haines ..online at the Coweeta website.

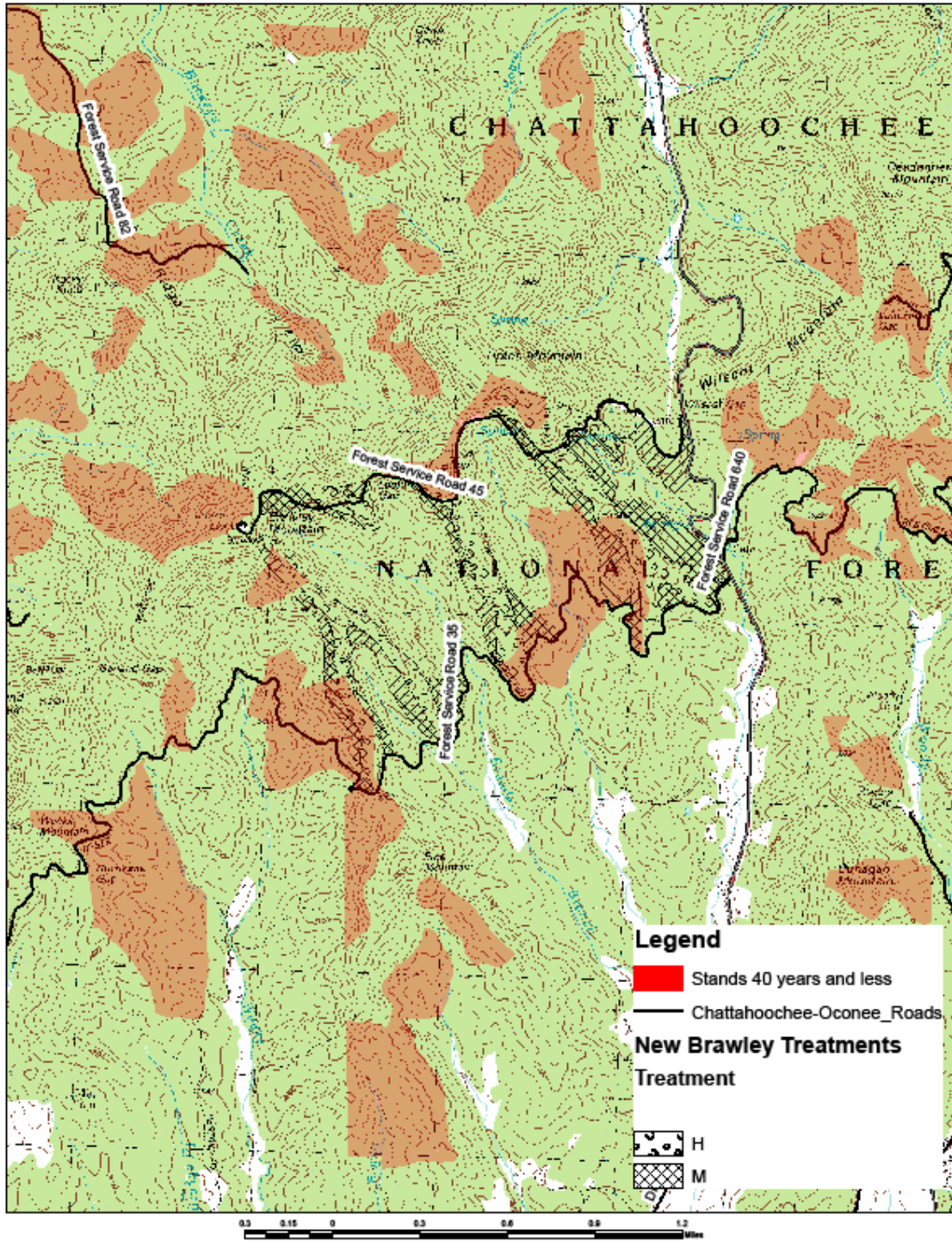


Fig. 1. Clearcuts in the last 40 years in the vicinity of Brawley Mountain

Given that the purpose of this project as stated in the original scoping letter was “to enhance habitat conditions for the golden-winged warbler (*Vermivora chrysoptera*), while GWWA is the “specific focus” of the project in the EA, and that according to the scoping letter, “a more widespread distribution of golden-winged warblers and associated species or increased populations will be the measures of success for this project,” while the EA says, “A more widespread distribution of golden-winged warblers and associated species or increased populations in the habitat created will be the primary measures of success for this project; however response by any of the woodland associates would also be indicators of success,” the lack of data on GWWA in the project area is absolutely astonishing.

When asked about bird count data and specifically about the population trend, i.e., has it been increasing or decreasing since GWWA were discovered in the area in 2002, Jim Wentworth responded:

“Nathan Klaus of GA DNR has the bird survey data. He indicated that the bird survey data has not yet been summarized. Some of the data has been put in an Access data base but the last couple of years have not. If you have some specific questions we can try and pull it together.

As to Golden-winged warblers, Nathan indicated that we generally only detect 1 or at most 2 singing males across all the transects. The transects run from the upper road down to the lower road. We pick up golden-winged warblers on the very upper ends of the transects. The transects don't sample all the habitat so they are not going to detect all the birds. As many as 8–10 singing males have been detected at any given time along the Brawley Mountain Road, and the 12 to 15 pairs is an estimate of the total population, knowing that we can't sample all of the habitat.”

Perusal of the project file found e-mail regarding sightings of GWWA at Ledford Gap and some very nice photos of GWWA there. In addition, the file contains several sheets of bird survey data from two transects in one year (2005), showing that, in addition to other species, two GWWA were identified on one transect and none on the other. It was explained that surveys were also performed on the same transects in 2006 and 2007, but not in 2008. Apparently, the Forest Service has not seen these data and does not know the survey results. No explanation has been given as to how total population estimate of 12–15 pairs was obtained or for which year.

GFW personnel have also seen and heard GWWA in the area, and of course we have no doubt that a population of some size does exist there. However, it is beyond understanding why, for a project of this magnitude and importance, the Forest Service would have so little interest in obtaining baseline data for the measure of the project's success, no curiosity as to the current population trend prior to treatment and not even bother to conduct a survey in 2008. Since the EA says, “Pre-sale monitoring data collected by Georgia Department of Natural Resources personnel provides the baseline against which to evaluate success,” one has to assume that the bar has been set very low—two birds.

The EA's conclusion that monitoring is not a significant issue, since, “Standard Forest Service procedure includes monitoring for achievement of objectives,” does not adequately address this important questions about monitoring -- how the Forest Service will determine whether and to what extent the project achieves its objectives (particularly its GWWA objectives) and what the

other impacts are of doing so. For an experimental and novel project such as this one, “standard Forest Service procedure” may well not be sufficient to answer these questions.

As for a more widespread distribution or increased populations of allegedly woodland-associated species as a measure of success, there is no baseline at all. Presumably, most of these species currently have zero population in the project area. Of course, one or more of the six birds of concern may have been identified in the bird surveys, but for the one mammal, four reptiles, six insects and forty-six vascular plants there is no way of knowing. “Standard Forest Service procedure includes monitoring for achievement of objectives,” but how can one say that distribution is more widespread or populations have increased without pretreatment baseline data?

Legal Issues

I. The Site on which the Forest Service Proposes the Brawley Mountain Woodland Project is Unsuitable under NFMA and 36 C.F.R. § 219.14

Under Prescription 7.E.1 of the 2004 Land and Resource Management Plan for the Chattahoochee and Oconee National Forests (“Forest Plan” or “Plan”), the Forest Service designated the Brawley Mountain project area as “unsuitable for timber production.” Forest Plan at 3-125. However, in spite of this unsuitability determination, the Forest Service now proposes to conduct an intensive forest management project on the site. The intent of the Project is to convert the site to “open oak woodland,” primarily for the golden-winged warbler. In order to convert the site to open oak woodland, the Project will involve a variety of intensive management activities, including a commercial timber sale to reduce canopy cover by up to 80%, a prescribed burn to follow the sale, application of herbicide to stump sprout clumps in the aftermath of the burn, and then periodic prescribed burns on a timeline of every three to five years. EA at 11-13.

The National Forest Management Act (NFMA) requires that projects be consistent with forest plans. 16 U.S.C. § 1604(i). Our scoping comments (see pp. 4-7, 33-37) pointed out how the proposal is inconsistent with the Forest Plan, particularly prescription 7.E.1, because the project area is unsuitable for timber production and because the proposal conflicts with other 7.E.1 desired conditions, goals, objectives, and standards. The draft EA, however, fails to squarely address this issue and does not actually respond to it. The EA should consider and discuss whether the specific activities proposed are consistent with the particular aspects of the plan discussed in our comments and below.

Prescription 7.E.1 is classified under NFMA as unsuitable for timber production. Plan at 3-125. Therefore, the NFMA suitability and consistency provisions do not allow the Project to continue as currently proposed. While the project’s stated purpose is to meet non-timber goals and objectives, the large scale of this project (several hundred acres), high-intensity timber harvest (up to 80% canopy removal), and its end results and adverse effects cannot be distinguished from a harvest for the purpose of timber production (in fact, this project’s effects are worse because the land would be burned every 3-5 years in perpetuity to prevent

regeneration, rather than eventually regenerated as in a typical timber harvest). Therefore, this site is unsuitable for the proposed timber harvesting and other activities.

A. Suitability under NFMA and its Implementing Regulations

NFMA provides that the Secretary of Agriculture “shall develop, maintain, and, as appropriate, revise land and resource management plans for units of the National Forest System....” 16 U.S.C. § 1604(a) (2006). In developing and maintaining such plans, “the Secretary shall identify lands within the management area which are not suited for timber production, considering physical, economic, and other pertinent factors to the extent feasible, as determined by the Secretary....” 16 U.S.C. § 1604(k).

The suitability determinations for the revised plan were made pursuant to the 1982 NFMA regulations, particularly 36 C.F.R. § 219.14. As summarized by a court, the regulation:

“sets forth a series of criteria for making the identification of lands suitable for timber production, together known as Stage 1. Under Stage 1, land is considered unsuitable for timber production if: (1) it currently and historically has less than 10% tree cover; (2) technology is not available to insure that timber production will not cause irreversible damage to soil or watersheds; (3) it cannot be restocked within 5 years; and (4) it has been administratively withdrawn from timber production.” Citizens for Env'tl. Quality v. United States, 731 F. Supp. 970, 977 (D. Colo. 1989) (citing 36 C.F.R. § 219.14).

The Forest Plan describes prescription 7.E.1 as “unsuitable for timber production; not appropriate. . . .” Plan at 3-125. We assume that “not appropriate” refers to the Stage 3 suitability analysis described in Forest Plan Appendix F, which identified some land as unsuitable for timber production because it is “not appropriate” for it. Plan at F-12-13. Land is considered not appropriate for timber production for three reasons: the land is proposed for resource uses that preclude timber production; other management objectives in the plan limit timber production to the point where other management requirements, such as resource protection requirements, cannot be met; or the lands are not cost-effective for timber production. 36 C.F.R. § 219.14(c)(1)-(3) (1999) (the NFMA regulations in effect when the plan was revised).

Primarily, these Stage 1 and Stage 3 criteria are effect- based and revolve around the impact of timber cutting on the land and/or other multiple-use values. The unsuitability determination made pursuant to these criteria must also to apply to any other management activities that will cause these effects, such as the proposal (as demonstrated below). Therefore, the proposed timber harvesting cannot proceed on this land already designated as unsuitable.

B. The Project’s Proposed Restoration Activities will Result in Irreversible Damage to Soils in Violation of NFMA

Pursuant to NFMA, the Secretary of Agriculture must establish regulations, which “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) (2006); see also Sierra Club v. Martin, 992 F. Supp. 1448 (N.D. Ga. 1998) (citing 16 U.S.C. § 1604(g)(3)(E)), rev'd on other grounds 168 F.3d 1 (11th Cir. 1999). While this provision of NFMA “authorizes timber harvesting where there may be temporary and reversible damage to soil, slope, or other watershed conditions,” it does not authorize harvesting that results in irreversible damage. Martin, 992 F. Supp. at 1473; see also Sierra Club v. Espy, 38 F.3d 792, 800 (5th Cir. 1994).

In assessing what constitutes “irreversible” damage to soil, courts have found violations of NFMA’s prohibition on irreversible damage where “logging practices compact the soil, displace nutrient-rich organic matter and upper mineral soil and cause accelerated erosion,” 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....” Allegheny Def. Project, Inc. v. U.S. Forest Serv., 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), rev'd en banc on other grounds, 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.

In the case of this project, it is almost certain that irreversible damage to the soil resource will occur in violation of NFMA – as such damage is not only a consequence of the proposed activities to create the “open oak woodland,” but, effectively, is the purpose of such activities. In order to establish the open oak woodland, the Forest Service proposes to engage in a multi-step process of commercial thinning, prescribed burning, the application of herbicide to stump sprout clumps, and repeated prescribed burning on a three- to-five year cycle. EA at 11-13. Effectively, these management activities aim to degrade the area until it becomes an open oak woodland, which is by definition a poor site (see discussion below regarding the definition of woodland).

Looking more closely at the specific details of the Project, it is even more apparent that the restoration activities will cause irreversible damage to the site’s soils. For example, fires – even those implemented through prescribed burns – cause soil degradation, nutrient depletion, and erosion of soil. As noted in the EA, adverse effects of fire on soil “include excessive soil heating that can kill biota, alter soil structure, destroy organic matter, and loss of site nutrients through excessive volatilization,” as well as erosion. Id. at 30. The Forest Service proposes to avoid such adverse effects by maintaining lower intensity burns, limiting burn area, and conducting the burns on a three-to-five year timeline. Id. at 30-31. Fire, however, can be a complicated, unpredictable, and high-risk management tool, and not all areas of the project site – such as the slopes and ridges – will respond to and rebound from the burns in the same manner.

Moreover, the draft EA states that the prescribed fire is expected to top-kill some “fire-intolerant” trees greater than 4” d.b.h. and “saplings,” and even to top-kill some retained trees large enough to be considered “snags.” EA at 13, 72-73. On this point of fire severity/intensity, the EA is inconsistent – a fire intense/severe enough to top-kill such trees necessarily will be much hotter than the fire the EA elsewhere claims will be cool enough to leave the lower layer of

the leaf litter in place (EA at 34). Such fire is likely to have adverse effects, particularly on soil fertility and nutrients, that the EA fails to acknowledge, consider, and address. For example, we can point to other Chattahoochee prescribed burns that laid mineral soil bare, such as the Songbird area on the Conasauga District, and caused erosion, such as the Chintilly 2 burn on the Chattooga District.

Furthermore, as discussed below with respect to soil productivity, the proposed herbicide treatment also may cause irreversible damage to the soil. Among the three herbicides the Forest Service has proposed to use, the possibility of adverse effects to soil within the treatment area is not eliminated. Threats herbicides may cause to treated sites include inhibiting the growth of beneficial mycorrhizal fungi, which is beneficial to many desired tree species' including oaks. Mycorrhizal species assist trees in allocating nutrients and fixing nitrogen, hence the importance of preserving such colonies in the soil. Herbicides may also pose threats to long-term productivity of soils due to the persistence of certain chemical components of the herbicides. While the Forest Service is careful to note in the Environmental Assessment that it will implement the herbicide treatment in such a way as to avoid these effects, *Id.* at 31, the treatment area may cover up to and over 200 acres, which presents greater risk for unforeseen circumstances. Thus, in spite of the Forest Service's best efforts otherwise, the herbicides may result in irreversible damage to the soil.

In combination, the proposed activities are likely to result in accelerated erosion, the permanent loss of organic matter and beneficial organisms, the loss of site nutrients, and destruction of soil structure within the proposed restoration site, all of which, under the cases cited above, constitute irreversible damage to the soil in violation of NFMA. Accordingly, the Forest Service must disclose and consider these consequences and amend the proposed activities so as to account for and avoid them. If the Forest Service cannot avoid these consequences— and this very likely is the case, given that the consequences appear to be directly necessary to the proposed woodland “restoration” – then the Forest Service must not undertake the proposed activities.

C. The Project's Proposed Woodland “Restoration” Activities Will Not Allow for Adequate Restocking of the Lands within Five Years

Under NFMA, the Secretary of Agriculture must establish regulations to “insure that timber will be harvested from National Forest System lands only where ... there is assurance that such lands can be adequately restocked within five years after harvest.” 16 U.S.C. § 1604(g)(3)(E) (2006); *see also* Sierra Club v. Martin, 992 F. Supp. at 1459 (citing 16 U.S.C. § 1604(g)(3)(E)). While few courts have explored the interpretation of the restocking provision of NFMA, those that have approached the issue have concluded that the requirement is clear and absolute – an “express mandate,” as stated by one court. Ayers v. Espy, 873 F. Supp. 455, 464 (D. Colo. 1994); *see also* Sierra Club v. Cargill, 732 F. Supp. 1095, 1099-1100 (D. Colo. 1990), *rev'd on other grounds*, 11 F.3d 1545 (10th Cir. 1993). Indeed, where the Forest Service attempted to interpret and apply the requirement more narrowly – such that the five-year timeline would apply only to clearcuts or, alternatively, that it would begin to run only after a “final harvest” in other types of cuts – the court disagreed, finding such limiting interpretations “contrary to Congressional intent.” Ayers, 873 F. Supp. at 465. Accordingly, NFMA's

restocking requirement and its timeline is express and not limited to any particular type of cut or harvest.

The proposed activities would violate this provision of NFMA if implemented. The preferred Alternative 3 calls for logging 80 percent of the canopy in the ridges and upper slopes and 40-70 percent canopy removal on the mid-slopes. (Note that the EA does not disclose the target residual basal area; the EA should disclose this.). Then, in order to maintain these open conditions, the Forest Service proposes to follow the sale with prescribed fire to top-kill stems of most remaining low to medium fire tolerant species, the application of herbicide to some of the stump sprout clumps arising from the root collar of top-killed hardwoods, and periodic prescribed burning on a three- to five-year cycle. EA at 11-13. As the EA states, “prescribed burning on a 3 to 5 year cycle would be used to maintain the woodland condition by killing new hardwood seedlings. . . .” EA at 13.

The result – and goal – of the proposed activities is that the area will be converted and permanently maintained as an open oak woodland. That is, the Forest Service will continue activities to insure that the harvested and burned timber and vegetation will not regrow. By definition, then, the Forest Service’s proposed activities will not achieve adequate restocking within five years and, therefore, are prohibited by the NFMA.

II. The Project’s Proposed Restoration Activities Violate Other Substantive Provisions of NFMA.

A. The Project’s Proposed Restoration Activities Will Not Preserve the Diversity of Tree Species Similar to That Existing in the Region

Pursuant to NFMA, the Secretary of Agriculture must establish regulations, which specify guidelines that “provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.” 16 U.S.C. § 1604(g)(3)(B) (2006). By way of example, as one court stated, this means that, if a stand “is properly a hardwood management site, it would be improper for the defendants to regenerate the site as a pine plantation.” Chattooga Watershed Coalition v. U.S. Forest Serv., 93 F. Supp. 2d 1246, 1249 (N.D. Ga. 2000).

The Forest Service’s proposed activities – and, indeed, the very goal of the activities – would violate this provision of the NFMA. Via the proposed activities, the Forest Service proposes to convert the existing late-successional, mixed mesophytic forest which comprises a significant portion of the project site to open oak woodland, a forest type that, by the Forest Service’s admission, currently does not exist in Chattahoochee National Forest, and very well may have never existed in the Forest.

This project would have particularly egregious consequences in the healthy, mature, white oak-red oak-hickory forest of the western ridge, which, following the logging and burning of the project, would be limited to scattered trees on degraded soils. The District should not proceed with this forest site-type conversation.

Further, if the District does attempt to proceed, the NFMA and NEPA require the District to thoroughly analyze the impacts of and need for the conversion, which it has not yet done. See Sierra Club v. Glickman, 974 F. Supp. at 920-22 (“Reductions in diversity--such as forest type conversions--are permitted only where needed to meet overall multiple-use objectives and must be justified by an elaborate analysis of potential consequences,” quoting Charles F. Wilkinson and H. Michael Anderson, *Land and Resource Planning in the National Forests* at 195 (1987)). Converting the western ridge to a woodland cannot be justified.

As a general matter, this conversion of the existing site to open oak woodland would run contrary to the NFMA’s call for preserving “the diversity of tree species similar to that existing in the region controlled by the plan.” 16 U.S.C. § 1604(g)(3)(B) (emphasis added). Since open oak woodland – and accordingly the diversity of tree species of which open oak woodland consists – does not exist in Chattahoochee National Forest (i.e., the region controlled by the Forest Plan), and likely never existed in the Forest or the surrounding area to any significant extent, any attempt to alter the site’s diversity so as to resemble open oak woodland does not meet the NFMA’s diversity provision. As with the court’s hypothetical hardwood-to-pine conversion in Chattooga, such a conversion from the current forest type 53, white oak-red oak-hickory and its diversity of tree species to open oak woodland would be “improper.” Chattooga Watershed Coalition, 93 F. Supp. 2d at 1249.

Beyond this fundamentally improper purpose of imposing low-diversity open woodlands on an inappropriate site, such as the diverse mixed mesophytic hardwood forest of the western ridge, the proposed activities violate the diversity provision. In order to achieve the goals of converting the restoration site to open oak woodland, the Forest Service proposes first to conduct a timber sale, in which it will aim to selectively remove “[l]ess fire tolerant species such as red maple and white pine,” while leaving more fire-tolerant species “such as blackjack oak, southern red oak, yellow pines, and others.” EA at 11. Note that it is not possible to achieve these objectives on the western ridge because it lacks fire-tolerant species. Second, the Forest Service proposes to follow the sale with prescribed fire to top-kill “most [] low to medium fire toleran[t] species” up to about 4” dbh as well as “[s]ome individual stems of fire intolerant species larger than 4” dbh.” Id. at 13.

Third, the Forest Service proposes to use “very selective herbicide treatment of the stump sprout clumps,” which will be “focused on species other than hickories or oaks; primarily red maple, blackgum, sourwood and dogwood.” Id. The stated purpose of the herbicide treatment is to allow for the growth of “herbaceous species needed to complete the woodland condition.” Id. Finally, in order to maintain the restoration site as an open oak woodland, the Forest Service proposes to engage in “low-to-moderate intensity prescribed burning on a 3 to 5 year cycle” in order to “kill[] new hardwood seedlings and ... to provide habitat niches for the establishment of native grasses.” Id.

Each of these proposed restoration activities will directly alter the diversity of tree species on the restoration site as compared to the diversity of species that exists now at the site and is existing in the region. While the rest of the Chattahoochee National Forest will contain more species characterized as fire-intolerant, such as red maple and white pine, and less species characterized as fire-tolerant, such as blackjack oak, southern red oak, and yellow pine, the

restoration site will substantially lack the former in the aftermath of the restoration activities. Furthermore, because of the proposed herbicide treatment, the restoration site will contain a proportionally greater number of hickories, oaks, and herbaceous plants, and a proportionally lower number of red maple, blackgum, sourwood, and dogwood than the rest of the Forest. Finally, due to the periodic prescribed burning, the restoration site's diversity of tree species will continue to be much lower than the diversity of the rest of the National Forest and the surrounding region.

Accordingly, if the Forest Service goes forward with the proposed restoration activities, the project's purpose and its activities will run contrary to NFMA's diversity provision. In order to avoid violating the diversity provision, the Forest Service must change the project so that it does not convert the site's existing diversity of tree species to the proposed open oak woodland that currently does not exist – and likely never existed to any significant extent – in the Chattahoochee National Forest and its surrounding regions. The two most plausible ways to achieve this amendment would be to proceed with Alt. 3 without the western ridge, conduct the project at the current site without altering the existing diversity of tree species (which we doubt is possible), or conduct the project at another site ecologically suited for open oak woodland and where the existing diversity of tree species is consistent with the proposed open oak woodland.

B. The Project's Proposed Restoration Activities Will Produce Substantial and Permanent Impairment of the Productivity of the Land

Under NFMA, the Secretary of Agriculture must establish regulations which specify guidelines that “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.” 16 U.S.C. § 1604(g)(3)(C); see also *Wilderness Soc'y v. Alcock*, 867 F. Supp. 1026, 1029 (N.D. Ga. 1994). Courts have interpreted the provision as a substantive requirement under NFMA and have variously noted that, under the provision, the Forest Service must “maintain” and “ensure” soil productivity. See *Ecology Ctr. v. Austin*, 430 F.3d 1057, 1062 (9th Cir. 2005) (Noting the “substantive requirements” of NFMA, the court stated that, “[i]n addition to the mandate to maintain wildlife viability, the Forest Service must maintain soil productivity. 16 U.S.C. § 1604(g)(3)(C).”); *Friends of the Columbia Gorge, Inc. v. Elicker*, No. 05-CV-646-BR, 2007 U.S. Dist. LEXIS 94722, at *49 (D. Or. Dec. 27, 2007) (“NFMA also requires USFS to ensure the continued diversity and viability of plant and animal communities and the productivity of the soil.”). The productivity is apparently a carry-over from the Multiple Use-Sustained Yield Act, which preceded NFMA, and which included the requirement “without impairment of the productivity of the land” in its definitions of both “multiple use” and “sustained yield.” See 16 U.S.C. § 531(a)-(b) (2006); see also *Wilderness Soc'y v. Alcock*, 867 F. Supp. at 1028-29.

The Southern Appalachian Assessment defined “woodland” as “[f]orestland incapable of producing 20 or more cubic feet of industrial wood per acre per year under natural conditions, because of adverse site conditions.” SAA, Glossary at 288 (1996). Therefore, by definition, the proposal to convert the Brawley Mountain project area to a woodland will substantially and permanently impair the productivity of that land, particularly the productive hardwood forest of the western ridge.

In terms of what constitutes “impairment of productivity” on the ground, one court noted that the forest management at issue was causing “severe erosion of soil from the forest landscape and related loss of organic matter.” Sierra Club, 974 F. Supp. at 926. Consequently, the court found that “[t]his soil loss is substantially and permanently impairing the productivity of the forest land and possibly timber production.” Id.

Under the provision, the Forest Service’s proposed restoration activities are in violation of NFMA. The productivity of forest land – and of land in general, for that matter – is inextricably linked up with the state of the soil. As noted in Glickman (discussed above), erosion and loss of organic matter were the two main elements leading to the court’s finding that the management activities had permanently impaired the productivity of the forest land. Consequently, the same facts that show the project is likely to irreversibly damage the soil show the project is likely to impair the productivity of the land.

In order to achieve the objectives of converting the restoration site to open oak woodland, the Forest Service proposes to engage in a multi-step process of commercial thinning, prescribed burning, the application of herbicide to stump sprout clumps, and repeated prescribed burning on a three- to five-year cycle. EA at 11-13. Each of these activities can cause increased erosion and/or degradation of the soil and organic matter on the site, and it is certain that implementing these activities in combination with each other will result in even greater amounts of erosion and degradation. As noted above, this degradation is not so much a consequence as a goal of the project; that is, as the site is not currently and likely never was an “open oak woodland” forest, the only means to convert it to such is to degrade its soil and productivity to the point where the site becomes and remains an open oak woodland (for further discussion of soils and productivity, see comments of Darren Wolfgang in Appendix 2).

The details of the proposed activities also conflict with the NFMA’s productivity requirement. First, by the Forest Service’s own admission, the degree of canopy opening in the timber sale would be greatest “on upper south and west-facing slopes and the adjacent ridgelines toward the east and south from the crest of Brawley Mountain.” Id. at 11. This is problematic because, as the Forest Service notes, ridges and upper slopes tend to be xeric and “with less productive potential” than locations downslope. Id. Accordingly, such areas are particularly vulnerable to substantial and permanent impairment of productivity, especially when such areas are the primary focus of intensive cutting. Furthermore, as the Forest Service notes, the cutting on the ridges and slopes will be followed by prescribed burning, which is particularly notable because “[f]ires tend to increase in intensity upslope,” thereby – as discussed above – resulting in further degradation of a sensitive and already intensively harvested area. Finally, ridges and slopes, by their very nature, tend to be vulnerable to increased erosion and soil loss. Together, these elements very likely will result in substantial and permanent impairment of the productivity of the managed ridges and slopes.

Second, as discussed above and in the Environmental Assessment, adverse effects of fires include loss of organic matter and beneficial biota, the alteration of soil structure, nutrient depletion through volatilization, and erosion, all of which can lead to impairment of the soil’s productivity. Id. at 30. While the Forest Service will attempt to avoid such adverse effects, id. at

30-31, fire can be a complicated, often unpredictable, and high-risk management tool, and not all adverse effects to the various sensitive areas of the project site – such as the slopes and ridges – can be foreseen and avoided. Indeed, it is likely that the adverse effects of the periodic prescribed burns will result in permanent and substantial impairment of productivity of areas of the site, especially in combination with other proposed activities and the particular and unique elements of those areas.

Finally, the application of herbicide also presents problems for the productivity of the site. As noted in Georgia ForestWatch’s scoping comments of January 30, 2006, there are a variety of adverse effects associated with herbicides – particularly with respect to the productivity of the land – such as inhibiting the growth of beneficial mycorrhizal fungi, interference with the fixing of nitrogen, damage to plant species, and persistence in the soil. Scoping Comments at 25-30. While the Forest Service is careful to note in the Environmental Assessment that it will implement the herbicide treatment in such a way as to avoid these effects, *id.* at 31, the facts remain that the herbicide treatment will cover an area possibly over 200 acres, accordingly a great deal of herbicide will be required, and unforeseen circumstances may intervene. Thus, the potential remains that, in spite of the Forest Service’s best efforts otherwise, the herbicides will still have adverse effects on productivity.

In sum, it is very likely that the proposed restoration activities will substantially and permanently impair the productivity of the forestland in violation of NFMA. Therefore, the Forest Service must amend the restoration activities so as to avoid such impairment of productivity. If the Forest Service is unable to amend the activities so as not to violate NFMA, then it must not implement the activities.

III. Species Viability Under The NFMA And the Forest Plan.

A. Diversity Of Plant And Animal Communities.

The EA repeatedly asserts that the NFMA requires the CONF to maintain viable (self-reproducing) populations of native vertebrate animals. Therefore, the EA claims, the question of whether this project to benefit the golden-winged warbler should proceed at all already has been decided. See EA at 16-17.

First, the EA’s characterization of the NFMA is mistaken. The NFMA actually requires the Forest Service to:

“provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.” 16 U.S.C. § 1604(g)(3)(B).

The 1982 regulations interpreting and implementing this diversity provision imposed the more specific viability requirement: “Fish and wildlife habitat shall be managed to maintain

viable populations of existing native and desired non-native vertebrate species in the planning area.” 36 C.F.R. § 219.19 (1982). The regulations go on to define a viable population and describe requirements for management indicator species (MIS).

The CONF plan goals for terrestrial plants and animals and their habitats include goals for providing sufficient forest interior or late successional habitat, large blocks of contiguous forests, old growth, and a diversity of oak species, in addition to the woodland goal this project proposal is based upon. See Goals 2, 6, 9 and 10, CONF Plan at 2-4-8. The draft EA also points to Plan goals to “Contribute to the viability of native and other desirable wildlife species” and to “Maintain and restore natural communities” to support “viable populations of existing native and desired nonnative plants, fish, and wildlife species within the planning area.” Plan at 2-4, 2-6.

Given these requirements to maintain the diversity and viability of all trees and other plants, vertebrate animals and fish, the CONF must balance the need to try to increase golden-winged warbler populations by improving its habitat with the need to provide for or maintain the many other plants, animals and trees which inhabit or benefit from late successional or old growth forests and to protect existing, high-quality habitats for them, such as the diverse, almost-old growth mixed mesophytic forest on the western ridge with its mature mast-producing oaks. Such species include the cerulean warbler (a rapidly declining warbler species which requires large tracts of mature deciduous forest), the scarlet tanager, ovenbird and wood thrush¹⁴ (all CONF MIS), salamanders, black bear and grey fox.

For the Brawley Mountain project, the CONF should adopt a modified Alternative 3 (without the western ridge), which would allow for substantial habitat improvement for the golden-winged warbler (about 295 acres) without overly compromising these other species and forests. This is the most reasonable and balanced way to meet all of these equally important requirements and goals.

B. Proposed, Endangered, Threatened and Sensitive Species

The EA released on August 1, 2008, states that "Effects to federally-listed threatened and endangered species as well as Regional Forester Sensitive Species are analyzed in detail in the Biological Evaluation for this project. The results are summarized here." EA p.112. There is a similar statement regarding impacts to aquatic species. EA p.109. The BE, however, was not completed and provided until August 29th, and then only after we requested a copy and were informed by District staff that it would not be completed for a few weeks. We requested an extension of the comment period in order to review and comment on the BE once it became available. Shortly after our request for an extension was denied, the BE appeared.

This presents two significant problems. First, the EA refers and relies upon a document that does not exist. It is not possible for the EA to “summarize” a document that does not exist. It is totally unclear what information supports the discussion in the EA, since the actual analysis was not complete when the EA was released. Even more troubling is the factually misleading

¹⁴ See Frank A. La Sorte, et al., USFS, Northern Research Station, Population Trends and Habitat Occurrence of Forest Birds on Southern National Forests, 1992-2004, at 76, 113, 125, 149 (2006); Cornell Lab of Ornithology, Bird Guide, www.birds.cornell.edu/AllAboutBirds/BirdGuide/Wood_Thrush.html#sound (2003).

nature of the EA, since it suggests that the BE was completed (the EA claims that effects “are analyzed in detail in the Biological Evaluation”) when, in fact, that document did not exist. Identifying a preferred alternative and reaching conclusions about its effects before completing the analysis puts the cart before the horse in violation of NEPA’s procedures for environmental analysis, public participation and informed decision-making.

Second, the public needs an adequate opportunity to review and comment on the BE. Under NEPA, the public is 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 ability to review and comment on the BE is a necessary part of informed and meaningful comment on this proposal, particularly when the EA refers to and relies on the additional, more detailed analysis in the BE and the EA itself only summarizes the BE. Without an adequate opportunity to review the BE and make an informed and meaningful response to it, the public comment period is not adequate. We are disappointed that the District Ranger denied our reasonable request to extend the comment period to allow sufficient time to review and comment on the BE. We received the BE about 2:30 pm on August 29th, the Friday before the Labor Day weekend, when the comments are due the following Friday, September 5th.

We wish to note that a District staff member claimed this process of doing the BE after the EA is usual practice, yet we know of no other national forest in the Southern Appalachians that writes BEs after releasing draft EAs for public comment. Here on the CONF, the Conasauga District provided the draft BE for the Armuchee Ridges project, at our request, while the draft EA was out for public comment. On the Tallulah District, the BE for the early successional project in the Flat Branch area was completed before the draft EA was released 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.

Finally, a court decision this year undermined the process used by many forests in the Southern Region to analyze PETS. When analyzing the impacts of proposed projects on proposed, threatened, endangered and sensitive species (“PETS”), most national forests in the region have been using a “decision tree” to determine whether to conduct site-specific surveys of

the project area for particular species. For example, the decision tree purports 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. According to a February 2008 ruling that several supplemental EISs in the region failed to adequately analyze the environmental impacts of the decision tree, the Forest Service Manual provision for the decision tree, upon which many forests have been relying for direction regarding analysis of PETS species, also is unsupported by adequate environmental analysis pursuant to NEPA's procedures. Sierra Club v. USFS, 535 F. Supp. 2d 1268, 1306-08 (N.D. Ga. Feb. 22, 2008). Therefore, we believe the decision tree is invalid and the CONF should not rely upon it. The BE appears to have relied on this decision tree.

IV. Historical Records And Subsequent Reports And Studies Regarding The Natural Processes Of The Southern Appalachian Mountain Forests, Including The Limited Natural Role of Fire.

As discussed in our scoping comments, the Forest Service's historical records of land inventory and acquisition and subsequent reports and studies show that the natural forests of the Southern Appalachian mountains are uneven-aged ("all-aged"), diverse forests of usually permanent canopy types determined by site, which regenerate through gap-phase dynamics, rather than through large-scale successional stages. These records also show that fire played a relatively minor role in the development of these forests, being limited to lightning-ignited fire on dry ridges and upper south- and west- facing slopes. See the reports by Cherokee National Forest archaeologist Quentin Bass, "Land-Use Effects in the Southern Appalachian Mountains and the Conasauga River Drainage" and "The Forest Ecosystem and the Effects of Land Use Patterns in the Southern Appalachian Physiographic Province, Inclusive of the Cherokee National Forest," which summarized and analyzed those historical records and other relevant studies (Bass reports previously submitted with scoping comments). This limited natural role of fire makes particular sense given that this moist region receives 60" of precipitation a year, on average. EA at 27.

This information is consistent with and supported by other studies and research, including studies performed by and for the Forest Service, such as those by Ayres and Ashe (1905), Lynch and Clark, and Patterson and Stevens (all previously submitted).

By any measure, these records and studies provide significant information about the natural processes of the CONF's forests and the types of trees and forest cover these processes create. This information was significant and highly relevant to the revision of the forest plan and, therefore, under NEPA and the NFMA, it should have been considered and disclosed in the EIS for the revised plan (for further explanation, see scoping comments and previously submitted administrative appeal of the revised CONF plan by Georgia ForestWatch et al.).

For the same reasons, this information should be fully considered and disclosed in this EA. NEPA requires the agency to fully disclose, address and consider this information, which is particularly relevant to the stated purpose and need for the project, to the alternatives that should be considered, and to the analysis of the effects of those alternatives (see further explanation in scoping comments pp.37-40 and below).

Further, this information is highly relevant to the NFMA requirements, discussed above, that the CONF provide for the diversity of plant, animal and tree species, 16 U.S.C. § 1604(i)(g)(3)(B), and to the Plan's goals to "[e]nhance, restore, manage and create habitats as required for wildlife and plant communities," and to "[m]aintain and restore natural communities," Goals 3 & 4, CONF Plan at 2-6. Because this information sheds light on the structure, composition and diversity of those natural communities and the natural habitats for Southern Appalachian wildlife, plants and fish, it certainly was relevant to the species diversity, habitat and viability analysis conducted for the Plan, in order to satisfy the agency's obligations under NFMA, 16 U.S.C. § 1604(g)(3)(B), and the regulations under which this Plan was developed and adopted, 36 C.F.R. § 219.19, § 219.26 (1999). Likewise, the information is relevant to the analysis of these issues at the project level, particularly the restoration goals upon which this project supposedly is based.

A. Purpose and Need

According to the EA, the primary purpose of this project is to meet the Plan objective to restore open woodlands. EA at 9, 10. The Plan goals and objectives cited in the EA explicitly are framed in terms of restoring natural communities, including woodlands. CONF Plan at 2-6.

The CONF plan defines "restoration" in part as "Ecologically, the process of returning ecosystems or habitats to their former structure and species composition. . . ." CONF Plan, App. B at 53; see also Merriam-Webster Dictionary, available at www.merriam-webster.com (defining "restore" as "to give back or return" and "to bring back to or put back into a former or original state" and defining "restoration" as "a bringing back to a former position or condition.").

Beyond these basic definitions, ecological restoration has been defined in the scientific literature, along with guidelines and parameters. In brief, ecological restoration is defined as "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed." Society for Ecological Restoration International, The SER International Primer on Ecological Restoration, available at www.ser.org, at 3 (2004). The primary goal of ecological restoration is to "enhance ecological integrity by restoring natural processes and resiliency." Dominick A. DellaSala, et al., A Citizen's Call for Ecological Forest Restoration: Forest Restoration Principles and Criteria, *Ecological Restoration*, Vol. 21, No. 1, at 16 (2003).

"Restoration attempts to return an ecosystem to its historic trajectory. Historic conditions are therefore the ideal starting points for restoration design." SER Primer, at 1. "Natural" forest composition and processes (i.e., conditions prior to significant European influence) are appropriate reference conditions and goals for restoration. The Forest Service's historical records and studies of natural processes in Southern Appalachian forests are highly relevant to identifying natural (reference) forest conditions and processes prior to European settlement, and the massive alteration of the Southern Appalachians that followed, and to developing restoration projects on the CONF.

By using the term restoration, the Plan implicitly directs that woodlands be "restored" only on sites where they naturally and historically existed. Creating open woodlands on sites

such as Brawley Mountain, where the agency has produced little or no evidence that they naturally occurred, and particularly on the western ridge where we have demonstrated woodlands clearly did not naturally occur, is not “restoration” and, therefore, is not consistent with the Plan.

Moreover, because the stated purpose and need hinges on the erroneous claim that this is a woodland “restoration” project (i.e. that woodlands once existed at this site and can and should be returned to it), the purpose and need is fundamentally skewed. NEPA requires, therefore, that the CONF disclose and address this conflicting information in the EA and reevaluate the purpose and need for the proposal based on accurate information about these forests. See W.N.C. Alliance v. N.C. Dept. of Transp., 312 F. Supp. 2d 765, 777 (E.D.N.C. 2003) (Agency’s EA failed to take a hard look when it used erroneously inflated accident rates to justify a road-building project, then failed to “re-assess the project in light of the accurate data.”); Kettle Range Conservation Group v. United States Forest Serv., 148 F. Supp. 2d 1107, 1140 (E.D. Wash. 2001) (Salvage logging project to address insect outbreak had to be reevaluated when outbreak did not spread as rapidly as predicted, thereby undercutting the rationale for the project.).

Further, the stated purpose to “restore” woodlands should prompt the consideration of additional, reasonable alternatives that respond to that purpose but were not considered in detail in the EA. First, a modified Alt. 3 *without the western ridge* – an alternative repeatedly proposed by GFW was not considered in any detail in the EA. This alternative would come closer to “restoring” woodlands by not attempting to create them in areas where there is strong evidence they never existed and, therefore, where creating them is not “restoration.” Second, the *no action* alternative, which should not be rejected before directly considering and disclosing that there is little or no evidence the proposed activities would “restore” woodlands to a woodland-appropriate site, therefore, the action alternatives do not meet the stated purpose and need. Third, other activities that would actually restore forest, soil and watershed conditions here, based on accurate information about the natural ecology of the site.

B. Range of Alternatives

Under NEPA, the Forest Service must consider alternatives to proposed actions. 42 U.S.C. § 4332(2)(C), (E). The Forest Service and other 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). The District must “[r]igorously explore and objectively evaluate all reasonable alternatives. . . .” 40 C.F.R. § 1502.14 (consideration of alternatives is the “heart” of the EIS). Courts require the Forest Service to 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, 1228-29 (9th Cir. 1988), cert. denied 489 U.S. 1066 (1989). This requirement applies to EAs as well as EISs. Bob Marshall Alliance, 852 F.2d at 1229. The failure to consider a “viable but unexamined alternative” renders an Environmental Assessment (EA) inadequate. Dubois v USDA, 102 F.3d 1273, 1289 (1st Cir. 1996), cert. denied sub nom. Loon Mt. Rec. Corp. v. Dubois, 521 U.S. 1119 (U.S. 1997) (quoting Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1994)).

First, the EA's consideration of alternatives is inadequate because the EA does not fully consider and analyze in detail the reasonable alternative we proposed in our scoping comments, which is essentially Alt.3 without the proposed activities on the western ridge. This alternative is reasonable and viable, it responds to the stated purpose and need, it minimizes adverse effects on the environment, and it meets other management requirements and Plan goals and objectives, as previously discussed. Second, the EA is inadequate because it does not consider a range of reasonable alternatives, but rather considers only two action alternatives and the no-action alternative.

V. The Brawley Mountain Project Implements Legal Violations of Forest Plan.

This project implicates many issues raised in the appeal of the revised CONF forest plan by Georgia ForestWatch and others (previously submitted) and discussed in detail therein, including but not limited to: the failure to disclose, consider and address the agency's own historic records regarding the natural conditions and processes of the Southern Appalachian mountain forests and related reports, research and analyses (as discussed above); the inadequate provision for and analysis of diversity and viability, including the selection of management indicator species (MIS) and the lack of biologically-relevant MIS; the old growth network; the appellants' request that the management of the Brawley Mountain/Tipton Mountain/Buckeye Creek area be changed to prescription 4.I (Natural Areas – Few Open Roads) or 9.A.3 (Watershed Restoration Areas) (Appeal at 271); the management and analysis of water resources and aquatic species; and the riparian prescription. This project implements the plan and these legal violations and, therefore, is itself illegal for these reasons.

VI. Roads Issues

A. Roads Analysis

The District apparently proposes to improve FSR 35 and 45 and build about 1.5 miles of temporary roads. See EA at 32-33, 38-39 (see below regarding inconsistent information re temporary roads). Road construction and road reconstruction trigger the project-level roads analysis described in Forest Service Manual (FSM) 7710. See FSM 7703.2(3) (“decisions to add new roads . . . must be informed by a roads analysis process (FSM 7712.1)”); FSM 7712.1 (officials “shall incorporate an interdisciplinary science-based roads analysis into . . . project-scale analyses and assessments”); FSM 7712.13c(3) (Decisions regarding road construction and reconstruction that would change access or may adversely impact soil and water resources, ecological processes or biological communities must be informed by roads analysis.); FSM 7712.1 (Conduct roads analysis according to the report “Roads Analysis: Informing Decisions About Managing the National Forest Transportation System” (USDA Forest Service, 1999, Misc. Report FS-643)).

The definition of “new road construction” includes temporary road construction. The definition of “road reconstruction” includes road improvements that increase the road's traffic service level, expand its capacity or change its design function, and road realignment. FSM 7705. The Brawley project involves 1.5 miles of temporary road construction and improvements of FSR 35 and 45, including “changes to surfacing, alignment, drainage and width,” EA at 33, particularly for FSR 35, which needs work to the road prism itself, since the road prism “lacks

proper drainage features” has mud holes, and portions of the road are “essentially functioning as a stream.” EA at 38. The EA characterizes this work as minor and as maintenance, but the description of the work fits within road improvement or reconstruction.¹⁵ Therefore, a roads analysis of all roads (classified and unclassified) in the project area should be performed.

One key purpose of roads analysis is to fulfill the Forest Service’s transportation regulations, which require the agency to use science-based roads analysis, with public involvement, to “identify the minimum road system” for each forest and to identify unneeded roads that should be decommissioned or converted to trails. § 215.5(b). The “minimum road system” is defined as the system needed to meet management laws and objectives, to reflect long-term funding expectations, and to minimize adverse environmental impacts associated with roads. § 212.5(b)(1).

Roads analysis should result in, among other points, identification of needed and unneeded roads, environmental risks, sensitive and unique resources, and site-specific priorities and opportunities for road improvements, decommissioning and conversion to other uses. FSM 7712.13c(4). The roads analysis should be incorporated into the environmental analysis (FSM 7712.1) and the public should have an opportunity to be “[a]ctively engage[d]” in it (see FSM 7712.03(5)).

Additionally, “[i]t is important that the roads analysis identifies access needs and opportunities that are based on current budget levels and realistic projections of future funding.” FSM 7712.11; see also FSM 7703.1(4) (“long-term funding obligations” must be “carefully considered” before new roads are added). The long-term maintenance costs of these roads and the agency’s ability to fund them must be considered and disclosed in the environmental analysis and in the cost-benefit analysis. FSH 2409.18, Ch.32.4; FSH Ch.32.22(1)(g) (direct costs that must be considered include “[r]oad maintenance,” and “the financial efficiency analysis and economic efficiency analysis must include costs and benefits for 60 years into the future.”). The CONF and other national forests in the region do not receive sufficient funds to maintain the existing road systems, and have not for a long time. According to the USFS, as of the early 2000s, the CONF had 1,538 miles of roads and an over \$53 million road maintenance backlog, which we believe has only grown.

The forest-wide roads analysis performed for the CONF plan revision did not address these issues of an environmentally and economically sustainable, minimum road system and addressed only the higher-level roads. The District should begin performing roads analysis at the project level, to begin to meet these requirements and to address these issues.

Finally, the EA contains conflicting information about whether temporary roads will be constructed. The soils analysis states that 1.5 miles will be built, EA at 33, while the water quality analysis states that none will be built, EA at 39. The District needs to set forth the correct amount in the final EA and, if temporary roads indeed will be built (as seems likely), the District must reconsider the analysis of impacts to water quality and aquatic species in light of that information.

¹⁵ What would the proposed road work cost?

B. The EA Must Fully Consider And Address The Likely Increase In Illegal ATV Use.

The EA's three sentences dismissing the ATV issue we raised in our scoping comments – that the proposed road improvements and temporary road construction are likely to lead to and exacerbate illegal ATV use in the project area – are not adequate. See EA at 17. Under NEPA, the EA must consider the likely indirect impacts of the proposed road work, such as increasing illegal ATV use, as well as spreading non-native invasive species. Roads are widely recognized to be vectors for the spread of invasive plant species, which readily take hold in forest openings caused by logging. Both issues should have received further analysis in the EA.

Past experience on the CONF and in this project area demonstrates that new and improved roads, including temporary roads as well as firelines, are likely to attract or exacerbate illegal ATV use. Under NEPA, the Forest Service must disclose and consider the impacts and costs of future illegal use of these roads. Particularly given this track record, the agency cannot ignore this impact of the proposal. See Sierra Club v. U.S.D.A., 1995 U.S. Dist. LEXIS 21507, *84-88 (S.D. Ill. 1995) (Although the Shawnee NF had “historic difficulties with enforcing ATV prohibitions,” the EIS considered only the impact of ATV use on such trails, without explaining why the Forest Service “expects to be successful in restricting travel to the designated trails when its past efforts have been unsuccessful.” The agency must consider the “likelihood of keeping ATV/OHM users on designated trails” or “the increased environmental effects. . . due to an inability to keep such users on the trails.”), aff'd 116 F.3d 1482, 1997 U.S. App. LEXIS 14635 (7th Cir. 1997) (decided without published opinion); see also National Audubon Soc'y v. Hoffman, 132 F.3d 7, 16-17 (2nd Cir. 1997) (Forest Service EA acknowledged illegal ATV use would likely increase with improvement and extension of road and proposed a berm to try to prevent illegal use, but the EA was inadequate because the mitigation measure (the berm) was not supported by substantial evidence of its likely effectiveness).

Given the CONF's well-documented difficulties over the years in closing roads and trails to ATV use, it is not reasonable for the EA to simply assume, as it does, that closure methods will be successful, without explaining in detail what those closure methods are and providing information and evidence of the likelihood of their success.

VII. The EA Should Contain Information About The Project's Costs And Revenues.

The EA proposes a commercial timber sale to remove 80-40% of the canopy, but contains no information about the estimated timber volume that would be offered for sale or its estimated dollar value, i.e. the amount of revenue expected from the sale.

The expected revenue from the timber sale, the costs to the Forest Service and whether revenue will exceed cost are relevant to this proposal and its alternatives and should be disclosed in the EA. Information about the cost and revenue of Forest Service timber sales, and particularly whether sales are “below-cost,” long has been of great interest to the public, i.e. American taxpayers. This issue was identified as a significant issue during the revision of the CONF forest plan, see FEIS for Revised CONF Plan at 1-16 (2004).

Moreover, the Forest Service's Timber Sale Preparation Handbook instructs the agency to analyze the financial efficiency of proposed projects. FSH 2409.18, Ch.13.1(3). "Financial efficiency" is, essentially, the Forest Service's costs and revenues (the agency's bottom line). Ch. 13(1); see also definitions at Ch.13.05.

The Handbook explains:

"Forest Supervisors and District Rangers must have information about projected costs, revenues, and benefits prior to making substantial resource and capital investments in timber sale projects. This is necessary to determine how each proposed project is expected to affect the financial position of the overall timber sale program and, if the financial analysis is negative, whether non-market and/or non-monetary benefits will outweigh net costs (FSM 2432)." Ch.13.1(3).

"Financial and, if appropriate, economic efficiency analysis must be included at Gates 1, 2, and 3 of the timber sale planning process..." Ch. 13.11. At Gate 2 (the timber sale project area design/environmental analysis phase, where the project apparently is now), the Handbook instructs Forest Service staff to:

"update and expand the efficiency analysis to display the relative difference in financial efficiency between alternatives being proposed in the environmental analysis required by the National Environmental Policy Act." Ch. 13.2(2). (noting that Section 32 provides guidance on and formats for Gate 2 efficiency analysis).

The analysis of sale alternatives should be performed "in conjunction with the environmental analysis" and the Handbook states that it should be incorporated by reference in the EA or appended to the EA. Ch. 13.3-4. We believe the estimated costs and revenues of each alternative should be disclosed in the EA (including information about what the costs are and which ones were included (i.e. the Quicksilver run) and how those costs were estimated, in order to inform the public as well as decision-makers. The CONF recently displayed this basic cost/revenue information in the draft EA for the Armuchee Ridges project on the Conasauga District. Several other forests in the region also publish this information in public notices.

Finally, we have many questions about how this project is being funded and how any revenues will be spent. Which Estimated Budget Line Items (EBLIs) or fund codes are being used to fund this project? If more than one EBLI/fund code is being used, which ones are being used for which portions of the project? Have National Forest System Forest Products and/or National Forest Timber Sale Management (NFTM) dollars been used or will they be used? Will the timber sold be counted towards the District's (or the Forest's or the Region's) annual targets (output measures) for timber sold? If so, please explain how the distribution of funds will be used, as well as clarify towards which timber-related targets proceeds/contributions will go. Also, please explain how the proposed activities would count towards the agency's annual target(s) (output measure(s)) for various activities. How much K-V money (Knutson-Vandenberg funds) is this project likely to generate and how does the District plan to spend those dollars? Does the District plan to use the stewardship contracting authority for this project? Are

any other federal or state agencies, other entities, private organizations or individuals contributing funds to this project, whether through a cooperators agreement, stewardship contract or through other means?

* * *

In conclusion, GFW is well aware that a small population of GWWA exists in the vicinity of Ledford Gap in the project area, and we are hopeful and somewhat confident that habitat enhancement will promote its expansion, at least in the short term. Therefore, we continue to support intensive efforts to enhance habitat conditions for GWWA, as we have for the last two years.

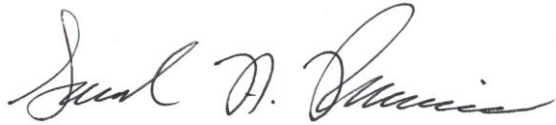
However, no evidence has been provided to support the claim that woodland conditions ever existed in the project area, and we believe that conditions on the ground clearly prove that they did not. No evidence has been provided to support the claim that the historical or presettlement fire regime in the area was ever sufficient, i.e., that fire occurrence was frequent and/or intense enough, to create and maintain woodland habitat condition. These claims are not supported by any scientific evidence. While “the appearance of golden-winged warbler in response to Hurricane Opal, salvage logging, and prescribed burning” (though it must be pointed out that in the public meeting at the site in the spring of 2006 Jim Wentworth acknowledged that the GWWA was discovered after the Opal disturbance but prior to salvage or burning) may have already determined the proper location for GWWA habitat enhancement, they say nothing at all about the appropriateness of “woodland restoration.” The Forest Service should acknowledge this and should refocus this project on the GWWA and on the habitat necessary for the GWWA, rather than attempting to link the GWWA work to the woodland restoration objective, since the ecology of this site is not appropriate for woodlands.

Furthermore, as is pointed out above and in our initial scoping comments, the proposed management actions (timber sale, post-sale felling, prescribed burn, herbicide treatment, supplemental seeding, and continued prescribed burning on a 3–5-year cycle, presumably forever), as well as the end result, are entirely inconsistent with prescription 7.E.1, detrimental to the Desired Condition and contrary to numerous applicable Objectives and Standards. Some “finding” to the contrary cannot negate that fact.

Nevertheless, despite all of the doubts indicated in these and previous comments, and additional unanswered questions (Appendix 3), Georgia ForestWatch will not object to this project in its entirety. We ask only that it be carried out on a reasonable scale, with a sense of balance between the very high ecological and financial costs, on the one hand, and the uncertain, open-ended benefits, on the other. Such a sense of balance would exclude the entire western ridge from the project area, since it is occupied by a healthy, functioning late-successional ecosystem of which there is no other example in the project area or in the vicinity and an extreme paucity on the forest as a whole.

If this project is to be implemented, it should be science-based and accompanied by monitoring adequate to its scope, innovative nature and regional significance. Such monitoring would necessarily include baseline data on golden-winged warbler, other wildlife, soils and vegetation.

The Forest Plan says, “we are students of nature, not masters of it” (CONF Plan at 1-2). It would be good to learn from nature before trying to master it.



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Appendix 1

August 25, 2008

Jim Wentworth
Biologist
Blue Ridge District

Jim,

In regards to the Brawley Mountain Project, this is what we did in Stand 17 of Compartment 619.

I first bored a couple of chestnut oaks on the upper end of this stand near the top of the ridge. These two trees were approximately 130 years old. They were growing near an old logging road and appeared to be remnants left from the last logging operation. The stand in this area was a mixture of different age classes. There appeared to be only about 20 to 25 trees per acre in this older age class. There might not even have been that many. The trees that were bored for core samples were not that large, being only about 18 inches in diameter. These were some of the larger trees in this part of the stand.

A few weeks later Mary Yonce and I returned to Stand 17 and took some more core samples from white oak trees that were growing on the lower slopes. We felt like these trees were more representative of the over all stand. The ages of these trees were about 100 years old.

The trees we measured as well as other trees in the stand, did not have the large spreading crowns you would associate with an old growth stand. They had relatively straight boles with narrow crowns.

It has been a couple of years since we looked at this, but this is what I remember about it. I hope this helps.

Sheldon Henderson

- Verify Age and Forest Type
- Check for additional regeneration in parts of stands

Brewley Mountain Project
 Toccoa Ranger District
 Wilcox Quad

Check for Regen

Forest Unit
 patrol DC

Comp Stand	Acres	Age Year	Forest Type
618009	24	187	3
618017	35	1892	3
618018	14	1890	53
618020	23	1853	3
618043	12	1980	3
619001	29	1905	56
619002	37	1922	56
619003	44	1912	53
619004	28	1905	58
619005	17	1980	58
619006	71	1931	58
619007	15	1971	10
619008	81	1935	53
619009	43	1928	53
619010	28	1963	3
619013	33	1970	56
619014	23	1970	3
619015	52	1915	53
619017	59	1921	53
619018	6	1927	53
619020	51	1915	53
619021	31	1961	3
619023	7	1904	53
Total	825		

* Partial regen open canopy

* scattered regen in lower part of stand

130yr +

ID Inoperable Areas

The creation of open woodland through abrupt deforestation which calls for the removal of 80% of the mature dominant canopy class on a given site, can and will likely have great negative impacts on the productivity of that site. A management objective that calls for the intentional degradation and conversion of productive hardwood stands to woodland is inconsistent with prescription 7.E.1. It would seem counterproductive to the objectives of ecosystem restoration and forest health improvement to call for a stand that is currently mature, 100 to 120 years old, and approaching the beginning stages of “late” forest succession to be turned into an open woodland. The stand referenced is located on the Western ridge of the proposed Brawley Mountain Golden-winged Warbler (*Vermivora chrysoptera*) habitat restoration project. The “West Ridge” currently contains a species composition consisting of Northern red oak (*Quercus rubra*), Hickory spp. (*Carya*), Yellow or Tulip poplar (*Liriodendron tulipifera*), and other species that are relatively fire intolerant.

It is important to preserve the West Ridge of the Brawley project area primarily because of the high-quality mature forest that is present in the area. This section of mature forest is surrounded by a “sea” of clear cuts and poorly harvested stands whose ages range from 18 to 60 years in many but not *all* cases. Although there are somewhat vast acres of “mature” forested acres on the Chattahoochee/Oconee, it is important to preserve those of relatively high quality, and local importance in terms of maintaining habitat diversity within the immediate vicinity of the Brawley project area. The proposal for turning the West Ridge into woodland seems fundamentally inappropriate. Many of the acres within and surrounding this project are already in a state of degradation. It is GFW’s belief that, since many of the acres in the Brawley area are already impaired, this experimental habitat creation should be focused on those acres, and not on some of the only remaining high-quality forest in the immediate vicinity.

Along an old haul road, *likely created in the 1920’s to harvest the timber on the West Ridge*, there are N. Red Oaks that are estimated to be 120 to 150 years old. These trees are significantly larger than the other second growth N. Red Oaks growing on the West Ridge and it appears with good certainty that these trees are members of an older age class. This observation is important because these N. Red Oaks along the haul road were almost certainly present during the 1920’s harvest and acted as “bumper” trees along the haul road. Evidence of this is found in the healed scars located on the base of many of these residual stems. It is important to note that these scars are not the result of fire activity. The scars are located uniformly on the stems and in all instances of occurrence face the haul road, as it meanders along the terrain. If these scars were of fire origin it is likely that they would be oriented on the downhill side of the stems, a position that a “natural” or human cause fire would have scarred, due to the tendency for fire to run uphill. If these stems did in fact serve the purpose suggested, it is highly likely that N. Red Oak was a dominant and frequently occurring species on the west ridge in the 1920s. If these trees were 35+/- years of age during the harvest in the 1920’s, they were seedlings in the early 1880’s. Based on this logic, it becomes evident that N. Red Oak existed in high density 70 years before “Smokey the Bear” and mass fire suppression ideals were born or implemented across the greater landscape. Furthermore, this logical progression of events suggests that fire suppression cannot be used as an effective argument for the legitimization of creating an “open woodland” habitat on the West Ridge.


The argument that the West Ridge should and has historically been a productive forest is further supported by data collected from the USDA *Soil Survey of Fannin and Union Counties, Georgia*.

(1996) A rough map of the project depicting its relationship to soil types across the project area is shown in Fig. A1. In addition, a data table copied directly from the Soil Survey is also included, to illustrate the vegetative community suitability of the soils, as well as the types of general wildlife habitat they could support. The major soil series present within the Brawley Mountain project area are correctly listed in the EA. The primary soils on the ridges of the project area are in fact Bradson, Saunook, and Cowee. These soils are conducive and best suited to be fairly productive mixed hardwood forests. These soils are designated as poor or fair in terms of their capability to produce and maintain grasses and legumes. The soils present in the Brawley project area are also classified as poor and fair for sustaining populations of “open wildlife”. The areas of Fannin and Union counties had an average of 62.13 inches of annual total precipitation from the years 1955 to 1977, as recorded in Blue Ridge, Ga. Generally speaking “forests” start to occur at about 20 inches of annual precipitation. Naturally, regionally driven factors such as soil type (*leeching, draining, and soil moisture retention capabilities*), and evaporation rates would have a significant influence on the vegetative communities that can occur and thrive in a given area.

The proposed conversion of this forested site from mature hardwood forest to woodland via massive deforestation and an astonishingly frequent fire return interval of 3 to 5 years will almost certainly reduce the productivity of this project area significantly. It is understood by forest managers that the retention of some kind of vegetative cover is often but not always necessary to buffer against the adverse affects to site productivity associated with such heavy harvests alone, fire excluded. Exceptions to the method of retaining vegetative structure lie in the soil properties present, this is to say that soils high in clay can resist cation exchange and subsequent nutrient loss, as opposed to those soils containing higher concentration of sand that cannot. It should be noted that many studies focused on nutrient loss as it relates to clear cutting have determined that if adequate quantities of slash and woody debris were retained on the harvest site, minimal nutrient loss occurred. The EA for the proposed Brawley mountain project seems to acknowledge this idea with the statement “*All timber harvesting would result in the removal of tree boles only.*” It is unclear as to how the nutrient loss mitigation effort of retaining residual slash is not in contradiction with such a frequent prescribed fire return interval prescription.

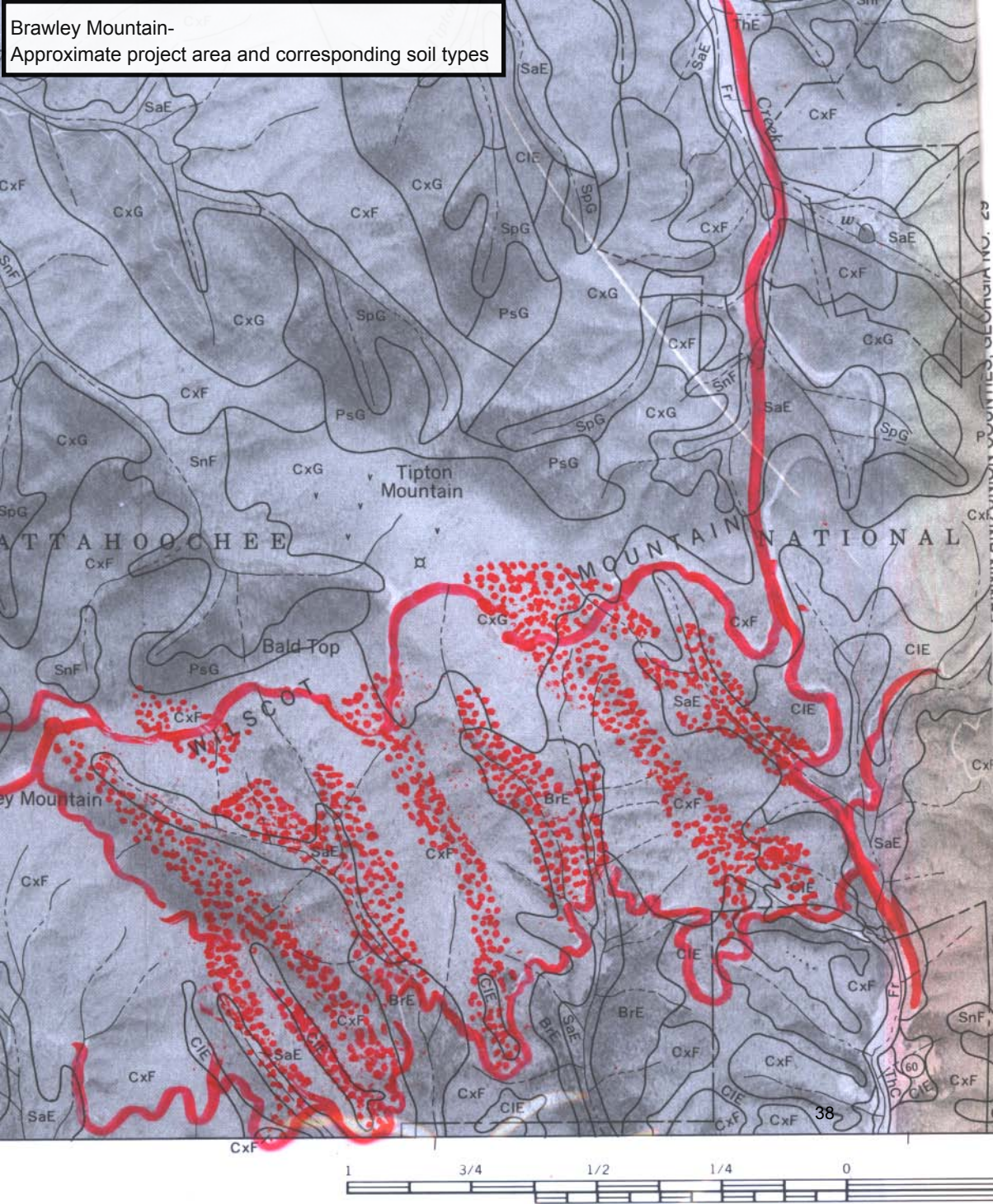
For the reasons mentioned, the West Ridge should be excluded from the project proposal.

Darren Wolfgang



Forest Ecologist, Georgia ForestWatch

Brawley Mountain-
Approximate project area and corresponding soil types



Soil Types present within the Brawley Mountain Project Area and Their Associated Wildlife Habitat Potential Capabilities

Soil Name and Map Symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and Legumes	wild herba- ceous plants	Hardwood Trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
BrE ----- ----- Bradson	Poor	Fair	Good	Good	Good	Very Poor	Very Poor	Fair	Good	Very Poor
PsG ----- ----- Porters	Very Poor	Poor	Good	Good	Good	Very Poor	Very Poor	Poor	Good	Very Poor
SpG ----- ----- Saunook	Very Poor	Poor	Good	Good	Good	Very Poor	Very Poor	Poor	Fair	Very Poor
CxG ----- ----- Cowee	Very Poor	Poor	Fair	Fair	Fair	Very Poor	Very Poor	Poor	Fair	Very Poor
SaE ----- ----- Saunook	Poor	Fair	Good	Good	Good	Very Poor	Very Poor	Fair	Fair	Very Poor
CxF ----- ----- Cowee	Very Poor	Poor	Fair	Fair	Fair	Very Poor	Very Poor	Poor	Fair	Very Poor
CIE ----- ----- Clifton	Poor	Fair	Good	Good	Good	Very Poor	Very Poor	Fair	Good	Very Poor

Additional Questions Raised by the EA

p. 5: Where were the locations of the 2 BBS records of GWWA in 1992–2004? Was this a total of 2 records in 13 years? Which years?

p. 6: Were the BBS data shown in Fig. 1 collected exclusively along roads or are there any BBS in the forest away from roads? If the latter, how many and where?

p. 8: Why is a different definition of “woodland” used in this EA the one in the CONF LRMP?

p. 8: How and from what sources was the list of 62 “other species of concern associated with it [GWWA] in the woodland habitat at the scale of the Blue Ridge portion of the Chattahoochee” compiled? It is difficult to determine exactly what some of the “associated vascular plants of viability concern” are from their common names; what are their Latin names? Are any of them associated with a distinctive edaphic substrate? Is this substrate present at Brawley Mountain?

p. 9: When was “woodland habitat” “historically more common” on the Chattahoochee National forest? Presettlement or during the late nineteenth and early twentieth centuries? If the former, is there any evidence to support this assertion? If the latter, why was this period selected as a desirable reference for restoration?

p. 9: Was Brawley Mountain the largest disturbance created by Hurricane Opal in 1995? Have other disturbances on the forest been identified? Have other disturbances of comparable size been surveyed for GWWA? Where? With what results? Why was the area where Opal created an open canopy and which has been colonized by GWWA not included in this project?

p. 9: What methodology was used to determine that the GWWA population at Brawley “has grown to 12–15 pairs”? Does it involve any extrapolation or estimation, or were 24–30 individuals identified? What procedures were used to ensure that each individual was counted only once? What is the population trend? Why does the project file contain data for only one year (2005 – 2 GWWA on one transect)? Is the population size increasing or decreasing? Why were no data collected on the transects in 2008? Is there any evidence other than temporal correlation to indicate that the increase in the GWWA population to 12–15 pairs was “a result of several prescribed burns and one wildfire”?

p. 9: Were the 2 GWWA found in 2005 identified visually or by song? Is it easy or difficult to distinguish the songs of GWWA and GWWA/BWWA hybrids? Have any BWWA or hybrids been identified in the project area since 2002?

p. 9: Does “several prescribed burns” mean more than two (2003 and 2005)? What area was burned by the one wildfire? When and where? What was the cause? If such low-intensity fires succeeded in increasing the GWWA population, why is it necessary to remove >80% of the canopy on the western ridge?

p. 10: What tree species are considered “fire hardy”? Do any of these trees commonly or occasionally exist outside of woodland?

p. 10: Are any of the NWSG mentioned (*Andropogon* spp., *Sorghastrum nutans*, *Tridens flavus*, *Panicum* spp.) found on the west ridge away from the road and power line? In what abundance? Where?

p. 11: How will creation of woodland protect and restore the productivity of watersheds?

p. 11: What evidence is there that a woodland condition ever existed on the western ridge of the project area?

p. 11: Is the site quality of woodland characteristically high or low in comparison to mixed mesophytic and mesic forest? Is the site quality of the western ridge high or low? How does this indicate historical occurrence of woodland?

p. 11: What is the average amount of precipitation on typical woodland sites? Is there an upper limit? What is it? Where is the woodland that receives the maximum precipitation found?

p. 11: Other than the prescribed burns of 2003 and 2005, what is the fire history of the Brawley Mountain project area in general and the western ridge in particular? What is the oldest recorded fire in the area? What is the fire frequency interval for similar sites on the Chattahoochee NF? How was it determined? By whom?

p. 13: What tree species are considered to have “low to medium fire tolerance”? Is low-to-moderate intensity fire usually sufficient to kill 4" dbh stems of these species? 3" dbh? Are there any monitoring data to indicate this? Where were such data obtained?

p. 13: What tree species are considered to have high fire tolerance? Will low-to-moderate intensity fires also top-kill smaller stems of these species? How old and/or large must these species be to survive such a fire?

p. 13: What was the composition and abundance of native grasses on the western ridge 80 years ago? What native grasses now occur in gap openings there? What native grasses are currently available for supplemental seeding? What is the current annual yield from CONF native grass seed production plots? Are seeds of any native grasses commercially available?

p. 13: How long will prescribed burning continue on a 3 to 5 year cycle? How long will it take to degrade the soil to a condition suitable for woodland? Will woodland conditions ever be self-sustaining on this site and, if so, how?

p. 14: “Pre-sale monitoring data collected by Georgia Department of Natural Resources personnel provides the baseline against which to evaluate success.” The only songbird monitoring data in the project file are from one year (2005) on two transects, showing two GWWA. Does DNR have additional data? Why have they not shared it with USFS? How can a project of this magnitude be designed, and how can its potential for success be assessed on the basis of two birds in one year? Will post-sale monitoring be equally rigorous?

p. 14: What “associated species” will serve as an additional measure of success? Are any or all of these species currently in decline, as GWWA is? Are the management actions needed to support these species the same as for GWWA? Will the project be considered a success if GWWA disappears, but some other species increases?

p. 15: What is considered to be a sustainable population size for GWWA? What would be the ideal population size? How long has the current population existed at Ledford Gap? Is it increasing or decreasing?

p. 15: What is the effective patch size for GWWA? How was it determined? By whom? Does PIF recommend an optimum patch size for GWWA? Does PIF have an interest in this project? Have they been consulted?

p. 15: Will the Brawley Mountain project area be burned as a single unit in its entirety, or will each of the discrete ridges where the other treatments (timber harvest, felling, herbicide) will occur be burned separately? If so, will fire control lines surround each ridge separately? Will ignition be done separately on each ridge?

p. 15: At what other “national forest locations throughout the South” have woodland conditions been created and maintained by treatments similar to those planned for Brawley Mountain? What is the topography, elevation and aspect of these sites? What is the annual precipitation? Are the soils there similar to those at Brawley in general and on the western ridge in particular? What specific treatments were used to create woodland conditions there? At what cost per acre? How long have woodland conditions been maintained at these sites? By what treatments? What treatments were found to be most successful on sites with soil, topography and precipitation conditions similar to Brawley? Were any treatments found to be unsuccessful? Which treatments were most cost-efficient? Were any of these treatments at other national forest locations designed to benefit GWWA? What has been the result?

p. 15: Given unlimited suitable habitat, how fast could the GWWA population at Ledford Gap be expected to expand? Could it double in one year? In five years? Would it be possible for the population to expand even more rapidly? Are there any examples of how fast a GWWA population has expanded at other sites with similar treatment? Any data? Are such gains permanent or temporary? Are any measures planned to discourage Blue-winged Warblers from inhabiting the treatment area? Was the USFS *Atlas of Climate Change Effects in 150 Bird Species of the Eastern United States* taken into account in planning the project? Is it significant? Will it be considered? Does GWWA prefer elevation above 3,000 feet? If so, why is almost none of the project area at or above that elevation? Is it expected that GWWA will only inhabit areas directly adjacent to the current population at Ledford Gap? Did this population exist before the Hurricane Opal disturbance? Was it sustainable?

p. 52: What is the population trend of bird MIS on the Chattahoochee NF? In particular, Prairie warbler, Ovenbird, Scarlet tanager, Hooded warbler, Chestnut-sided warbler and Field sparrow?

p. 122: The EA seems to imply that the prescribed fire program may have been why BWWA has not been seen on Brawley Mountain since 2002; is this true? Why would GWWA react favorably to fire; and BWWA, poorly?

p.123: Have any of the areas that have been daylighted along Forest Service roads at suitable elevations been surveyed for GWWA?