Appendix K

Lower Cowpasture Restoration and Management Project
Response to Comments

The Lower Cowpasture Restoration and Management Project first appeared on the Forest's quarterly Schedule of Proposed Actions (SOPA) in the second quarter of calender year 2013 as the Lower Cowpasture Restoration EA and has appeared as such on the schedule until the first quarter of clander year 2015 when the name was changed to the Lower Cowpasture Restoration and Management EA. When developing the proposed action, the interdisciplinary team hosted nine public workshops and three public field tours between 2013 and 2014. The purpose of these workshops and tours was to share information and ideas on how to effectively reach the objectives of the project. Scoping was conducted by the District Interdisciplinary Team (IDT) to determine the issues and concerns related to the proposed action. Scoping letters were mailed on July 14, 2014 to interested and affected agencies, organizations, and individuals informing them of the proposed action and requesting their input. Prior to the July scoping letter, a request for input on the project was mailed to all interested parties on February 4, 2014, to assist the IDT in determining issues, concerns, and potential projects. Comments were received from two state agencies, numerous groups and individuals. In addition to issues generated by the public or internally there are several Federal laws, which require the consideration of certain effects. Laws such as the Clean Water Act, the Clean Air Act, the Endangered Species Act, and the Antiquities Act all require the protection of certain resources and for the analysis to clearly display the possible effects. All letters received are contained in the project file.

Comments from individuals and groups were received in the forms of letter/emails. These letters/emails can be found in the project folder. The following is a summary of the comments, grouped by topic, received pertaining to project scoping and an agency response:

Project Planning Process

Comment (Sarah A. Francisco, Southern Environmental Law Center): First and foremost, we especially want to thank and commend the Forest Service for offering an opportunity to comment on a draft environmental assessment (EA) for this project this fall. As discussed in prior comments, an opportunity to comment on the draft environmental analysis is critical to achieving the goals of both this collaborative project planning process and the National Environmental Policy Act (NEPA). We also hope and expect that offering this opportunity will result in a better, more broadly supported project by enabling the Forest Service to incorporate additional information or analysis into the EA, make any final adjustments to the project, or otherwise address and respond to comments in the final EA and decision.

More generally, we again voice our appreciation for the new, far more collaborative approach to developing this project. The extensive public engagement prior to scoping was particularly positive and constructive. Providing information about the potential project very early in the process and as it evolved, offering early, frequent opportunities for public involvement and input through workshops, field trips, and written comments (e.g., the March comment period), and incorporating that feedback into the proposal have been very positive.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center): The scoping notice and its maps were more informative, clear and detailed than many we have seen. This allows the public to better understand and more meaningfully comment. The 15-day scoping period was unusually short, however, especially for a project of this size. Scoping periods usually are at least 30 days, often more for large projects. A longer scoping period should be offered for future projects, even when there is substantial pre- scoping public engagement.

Agency Response: James River and Warm Springs District Ranger Patrick Sheridan extended the scoping period for the Lower Cowpasture Restoration and Management Project to September 29, 2014.

Comment (Sarah A. Francisco, Southern Environmental Law Center): As a pilot project for this more collaborative, larger-scale approach to project planning, the Forest Service has a special opportunity and responsibility to ensure this project sets a sound, successful example. As well as hopefully achieving greater support or acceptance for the project activities themselves, it is essential for the agency to ensure that its supporting analysis is adequate and that monitoring, adaptive management, and ongoing collaboration are in place to ensure proper implementation. Many of our comments continue to focus on recommendations for that analysis.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area. This analysis is sufficient for the Responsible Official to make an informed decision in regards to this project. Adaptive management for the Lower Cowpasture is identified in the draft EA beginning on page 37. Additional monitoring activities for the project are disclosed in Appendix C.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): We welcome the collaborative process and the large, landscape–level or subwatershed– level scale of this project. We have greatly appreciated the agency's collaborative approach to project planning and the early public involvement through workshops, website information, and field trips. We hope that ongoing public engagement combined with the District's apparent receptivity to working collaboratively to adjust project activities, address issues, respond to concerns, and improve the process along the way will result in a final project that has broad support from diverse interests, including the GW Stakeholder Group and the other project participants.

We have been glad to see the GW Stakeholder Group's ongoing, sustained efforts to participate in and develop input on this project. This project offers an opportunity for implementing the Group's October 2011 recommendations for the revised GW forest plan. We have followed the Stakeholder Group's work and discussions and continue to support the Group's overall goals and process. We look forward to continuing to discuss this project (including the topics discussed in these comments) with group members.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): Although any forest plan Wilderness recommendations are not directly within this project's scope, we have greatly appreciated the District's including Wilderness as a topic at the public workshops and allowing space for discussion of the benefits of Wilderness areas and the reasons why some stakeholders sought

additional Wilderness recommendations in the revised plan. In our view, the GW Stakeholder Group built consensus around the concept of tiers of management, with relatively unfragmented core areas where natural processes often dominate (including Wilderness and roadless areas, and protected corridors) surrounded by areas of more active management. We think this balanced vision allowed historically opposed stakeholders to accept and support *both* additional protection *and* additional management. Importantly, the Lower Cowpasture project reflects this vision by recognizing the existing Wilderness areas and the possibility that the forest plan may recommend additional Wilderness designations here, by focusing more intensive management in areas adjacent to existing roads that appear to have been fairly heavily managed in the past, and (we hope) including a strong component of ecological restoration. We developed our comments on this project in light of this – within this framework of a compromise-oriented effort that has brought diverse groups together to further everyone's goals, including environmental protection goals, and our desire to participate constructively in that process.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): As the first collaborative, large-scale project of its kind on the GW, this is a pilot project for that approach. Pilot projects are always challenging, as new processes and approaches are worked out. The District has a unique opportunity and an important responsibility to ensure this project is a sound, successful model for future, similar projects on the GW. We believe that properly defining ecological restoration and distinguishing restoration goals from other goals; committing to monitoring and adaptive management; and ongoing collaboration (discussed further below) will be critical for a successful project at this scale.

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. Adaptive management and monitoring are discussed in the Draft EA beginning on page 37. In addition to Forest Plan monitoring, project specific monitoring is identified in Appendix C of the Draft EA. Due to the collaborative nature of the project development, we envision conducting monitoring trips with the public prior to, and throughout implementation of the activities within the Lower Cowpasture project.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): As we discussed in our July 2013 and October 2013 comments, we strongly encourage the District to make a draft Environmental Assessment available for public comment, prior to making a decision.

Regarding the intended process, it is our understanding that, after this preliminary comment period, the District will release a scoping notice seeking comment on a proposed action this summer. We assume that this project will fall under the new objection process, so that, after scoping, the District might consider finalizing the decision and EA and releasing them for "objections."[23] Instead, we encourage the District to offer a draft EA for public comment before making a decision and finalizing the decision documents. An opportunity to comment on the draft EA would be more consistent with this project's open, collaborative approach. It would give participants an opportunity to review the draft EA and offer input before it is finalized. And it would give the Forest Service an opportunity to incorporate additional information into the EA, make any final adjustments to the project, or otherwise respond to and address comments in the final EA and decision. Such responsiveness likely would increase public support for the decision and could reduce objections, expediting the project in the end.

On the other hand, skipping this step would require those wishing merely to give input on the EA to offer it through the more adversarial objection process. An objection process is no substitute for an opportunity to give input and dialogue.

We believe that an opportunity for public comment on a draft EA is critical to achieving the goals of both this collaborative project planning process and NEPA. In fact, we believe that NEPA and its implementing regulations require that the public have an opportunity to comment on the environmental effects of the proposal and its alternatives – information normally made available in a draft EA.

Agency Response: A 30 day comment period was initiated by James River and Warm Springs District Ranger Patrick Sheridan. Legal notices were placed in *The Recorder* and *Virginian Review.* A copy of the Lower Cowpasture Restoration and Management Project Draft Environmental Assessment is also posted on the George Washington and Jefferson National Forests website.

Comment (Marek Smith, The Nature Conservancy): We have greatly appreciated the opportunity to work with you, other members of the LCRP Interdisciplinary Team and members of the public through an open, pre-scoping process dating back to March 2013. We commend you for emphasizing public participation in the early development of this project and for establishing a collaborative atmosphere through numerous workshops, field trips and other opportunities for public input. We especially appreciate you proceeding with project planning despite the uncertainty surrounding release of the final GWNF Land and Resource Management Plan, and thus taking advantage of the energy and spirit of the collaborative dialogue between members of the GWNF Stakeholder Group and the agency from the recent plan revision process. Lastly, we value your willingness to pursue a project that offers an opportunity to set forth a collaborative vision at an ecologically meaningful scale and planning horizon.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We want to again thank you for the opportunity to comment on this project and for leading an open, collaborative public process. We appreciate your consideration of these comments and look forward to continued collaboration through this next phase in project planning, leading to a proposed action and draft environmental assessment this October. If you have any questions, please feel free to contact me.

Agency Response: Thank you for your comment.

Comment (Laura Neale, Virginia Wilderness Committee): We would like again to express our appreciation and support for the dedicated effort that you and the USFS have made in undertaking the landscape level LC Restoration Project. We are pleased also that you have chosen not to delay the project in spite of the continued delay of the release of the revised GW Management Plan. VWC supports all of the proposed amendments to the 1993 plan, and would like to see them all included in the project's analysis.

Agency Response: Thank you for your comment. The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014, thus amendments proposed to the 1993 Forest Plan are no longer necessary as outlined in the scoping letter dated July 14, 2014.

Comment (Lynn Cameron, Friends of Shenandoah Mountain): We are pleased to see all the collaboration and input from various perspectives that has gone into this large-scale project before the scoping notice was prepared and issued.

Agency Response: Thank you for your comment.

Comment (Lynn Cameron, Friends of Shenandoah Mountain): We are pleased to see a recommendation for additions to Rich Hole and Rough Mountain Wilderness areas go hand in hand with an increase in management, including prescribed burning and vegetation management activities, such as commercial and non-commercial tree cutting, that will result in more young forest habitat to benefit deer, turkey, grouse and several other species. These management activities should serve to diversify tree species and structure in currently low-diversity stands.

Agency Response: Thank you for your comment.

Comment (Lynn Cameron, Friends of Shenandoah Mountain): We are also pleased to see improvements in trail systems through addition of a connector trail with Douthat State Park and some new trails in the Rich Hole/Rough Mountain Wilderness complex.

Agency Response: Thank you for your comment.

Comment (Malcolm Cameron): In general I am pleased with the proposed actions, many of which grew out of the stakeholder process.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We greatly appreciate the proposed site specific amendment allocating the identified Recommended Wilderness Study Areas in Rough Mountain and Rich Hole to Management Area 8 under the 1993 Plan as those recommendations received support from the Stakeholder Group and such an allocation is not typical of project planning efforts. Similarly, we commend and support the site specific amendment allocating the 12 Special Biological Areas identified during the GWNF Plan revision process to Management Area 4 under the 1993 Plan.

Agency Response: Thank you for your comment.

Comment (Ernie Reed, Wild Virginia and Heartwood): The Lower Cowpasture Restoration Project is the largest project ever conceived in the George Washington National Forest. It is to be implemented over a 10 year time frame, a time frame usually delegated for the implementation of entire forest plans.

The scoping letter describes what past precedent would consider at least 8 separate and distinct projects, each with its own costs, benefits, environmental impacts and NEPA analysis. Rolling them all together makes it impossible look at each project separately, distinctly and on its own merits. It also makes it impossible to analyze them in a timely manner.

Agency Response: The Lower Cowpasture Restoration and Management Project is a landscape-scale analysis that is designed to consider resource management in a more integrated manner and over a longer timeframe (10 years); utilize scientific and technological advances to address resource issues at a larger scale, and build upon the collaborative relationships that developed among a diverse set of publics during the recent plan revision process of the Revised Land and Resource Management Plan (Forest Plan) for the George Washington National Forest. The impacts of no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources are disclosed in Chapter 3 of the EA. This analysis is sufficient for the responsible official to make an informed decision in regards to this project.

Comment (Ernie Reed, Wild Virginia and Heartwood): The long time frame won't allow for new information, updated analysis or scientific findings that might otherwise affect project specifics and

environmental analysis. New scientific information would be rendered moot. Rapidly changing environmental parameters would not be considered, including climate. Subsequent natural disturbances in the project area after scoping cannot not be considered in the environmental analysis. For instance, a large scale disturbance—fire, windthrow, icestorm, drought, insect predation—all which are happening at a larger frequency, is likely to occur which could create thousands of acres of early-successional habitat and make some elements of the project unnecessary as the purpose and need would have been naturally eliminated.

Agency Response: Forest Service Handbook (FSH) 1909.15 directs us to be alert for new information and changed circumstances that might affect decisions for actions that are awaiting implementation and for ongoing programs or projects to determine if the environmental analysis and documentation needs to be corrected, supplement, or revised. Chapter 10 outlines the steps for correction, supplementation, or revision of environmental documents and reconsideration of decisions to take action.

Comment (Ernie Reed, Wild Virginia and Heartwood): We request that the Lower Cowpasture Restoration Project be scaled back in time and scale to a 2-3 year implementation schedule. We also requested that it be divided into manageable projects, each area of a size that can be implemented within significantly reduced time frame. Elements of the project that are unlikely to be implemented within this timeframe should be dropped and proposed and scoped at some later date as necessary under the Forest Plan.

Agency Response: The Lower Cowpasture Restoration and Management Project is landscape-scale analysis that is designed to consider resource management in a more integrated manner and over a longer timeframe (10 years); utilize scientific and technological advances to address resource issues at a larger scale, and build upon the collaborative relationships that developed among a diverse set of publics during the recent plan revision process of the Revised Land and Resource Management Plan (Forest Plan) for the George Washington National Forest. The impacts of no action (Alternative 1) and action alternatives (Alternatives 2&3) on various resources are disclosed in Chapter 3 of the EA.

Comment (Ernie Reed, Wild Virginia and Heartwood): The Scoping Notice is dated July 14, 2014 and comments need to be submitted no later than August 1, 2014 (see Scoping Notice). Two weeks is insufficient time to review, respond and raise issues on a project of this scope and magnitude. While some stakeholders have been receiving information on this project, none of it finalized, for awhile, this small period is insufficient for the general public and concerned citizens, and the membership of groups represented in these comments, to review, analyze, research and respond in any meaningful way to the 30 pages of information, 17 additional pages of maps, or do any meaningful on-site analysis covering an 120,000 acre area. We will do the best we can with the knowledge that this extremely short timeframe limits our ability to raise many issues that may influence the outcome of such a vast, long-term project.

Agency Response: James River and Warm Springs District Ranger Patrick Sheridan extended the scoping period for the Lower Cowpasture Restoration and Management Project to September 29, 2014.

Comment (Ernie Reed, Wild Virginia and Heartwood): The Lower Cowpasture Project has a 10-year implementation schedule making it more than likely that there will be other projects planned over the next decade within or adjacent to the project area. There is, therefore, no way that a cumulative effects analysis can be done on the Lower Cowpasture Project.

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Agency Response: The Lower Cowpasture Restoration and Management Project is a landscape-scale analysis that is designed to consider resource management in a more integrated manner and over a longer timeframe (10 years) and utilize scientific and technological advances to address resource issues at larger scale. The impacts of no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources are disclosed in Chapter 3 of the EA. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Cumulative effects analysis for all projects are carried out in accordance with 36 CFR 220.4 (f). If new projects are proposed within the project area prior to, during or post implementation of this project a cumulative effects analysis will be completed in accordance with 36 CFR 220.4 (f).

Comment (Wayne Thacker, Rocky Mountain Elk Foundation Virginia State Leadership Team): The proposed Lower Cowpasture attends to a wide variety of plant and animal and human users. Table 3 in the 14 July Scoping Notice (p. 8) demonstrates this attention. The Lower Cowpasture Management Area Allocations respond to a wide variety of user needs and desires (e.g., timber harvest, forest mosaics, remote and wilderness areas, scenery, aquatics, protecting unique values, and recreation).

Thank you for this project planning process and opportunity to comment.

Agency Response: Thank you for your comment.

Comment (Stakeholders of the GWNF): We, the undersigned, stakeholders of the George Washington National Forest want to thank you and the staff of the Warm Springs and James River Districts for your efforts to proactively involve the public in identifying activities for the Lower Cowpasture Restoration Project area. Many of our organizations were involved in several years of dialogue on the Forest's Draft Land and Resource Management Plan (Draft Plan). Through a set of joint comments submitted in October 2011 we recommended that future project planning efforts follow a collaborative process between the agency and public on individual large, landscape-scale areas over longer timeframes (e.g., 10 years). Prior to any environmental analysis and using the best available science and innovative technology, the group would collaborate with the agency to develop recommendations for project activities, implementation, and monitoring, and that collaboration would continue as the agency analyzes and implements the project. We believe the Lower Cowpasture Restoration Project has begun to implement such a process that can serve as a model for future collaboration on the Forest.

For both the Forest and this project area, we envision a network of core, relatively un-fragmented, forested areas embedded within a landscape of diverse age and structural character that supports a variety of wildlife species, builds ecological resilience, and provides essential ecological, social, economic, and recreational benefits for people. We believe the potential projects identified to date for the Lower Cowpasture area embody the spirit of that vision, but we appreciate this opportunity to provide additional feedback and help refine proposals for future actions in this project area. Our comments that follow not only reflect input on potential activities within the project area, but also suggestions for how our organizations or others can assist with ongoing collaborative planning and implementation of those activities. These comments are based on the information currently available regarding this area and potential projects here. The agency has not completed its environmental assessment and we have not been able to visit many areas proposed for project activities; we may have additional comments as further information becomes available.

Agency Response: Thank you for your comment.

Restoration

Comment (Ernie Reed, Wild Virginia and Heartwood): The Forest Service Manual defines restoration as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems, sustainability, resilience, and health under current and future conditions." (FSM, Ch. 2020.5 (2011-2013); 36 C.F.R. § 219.19)

Of the 8 projects suggested for the project area, only 4 - aquatic passage, watershed improvements, road decommissionings and invasive management—might qualify as true restoration activities. The rest of the projects, timber management, wildlife management, prescribed fire and new trail construction, are not true restoration activities. We therefore respectfully oppose their inclusion in a large scale "restoration" project such as the Lower Cowpasture is currently conceived.

Agency Response: The purpose and need for the project includes the desired condition of the project area. Management activities such as timber harvest, prescribed burns, wildlife clearings, waterholes, and other applicable habitat management techniques will primarily serve to promote ecological restoration by: 1) promoting desired structural conditions for ecological systems, 2) promoting oak reproduction, 3) enhancing habitat conditions for declining early successional species and other Species of Greatest Conservation Need in Virginia, 4) restoring low diversity stands and systems severely altered from their historic range of variability (e.g., stands <40 years old, systems converted to white pine plantations, fire-dependent systems), and promoting resilient ecological systems capable of absorbing negative effects associated with various natural and human-caused stresses. During public workshops for the Lower Cowpasture project, members of the public expressed interest in improving hiking opportunities in the Rich Hole/Rough Mountain areas due to a lack of trails in the areas, including loop trails that would provide opportunities for varied interests and skill levels in the area from short quality day trips to longer distance trips. Thus, trail opportunities were included in the Alternatives 2 & 3.

Comment (Ernie Reed, Wild Virginia and Heartwood): Why is a trail construction in a wilderness area or commercial timber harvest at any scale considered part of this project? What do these have to do with restoration at any level?

Agency Response: The purpose and need for the project includes the desired condition of the project area and is outlined in Chapter 1 of the EA. During public workshops for the Lower Cowpasture project, members of the public expressed interest in improving hiking opportunities in the Rich Hole/Rough Mountain areas due to a lack of trails in the areas, including loop trails that would provide opportunities for varied interests and skill levels in the area from short quality day trips to longer distance trips. Thus, trail opportunities were included in the Alternatives 2 & 3.

Comment (Ernie Reed, Wild Virginia and Heartwood): Passive restoration clearly is implied under the Forest Service definition of restoration. The entire Lower Cowpasture project area is at some level of recovery from the ravages of clearcutting, fire, erosion and flooding that leveled the area near the turn of the century. Assistance in "the recovery of an ecosystem that has been degraded, damaged or destroyed" to its former integrity is the goal. Allowing ecological processes that naturally create a mosaic of linked climax ecosystems with natural disturbances creating the diversity of a fully functioning forest can be done simply and easily through a long term commitment to passive restoration.

Agency Response: The impacts of no action (Alternative 1) on various resources are disclosed in Chapter 3 of the EA. Included are the impacts to forest vegetation and aquatics. This analysis is sufficient for the responsible official to make an informed decision in regards to this project.

Comment (Ernie Reed, Wild Virginia and Heartwood): We maintain that the desired future condition of any project labeled "restoration" should strive to achieve a forest that manages itself and that is continually moving towards its natural climax state. Natural disturbance regimes create the conditions for a resilient diversity in forest composition and structure to allow a diverse genepool of species to build forests of relative health and longevity.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area.

Comment (Ernie Reed, Wild Virginia and Heartwood): we questioned the purpose and need to create more opportunities for wildlife and hunting? We do not believe that science, history or trends substantiate a purpose or a need for active management to increase hunted game species in the GWNF.

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area

Comment (Linda D. Ordiway, Ruffed Grouse Society): To truly be a restoration project establish the desired forest conditions with active and aggressive habitat management to achieve the desired wildlife goals. Timber harvesting both commercial and non-commercial with prescribed fire designed to be used as a tool with particular silviculture systems and forest types is the most efficient method in a restoration scheme. I challenge the USFS personnel of the George Washington and Jefferson National Forest to be the first in Region 8 to consider management issues beyond forest boundaries as could be evident from the management proposed. Permit the professionals within these districts to showcase their skills and training. The support for active management and a changing landscape is swinging and the number of organizations willing to support the USFS on such practices and management decisions has grown. The current research is there to support these projects as regional conservation units.

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined

based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Ernie Reed, Wild Virginia and Heartwood): We suggested that passive restoration areas of significant size be designated throughout the project area. We therefore suggest that the Lower Cowpasture Project include in its environmental analysis the benefits of passive restoration throughout the project area.

Agency Response: The impacts of no action (Alternative 1) on various resources are disclosed in Chapter 3 of the EA including impacts to forest vegetation and aquatics. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Also, through the allocation of management prescriptions areas and identification of lands unsuitable for timber production across the Forest, the Forest Plan establishes a network of areas that are unsuitable for timber production. Large patches are greater than 2,500 acres and are established through the allocation of lands in large blocks to management prescriptions areas like wilderness, recommended wilderness, and remote backcountry. Approximately 51% of National Forest System lands within the Lower Cowpasture project area are allocated to management prescriptions that are unsuitable for timber production.

Comment (Sarah A. Francisco, Southern Environmental Law Center): We enthusiastically welcome the proposal to restore white pine plantations to diverse native hardwoods. This seems to be an excellent addition to this project. We strongly encourage the District to focus more, in this project and in future ones, on restoring tree/plant species and structural diversity to the most uncharacteristic or degraded stands, such as plantations or former clearcuts which regenerated almost entirely in one or two species, like poplar.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center): Overall the scoping notice addresses or at least starts to discuss a number of the topics we raised in our March comments regarding ecological restoration. This improved clarity and detail is very welcome. In particular, the scoping notice seems to more clearly distinguish between restoration and other project goals. We are very glad to see the attachment defining restoration and other terms according to the Forest Service Handbook. We do suggest the entire project *not* be labelled as a "restoration" project, since not all of it would meet this definition of restoration.

Agency Response: The project is currently titled the Lower Cowpasture Restoration and Management Project.

Comment (Sarah A. Francisco, Southern Environmental Law Center): Positively, the scoping notice summarizes the ecosystem diversity analysis conducted for the draft revised forest plan and the desired conditions for several ecosystems in the project area. The scoping links the proposal to these desired conditions and includes various harvest prescriptions which would leave a higher residual basal area, rather than focusing solely on virtually clearcutting blocks of forest, as was the usual practice under the last forest plan. Considering various intensities and methods of tree cutting that are tied to the ecosystem analysis's objectives for forest structure and composition is a positive step. Prescriptions proposed to create mid-open or late-open conditions should create greater structural diversity within stands, and many of these should also create patches of early successional habitat.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center): While the scoping notice begins to tie the proposal to certain ecosystem goals and to describe how the activities would further these goals, we expect the EA will discuss this more thoroughly. As discussed in our March comments, it will be very important for the EA to outline goals and quantifiable objectives (i.e. specific desired conditions) for project activities, explain how those activities are expected to meet or further those goals and objectives, and set forth a plan for monitoring the outcomes to measure whether and to what extent those goals and objectives are met.

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. In addition to Forest Plan monitoring identified in the Forest Plan, project level monitoring is outlined in Appendix C.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): Given that the District is framing this project as a restoration project, the project should have a primary emphasis on ecological restoration. Particularly for the possible vegetation management, this has not yet been done. Other than the label on the project, the District has not yet explained whether or how these activities would address needs for ecological restoration or, apparently, considered whether there are additional opportunities for restoration in the project area. Timber harvest in and of itself is not an ecological restoration goal or activity, although it is a tool that may be used to accomplish restoration goals.

With input from project participants, the District should: identify and prioritize restoration needs in the project area; develop options for management actions that would address those needs; and explicitly tie proposed project activities and alternatives to those restoration needs and actions. The building blocks for this analysis are already in place, and we do not believe this would be unmanageable.

Definition of Ecological Restoration
As pointed out in our July 2013 comments, the Forest Service Manual defines ecological restoration:

"The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions."

The District should explicitly refer to this definition and ensure that the restoration aspects of the project are consistent with it. The agency should consider its own information on restoration, and other reputable scientific authorities defining and establishing best practices for ecological restoration, and should conform the restoration aspects of this project to them.

Purpose and Need for Project
The request for input states that the "emphasis for the Lower Cowpasture is watershed restoration including water quality improvement, vegetation management, recreation management, and native species protection and habitat improvement." Request at 1. We suggest that a more fitting emphasis or purpose might be "ecological restoration and resource management, including…" rather than trying to squeeze all activities, especially vegetation management, under a watershed restoration umbrella, which implies a focus on water resources.

Restoration Needs and Activities
The request for input goes on to say that the project's objectives are to advance the natural resource goals for the area as outlined in the revised forest plan. *Id.*

The definition of ecological restoration and the restoration-oriented goals and objectives in the draft GW plan provide ample direction for the District to identify restoration needs in the project area and tie project activities to them. To be clear, not all proposed activities need to qualify as "ecological restoration" – other activities may be proposed to meet other goals, such as wildlife habitat management. The Distinct only needs to be clear about which activities are proposed primarily to meet ecological restoration goals (although they may meet other goals as well) and which activities are proposed primarily to meet other goals, such as creation of early succession to benefit game wildlife.

Agency Response: Chapter 1 of the Draft EA describes the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): As discussed in SELC's July 2013 comments on this project, it is our understanding that The Nature Conservancy (TNC) has been working with the Forest Service to conduct an ecological departure analysis for the GW and for the Lower Cowpasture project area. To start with, modelling of the natural range of variation for several ecosystem groups informed the revised forest plan's direction for ecological diversity and sustainability and the plan's desired conditions for those ecosystem groups (including the "five box models" of structural conditions). In turn, the ecological departure analysis helps to "step down" that direction to the project level analysis, by describing how current conditions likely depart from desired conditions.

This is highly relevant information that should be considered in implementing the plan's ecological goals through projects to restore degraded sites. If the Lower Cowpasture project is, at least in part, a restoration project intended to do this, the EA should build off the analysis used in the plan and this additional analysis of the project area. As we requested last July, the ecological departure analysis should be used to identify needs and priorities for ecological restoration in this project area and to incorporate the analysis' results into the proposal, alternatives, and EA. The EA should identify the ecosystems present, predict the degree to which those ecosystems are departed from desired conditions (i.e. the degree to which they have become degraded), field verify and identify opportunities for restoration to move towards desired conditions, and explain whether and how options for management activities could do so.

Agency Response: The purpose and need for the project includes the existing and desired condition of the project area and is outlined in Chapter 1 of the Draft EA. More detailed information on vegetation is disclosed in the Draft EA beginning on page 99.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): In the Lower Cowpasture, the Forest Service already is considering 3,461 acres for logging, commercial thinning, or timber stand improvement (TSI), and we understand the Forest Service and the Stakeholder Group are interested in including additional stands in the project.
The agency should compare the departure analysis to project stands and consider opportunities to modify project locations and/or activities to focus the project on restoration as much as possible.

To use one ecosystem group as an example, Oak Forests and Woodlands are the most common ecosystem group on the GW and we assume these forests cover much of the project area. Draft Plan at 2-12. The forest plan has sizeable objectives for opening currently closed canopies in mid-successional and late-successional stages in these forests. Draft Plan at 3-6. Since logging is being considered here, we are glad that the request for input indicates the Forest Service is considering silvicultural prescription options. Too often in the past, logging on the GW was carried out by virtually clearcutting 40-acre blocks, producing even-aged stands that often regenerated with a lack of diversity of tree species and structure. Other types of management, such as commercial and pre-commercial thinning, timber harvest with greater residual basal areas, and prescribed fire, could be used to meet plan objectives for Oak Forests and Woodlands by opening the canopy, diversifying forest structure and tree species, and improving habitat for many wildlife species in these stands. This also would create openings and patches of early successional habitat, which would benefit game wildlife associated with early successional conditions. So this type of work has the potential to meet multiple goals and interests. On appropriate sites that have been field-verified as in need of this work, this would seem to be beneficial ecological restoration.

It is worth noting that the departure analysis is based on a combination of biophysical setting (ecosystem) descriptions and models that continue to be better understood and refined through field work and collaboration. Its results need to be verified on the ground. This project and others implementing the plan can contribute to that ongoing verification and evaluation.

Particularly if ecological restoration will be a significant component of this project and its environmental analysis, it may be informative for project participants to have a better understanding of the revised forest plan's ecosystem-related goals and the departure analysis.

Agency Response: The purpose and need for the project includes the existing and desired condition of the project area and is outlined in Chapter 1 of the Draft EA. More detailed information on vegetation is disclosed in the Draft EA beginning on page 99.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): We do want to point out that the departure analysis does have its limitations. It is our understanding that the departure analysis for the GW primarily focused on departure in structural conditions (often called "S-classes"). It is also important, probably more important, to identify and restore sites that are entirely departed from their natural forest type and currently are in an "uncharacteristic" condition (often called "U-classes"). For example, white pine plantations, uncharacteristic white pine-dominated stands, or former clearcuts now dominated by poplar or maple. These low diversity stands often would benefit from treatments to restore a diversity of structure and tree species, including oaks and other mast producers. Restoration treatments in low-diversity stands often involve commercial or non-commercial timber harvest or thinning, which also create openings (and early succession) of various sizes. Diversifying these stands and increasing the component of hard mast-producers also benefits wildlife. So, again, this restoration can meet multiple goals and interests.

We strongly urge the Forest Service to seek opportunities to restore uncharacteristic forest in this project area, as these seem located at the prime intersection of several goals, participant interests, and factors: these sites usually are the most degraded sites in the greatest need for restoration, with clear consensus about appropriate restoration actions; and they often will have something to offer from a timber harvest, game wildlife, and early succession perspective as well.

Agency Response: Alternatives 2 & 3 incorporates a variety of silvicultural treatments including hardwood restoration treatments to restore uncharacteristic habitat conditions.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): We want to suggest yet another option for creating early successional conditions, without cutting relatively healthy mature forest to do so: re-cutting mid-successional stands that were logged relatively recently.

Agency Response: The current percent of mid-successional structural conditions for Oak Forest and Woodlands and Pine Forest and Woodlands within the Lower Cowpasture project area is less than the desired percent thus making this a less desirable option.

Comment (Jay C. Jefferies, VDGIF): We are in full agreement with the proposed actions. There may also be opportunity here to create a grass/forb/shrub plant community.

Agency Response: Thank you for your comment.

Comment (Steven Krichbaum): This is purportedly a "restoration" proposal. But many proposed activities are not actually restorative.

"Forest restoration begins with comprehensive transportation planning that identifies and funds upgrading, maintenance, or decommissioning forest roads." (Jim Burchfield and Martin Nie. September 2008. "National Forests Policy Assessment: Report to Senator John Tester". College of Forestry and Conservation, The University of Montana, Missoula, MT)

It is not apparent that the GWNF planners are here performing the comprehensive transportation planning necessary to meaningfully address this significant public issue at this project area.

Here, when the FS mentions restoration, reference is made to maintaining or fabricating cultural landscapes (*e.g.*, "modified shelterwood" stumplands with impeded stand development) that are dependent upon anthropogenic inputs for their structure, composition, and/or function. This is not restoration in the valid sense of the concept; see DellaSala, D.A. *et al*. 2003 and FSM.

One of the fundamental guiding principles of valid ecological restoration is to have as little impact as possible. Allow natural processes to restore as much as possible. Passive and light-touch actions are preferable to a heavy-handed approach. In other words, restoration is a close-to-nature approach, a level of intervention to the point where forest self-renewal processes operate. For example: "Where old-growth riparian forests are not currently available, mature riparian forests offer a source for future old-growth structure, provided forest management practices are employed that either maintain or enhance, rather than retard, stand development potential (Keeton 2004)." (Keeton, W. *et al*. 2005) This is the antithesis of the extensive intensive even-aged logging proposed here.

While protecting our wild areas is central to sustaining our GWNF, there is also a pressing need to rehabilitate past damage with authentic restoration projects. Unfortunately, harmful activities have been allowed under the guise of restoration (such as intensive logging in the riparian areas of North River on the GWNF). One of the fundamental guiding principles of sound ecological restoration is that it has as little impact as possible, and allows natural processes to restore as much as possible (DellaSala *et al*. 2003, Keeton *et al*. 2005, FSM). In other words, authentic restoration stays close to nature and uses the lightest level of intervention possible to bring the ecosystem to the point where forest self-renewal processes can naturally occur.

Large-scale reestablishment of relatively unmanipulated forest conditions is perhaps the greatest single improvement that we can implement to support biodiversity and ecological integrity in this region.

At this time, the prime opportunities for the reestablishment of even moderately large unfragmented wildlands in the Central Appalachians are found in blocks of low road-density land in the George Washington, Jefferson, and Monongahela National Forests. One primary conservation vision is to sustain native ecological systems and diversity by restoring (*i.e.*, allowing for) the landscape-level re-emergence of natural old-growth forest. This can best be achieved by working to maintain, restore, and

connect the project area's existing large habitat blocks through management that basically allows natural processes to operate unimpeded and through such actions as road closure and revegetation, invasive species removal, and the addition of woody debris to streams.

Restoration of the GWNF has been identified as vital to the long-term recovery of lost and diminished habitats and ecological conditions in our region. See Bratton, S.P. and A.J. Meier 1998; Halbert, J.E. and C.L. Chang (eds.) 1999; Hitt, T.P. (ed.) 1997; Irwin, H. *et al*. 2002; Taverna, K. *et al*. 1999; Morton, P.A. 1994; see also Honnay, O. *et al*. 2002.

Performing authentic restoration is essential for meeting the National Forest Management Act and MUSYA requirements to conserve and sustain soils, watersheds, wildlife, ecosystems, and biodiversity.

The Forest Service Manual (FSM) defines restoration as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems, sustainability, resilience, and health under current and future conditions." (FSM, Ch. 2020.5 (2011-2013); 36 C.F.R. § 219.19)

The Forest's drinking-watersheds are priority areas for restoration (along with Mountain Treasures, SBAs, and Wild Trout watersheds): where non-critical roads (of maintenance level 1 or 2) need to be identified and targeted for decommissioning, closure, recontouring, and revegetating.

The project area contains "reservoir watersheds" and "river intake watersheds" that supply drinking water to thousands of people (see Wild Virginia 2008 report previously submitted to the GWNF). Wild Trout watersheds are also present.

The current Forest-level "Roads Analysis" is insufficient for informing or dealing with this issue. The project planners must have guidelines, objectives, desired conditions, goals, and standards for explicitly addressing this significant issue and implementing such road- and water quality-related restoration and improvements. In this way the project decision and the revised Plan will be consistent with Forest Service strategic goals # 1, 2, 3, 5, and 6.

Restoration priorities call for the Forest Service to: prioritize watersheds for restoration activities (*e.g.*, drinking water and Wild Trout watersheds), cease grazing allotments, close targeted roads and revegetate them with blight-resistant Chestnut trees or other native species, revegetate game openings with Chestnut trees or other native species, combat Hemlock Wooly Adelgid, transform roads into trails (through re-contouring and/or re-vegetation), augment stream loadings of large woody debris, restore riparian areas by relocating camping areas, trails and roads away from streams/rivers, reforest riparian pastures, promote increased Beaver populations (Naiman, R.J. *et al*. 1988; Elliot, J. 1990), work to return extirpated species (*e.g.*, Cougar, Elk?) to suitable habitat (Taverna, K. *et al*. 1999), and eradicate and prevent introduction of invasive species.

This project as proposed would accomplish little actual restoration (see FSM). Thousands of acres of logging and road building that result in tons of sediment added to watersheds, forest perforations, and edge effects do not "restore" water quality or natural conditions.

FS planners need to develop alternatives in detail that address the above issues and incorporate the above possible restorative activities (without the damage and degradation to structure, composition, and pattern wrought by logging and road building). Then the public and the agency can have a comparative basis for reasonable decision-making.

Agency Response: Chapter 1 of the Draft EA describes the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired

conditions, goals, objectives, standards and guidelines. Chapter 2 of Draft EA describes the alternatives that were considered for the project.

Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified National Forest System roads that were no longer needed within the project area. IDT team recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195. Until we are at a point when the American chestnut tree can regenerate on its own, clustered planting like those proposed in Alternative 3 serve as the first step in the species' restoration. These planting will be monitored over the course of many years, to document how the trees resist the blight and their growth characteristics. Large wood placement is incorporated into the preferred alternative (Alternative 3). There are no grazing allotments or pastures on NFS lands within the project area.

The EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area beginning on page 45. The analysis is sufficient for the Responsible Official to make a reasoned decision.

Amendments to the 1993 Forest Plan

Comment (Ernie Reed, Conservation Director, Wild Virginia; and Council Chair, Heartwood): All of the project planning work and scoping information is being presented without the benefit of any direction from the Land Management Plan (still unreleased as of this date) which will dictate the framework within which this project must adhere.

Agency Response: The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014.

Comment (Ernie Reed, Wild Virginia and Heartwood): The scoping notice proposes 5 separate amendments to the Land and Resource Management Plan. These amendments include changes in management classifications for over 10,000 acres, reclassifying 189 acres that are unsuitable for timber harvest as suitable, increasing the size of allowable harvest units, and allowing removal of small woody biomass on up to 541 acres as commercial timber stand improvements.

These amendments cover circumstances not allowed under the current forest plan.

Agency Response: The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014, thus amendments proposed to the 1993 Forest Plan are no longer necessary as outlined in the scoping letter dated July 14, 2014.

Comment (Bill Hardbarger): How is the 1993 existing plan amended if the revised plan is not signed? What are the steps and does the Chief of the Forest Service have final say and authority?

Agency Response: The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014, thus amendments proposed to the 1993 Forest Plan are no longer necessary as outlined in the scoping letter dated July 14, 2014.

Comment (Jay C. Jefferies, VDGIF): We are in agreement with the proposed amendments listed in this section including: the addition of 12 Special Biological Areas; recommended wilderness study areas (additions to Rich Hole and Rough Mountain); adding 189 acres as "suitable habitat"; allowing for regeneration harvests from 26 to 40 acres while employing approved Best Management Practices; and allowance for use of small diameter woody biomass on 541 acres.

Agency Response: Thank you for your comment. The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014, thus amendments proposed to the 1993 Forest Plan are no longer necessary as outlined in the scoping letter dated July 14, 2014.

Comment (Sarah A. Francisco, Southern Environmental Law Center): The scoping notice proposes amendments to the 1993 forest plan regarding: woody biomass as discussed above; classification of lands suitable for timber production; maximum size of timber harvest units; designation of Special Biological Areas (SBAs); and recommendations for Wilderness Study Areas.

Given the support for these Wilderness recommendations expressed by the Stakeholder Group and many of the other participants in this project, including our organization, we are especially glad these recommendations are proposed and included in this project's analysis and, hopefully, decision.

If this project is decided under the 1993 plan, once the new revised plan is finalized and its details are known the Forest Service must review this project for consistency with the revised plan and modify it as needed to bring it into consistency, as required by the NFMA, 16 U.S.C. § 1604(i).

Agency Response: The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014, thus amendments proposed to the 1993 Forest Plan are no longer necessary as outlined in the scoping letter dated July 14, 2014.

Comment (Ernie Reed, Wild Virginia and Heartwood): While single forest plan amendments often require an EIS for NEPA analysis, the combination of these 5 make for a unique situation that clearly should require an EIS. The amending of the plan to allow woody biomass removal for incineration will make it important that all the impacts of removal and use of the resource will have to be considered in the EIS, since these forest resouces constitute a new single-use, commodity with a single beneficiary, Meade WestVaco. The use of the forest resources for energy generation that benefits a single user is clearly a contentious issue that both Heatwood and Wild Virginia have opposed in this and numerous other communications with the USFS.

Agency Response: The project's Finding of No Significant Impact (FONSI) will determine if an Environmental Impact Statement will be required for this project. If the Responsible Official determines the Selected Alternative for the proposal will not have a significant effect on the quality of the human environment, this determination will be disclosed in a Finding of No Significant Impact pursuant to §§ 1501.49(e) and 1508.13. If the Selected Alternative will or may have a significant effect on the quality of the human environment, an environmental impact statement will be completed pursuant to §1501.4 prior to a decision being made.

Roadless and Potential Wilderness Areas

Comment (Ernie Reed, Wild Virginia and Heartwood): It appears that management activities are proposed within Little Mare Mountain and Beards Mountain Potential Wilderness Areas. We oppose any management activities including temporary roadbuilding, logging of any type or other management

activities in these potential wilderness areas that might compromise the wilderness character of these areas.

Beards Mountain PWA includes Beards Mountain Roadless Area. It should be noted that any roadbuilding (permanent, temporary and reconstruction) and logging of any type is not allowed in this area.

It also appears that the LK 3 road is within Little Mare Mountain PWA. This temporary road construction and LK 3 unit should be dropped.

Agency Response: Effects to Potential Wilderness Areas (PWAs) are discussed in Chapter 3 of the EA beginning on page 197. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Three Inventoried Roadless Areas (IRAs) are located within the project area Beards Mountain, Mill Mountain, and Rough Mountain Addition IRAs. All of the IRAs that are not recommended for wilderness study are assigned to management prescriptions that maintain their roadless character, and they will be managed consistent with requirements of the 2001 Roadless Area Conservation Rule.

Inventoried Roadless Areas within the Lower Cowpasture Project Area

Roadless Area Name	Approximate Acres	Management Prescription		Percent
Beards Mountain	7,478	4D	Special Biological Area	4%
		12D	Remote Backcountry	96%
Mill Mountain	10,728	1B	Recommended Wilderness Study Area	43%
		4D	Special Biological Area	4%
		12D	Remote Backcountry	53%
Rough Mountain Addition	1,153	1B	Recommended Wilderness Study Area	89%
		12D	Remote Backcountry	11%

Comment (Sarah A. Francisco, Southern Environmental Law Center): As discussed in our March comments, the EA must identify the inventoried roadless areas (IRAs) and "potential wilderness areas" (PWAs) in the project area and consider the impacts of the project on these areas, their roadless or remote characteristics, and their status as roadless or PWAs. *See* 36 C.F.R. § 220.5(a)(2) (impacts on IRAs *and PWA*s relevant to determining whether an EIS is required); Comments of SELC and Sierra Club re Lower Cowpasture Project, March 2014, fn 14. It would not be novel for the GW to identify PWAs and consider impacts on their characteristics. For example, the 2011 EA for the Rocky Spur timber sale on the North River Ranger District acknowledged and considered effects on the Beech Lick Knob PWA.

Timber harvest and temporary road construction appear proposed within the Little Mare Mountain and Beards Mountain PWAs. A substantial portion of the Limekiln and Sandy Springs areas are located in the Little Mare Mountain PWA and a few stands in the Beards Mountain area are located in the Beards Mountain PWA.

As we explained previously, we encourage the District to focus management in PWAs on beneficial ecological restoration and, at a minimum, to avoid permanent system road construction and to ensure any activities in PWAs do not affect their PWA status.

The current proposal continues to focus most timber cutting in the PWAs on areas along existing roads that have been managed in the past, which is a positive step. As the proposal is refined, we do encourage the District to consider less intensive logging in these PWAs and to mitigate its imprint and

impacts on the adjacent interior forest as much as possible, for example, by leaving higher residual basal areas in the commercial logging units in these PWAs, limiting the extent of temporary road construction and bladed skid trails, preventing illegal ATV use of access roads, and controlling the spread of non-native invasive species (NNIS).

The EA should more clearly identify the activities proposed in the PWAs (acres of various types of harvest, miles of temporary road construction, acres of wildlife openings, etc.), so that the public can better understand and comment on them. The EA should identify PWAs as a significant issue to address in the environmental analysis and alternatives. For example, the EA might consider an alternative that includes somewhat less intensive logging methods in the PWAs and fewer temporary roads and bladed skid trails.

Our review of the scoping notice and maps give rise to a few specific questions about activities proposed in the PWAs:

The maps of the Limekiln North and South areas show three temporary roads which appear to be roads to nowhere or to access non-commercial TSI units. Perhaps these roads are vestiges of an earlier iteration of this project and are no longer needed. The need for these roads should be better explained and justified or they should be dropped.

While we generally encourage less intensive, rather than more intensive, management in PWAs, we notice that several proposed commercial TSI stands in Limekiln would require new temporary roads to access them. For example, the temporary roads to LK-39 (with stream crossing) and LK-14 (relative long section along stream). We wonder whether these woody biomass thinnings can justify and support these impacts and expense.

Some logging units do not appear to have road access, for example, LK-05. The EA should ensure that access plans for all units are shown on the maps.

Given our interest in minimizing the footprint of temporary road construction within PWAs, we wonder whether some of the longer sections of temporary road proposed in Little Mare Mtn. are justified. For example, the road to LK-03.

The EA should identify any situations where logging access roads (either existing roads or temporary road construction) are located along existing trails. For example, the plans for accessing the logging units at the southern end of Beards Mountain should be explained. The existing roads appear to be co-located along portions of two trails (Gillam Run and Polecat Hollow) and impacts on the trails should be considered and avoided or mitigated.

Several proposed wildlife openings do not appear to be located along existing roads. The EA should explain how the agency expects to access and maintain them over time.
The EA should explain plans for road reconstruction, with a list of roads to be rebuilt.

Agency Response: Effects to Potential Wilderness Areas (PWAs) are discussed in Chapter 3 of the EA beginning on page 197. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Three Inventoried Roadless Areas (IRAs) are located within the project area Beards Mountain, Mill Mountain, and Rough Mountain Addition IRAs. All of the IRAs that are not recommended for wilderness study are assigned to management prescriptions that maintain their roadless character, and they will be managed consistent with requirements of the 2001 Roadless Area Conservation Rule.

Inventoried Roadless Areas within the Lower Cowpasture Project Area

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		4D	Special Biological Area	4%
		12D	Remote Backcountry	53%
Rough Mountain Addition	1,153	1B	Recommended Wilderness Study Area	89%
		12D	Remote Backcountry	11%

Temporary roads to LK-03, LK-14 and LK-39 follow existing corridors. LK-05 was dropped from the preferred alternative (Alternative 3). Proposed temporary roads that are shown on maps that do not go harvest units were not removed when harvest units were dropped. No temporary roads will be constructed to access non-commercial TSI units. The project proposal map on the George Washington & Jefferson National Forests website is a more accurate map of the project proposal and can be found at: http://prdp2fs.ess.usda.gov/detail/gwj/home/?cid=stelprd3808451 the map is titled. **Project Proposal Map - July 23, 2014.** A no new temporary road alternative was considered see Draft EA page 39.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): As we said in our July 2013 comments, we remain concerned that none of the project area maps that we have seen identify the roadless areas in the project area. By "roadless areas" we mean the Inventoried Roadless Areas (IRAs), which are protected by the national Roadless Area Conservation Rule, and the additional so-called Potential Wilderness Areas (PWAs), which were identified during the GW plan revision process and meet roadless area criteria.

All of these IRAs and PWAs and their roadless or remote characteristics and values are relevant to project-level analysis and decisions, so it is important that the District staff and the public be aware of them and consider them in project planning and in the EA (as discussed further below). The District should recognize and consider these roadless areas in project design and, when appropriate, include them on project maps. Particularly as the Forest Service and GW Stakeholder Group consider additional sites for timber harvest here, or as some commenters encourage additional management, it would be helpful to display the IRAs and PWAs on some project maps, so that all can easily see that these areas where management activities are or should be limited cover a sizeable portion of this project area.

In the IRAs, the Rule generally prohibits road construction or reconstruction and timber harvest. Appropriately, no road construction or timber cutting seems to be proposed in IRAs here (although this should be shown clearly on maps).

In the PWAs that are not IRAs, the draft EIS for the revised forest plan proposed that management activities in PWAs be done only if they would not affect the area's PWA status. DEIS at 3-247. The GW Stakeholder Group's October 2011 recommendations supported this approach and further suggested that any road construction in PWAs be limited to temporary roads. Ideally, any management in the PWAs in the Lower Cowpasture project area would focus on ecological restoration and avoid any road construction. At a minimum, however, we encourage the District to follow the approach set forth by the DEIS and GW Stakeholder Group.

The potential project appears to include timber harvest in the Little Mare Mountain PWA, as well as some harvest in the Beards Mountain PWA. Harvest appears focused on areas along existing roads that have been managed in the past – a positive step. We are very glad to see that no permanent

system road construction has been proposed in these areas. Particularly in the PWAs, we encourage the District to avoid or limit temporary road construction as much as possible, too, because these roads can have lasting "on the ground" impacts. For example, while it may be acceptable in some instances to convert temporary roads and log landings into maintained wildlife openings, doing so has consequences, for example: the footprint of those roads and landings remains, rather than being obliterated or being allowed to revert back to nature; they can serve as ongoing avenues for non-native invasive species; and they can attract illegal ATV/OHV use.

Under the National Environmental Policy Act (NEPA) and Forest Service regulations, the EA must recognize the presence of the PWAs and consider the project's effects on them. NEPA requires the agency to disclose the presence of roadless areas when making project-level decisions and to consider the effects of logging and roads on roadless characteristics and values, regardless of whether the areas are "inventoried roadless areas." Moreover, the Forest Service "normally" requires an Environmental Impact Statement (EIS) for any proposals that "would substantially alter the undeveloped character of an inventoried roadless area or a potential wilderness area," for example, road construction and timber harvest that "impact a substantial part" of a roadless area. 36 CFR 220.5(a)(2) (emphasis added).

So, in the Environmental Assessment for this project, the District must acknowledge the presence of the PWAs and consider the project's impacts on their characteristics and values. If the Forest Service carefully designs the project so that it does not "substantially alter" the PWAs, or jeopardize their status and eligibility in the future in any way, the agency may avoid triggering an EIS. Avoiding any permanent road construction in PWAs is critical to avoiding any "substantial" alteration. Avoiding or limiting temporary road construction as much as possible, too, will limit the footprint of the project and impacts on the area's natural appearance and characteristics. Focusing management in the PWAs primarily on activities with beneficial or less intense effects also would avoid or reduce negative impacts to these areas' characteristics and values. Examples include focusing management in PWAs on ecological restoration, thinning, and other less intensive management activities, while avoiding or minimizing heavy logging of mature, healthy hardwood forest in PWAs.

Agency Response: Effects to Potential Wilderness Areas (PWAs) are discussed in Chapter 3 of the EA beginning on page 197. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Three Inventoried Roadless Areas (IRAs) are located within the project area Beards Mountain, Mill Mountain, and Rough Mountain Addition IRAs. All of the IRAs that are not recommended for wilderness study are assigned to management prescriptions that maintain their roadless character, and they will be managed consistent with requirements of the 2001 Roadless Area Conservation Rule. A large overview map of the project area is posted on the web. This map identifies the inventoried roadless areas within the project area.

Comment (Steven Krichbaum): Intensive ground disturbance activities (such as even-age logging, dozer lines, road building) are proposed. If implemented these would significantly damage ecological or recreational or scenic conditions in the Little Mare Mountain, Beards Mountain, Mill Mountain, Short Mountain, and Rough Mountain Wilderness Addition VMTs/RAs/PWAs. Significant harm to Bubbling Spring, SBAs (including all those in the project area identified by the VDNH), and Brook Trout (particularly "wild trout") habitat/populations (such as from edge effects and sedimentation) may occur. My interests in and use of all these areas would also be significantly harmed.

The magnitude of this proposed project (*e.g.*, thousands of acres of logging) is new for this Forest.

The precedent that the analysis for this project would set for other future projects is a significant NEPA issue.

From the multitude, extent, and intensity of factors/issues/concerns (discussed herein), there is the clear potential for significant direct, indirect, and/or cumulative impacts to occur from the proposal's implementation.

For these reasons, preparation of a full EIS for this project is necessary.

Agency Response: The project's Finding of No Significant Impact (FONSI) will determine if an Environmental Impact Statement will be required for this project. If the Responsible Official determines the Selected Alternative for the proposal will not have a significant effect on the quality of the human environment, this determination will be disclosed in a Finding of No Significant Impact pursuant to §§ 1501.49(e) and 1508.13. If the Selected Alternative will or may have a significant effect on the quality of the human environment, an environmental impact statement will be completed pursuant to §1501.4 prior to a decision being made. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including riparian areas, water quality, water quantity, potential wilderness areas, wildlife, and aquatic organisms. No proposed harvest units or wildlife clearings are within areas identified as Special Biological Areas (SBAs). The Forest Plan allocates NFS lands to SBAs. The goal of allocation to and management of SBAs is to perpetuate or increase existing individual plant or animal species and communities that are of national, regional, or state significance and identified as threatened, endangered, sensitive, or locally rare. Management Prescription specific standards for SBAs are designed for resource protection and/or accomplishment of management objectives. The Draft EA discloses the effects of implementing the proposed alternatives on the threatened, endangered, sensitive and locally rare plant or animal species and communities within the project area. This analysis is sufficient for the responsible official to make an informed decision in regards to the project. Short Mountain was excluded from the potential wilderness inventory during forest plan revision due to size, shape, and lack of measurable core areas offering solitude (Forest Plan EIS, Appendix C, pages C-6 through C-8).

The published Wilderness Society report of "Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest" of July 2008, serves as an information source to the forest; however, it is not a regulatory or sanctioned management plan for state, private, or federal lands. A review of the 63 areas included in the "Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest" was conducted to determine which areas met our criteria to be placed on the Potential Wilderness Area inventory. Short Mountain was excluded from the potential wilderness inventory due to size, shape, and lack of measurable core areas offering solitude (Forest Plan EIS, Appendix C, pages C-6 through C-8).

Special Biological Areas and Other Areas

Comment (Ernie Reed, Wild Virginia and Heartwood):
Beards Mountain Area
BM 1, 2, 3, 8, 9, 10 and 11 all appear to contain special biological area acreage. BM 7 appears to border an SBA. It appears that some of these and numerous TSI units also lie within Beards Mountain PWA.

Lime Kiln Area
It appears that LK 6, 7, 9, 23, 28, 30, 32, 33, 34, 35, 36 and 37 also contain some special biological area acres. LK 9, 10 and 13 lie adjacent to Chestnut Ridge Seep, another SBA.

Sandy Springs Area

SS 1, 2, 3, 4, 5, 6, 7, 8 ,9 and 10 all include SBA acreage.

McGraw Hollow
MH 1, 3, 4, 6, 7, 8, and 9 all look to include SBA acreage.

Note that many of the units above seem to have wildlife clearings located either directly in or adjacent to the special biologic areas.

Because of the possible impacts to the Special Bio[l]ogic Areas by management activities either directly within or adjacent to them, we request that these actions be dropped or, at least, that the areas in active management be reduced to exclude these areas, with buffers sufficient to protect their special biologic values.

Agency Response: No proposed harvest units or wildlife clearings are within areas identified as Special Biological Areas (SBAs). The Forest Plan allocates NFS lands to SBAs. The goal of allocation to and management of SBAs is to perpetuate or increase existing individual plant or animal species and communities that are of national, regional, or state significance and identified as threatened, endangered, sensitive, or locally rare. Management Prescription specific standards for SBAs are designed for resource protection and/or accomplishment of management objectives The EA discloses the effects of implementing the proposed alternatives on the threatened, endangered, sensitive and locally rare plant or animal species and communities within the project area. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Sherman Bamford, Sierra Club): Species and habitat within conservation sites identified by the Virginia Division of Natural Heritage should be assessed and adequately protected. The publications Biological Diversity in the George Washington National Forest and Biological Diversity in the George Washington National Forest: First Update (Nat. Her. Tech. Rpt 00-10), incorporated by reference, already in the possession of the Forest Service, provide information on these areas that should be reviewed. Information from subsequent surveys and reports should be reviewed also.

Impacts to Copeland Barrens, South Fork Creek Pads Creek Barrens, Mill Mountain Pond, Nimrod Hall Ridge, Northeast Beards Mountains Barrens, Brushy Mountain, Camp Kannata, Chimney Rocks/Dry Run, and Chestnut Ridge Seep, any other conservation sites, and impacts to species associated these sites or surrounding areas should be evaluated if any of these areas lie within the project area or downstream from it. For example, impacts to variable sedge associated with the Brush Mountain site and surrounding areas; the montane seepage swamp associated with Chestnut Ridge Seep (or surrounding areas); and other Natural Heritage program recognized species and resources should be fully evaluated.

The Forest Service should consult with the Virginia Division of Natural Heritage regarding whether and how project activities may affect DNH-identified conservation sites, as well as state-listed species and their habitat.

Agency Response: The Virginia Department of Conservation and Recreation's Division of Natural Heritage was contacted regarding the Lower Cowpasture project. Based on the analysis in the Draft EA and DCR's response there would be no direct or indirect negative impact to the Division of Natural Heritage's recognized conservation sites, special biological areas, rare communities, or species. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Sherman Bamford, Sierra Club): There is a sizeable pond/wetland complex below Limekiln Road. See the Limekiln Ponds and Limekiln Ponds Close-up jpg's (attached) and photographs (attached).

Some of the proposed cutting units are fairly close to the pond/wetland complex. Others are upstream from it and may have an impact on it. Proposed cutting units LK-08, 09, 10, 11, 12, and 14 and other activities should be evaluated to determine impacts to the pond/wetland complex.

Agency Response: The area described is part of the Chestnut Ridge Seep which is listed as a Special Biological Area (SBA). No proposed harvest units or wildlife clearings are within areas identified as SBA. Management Prescription specific standards for SBAs are designed for resource protection and/or accomplishment of management objectives The EA discloses the effects of implementing the proposed alternatives on riparian areas, water quality, water quantity and aquatic resources beginning on page 80. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Prescribed Fire and Dozerlines

Comment (Ernie Reed, Wild Virginia and Heartwood): We fail to see the need for the huge scale of prescribed burning included in the Lower Cowpasture Project.

Agency Response: The purpose and need for the project is outlined in Chapter 1 of the EA.

Comment (Ernie Reed, Wild Virginia and Heartwood): If there is to be extensive burning in this area, we ask that the burns be small scale and strategically targeted ecologically. There should be burn exclusion areas established as ecological benchmarks and to allow for migration.

While there is not a firm consensus on the role of natural fire in shaping historic southern Appalachian forest composition, two points should be made: first, that the Southern Appalachian Physiographic Province averages between 55 and 60 inches of rain a year, with Millboro and Hot Springs averaging around 45 inches per year. Because of the rates of annual rainfall, the fuel load does not accumulate where there are closed canopy conditions, but decays, and the ground generally stays moist, except on ridge crests, especially ones displaying southern or western aspects.

Second, lightning strikes initiate few fires in the Southern Appalachian Mountains, averaging two to six fires per million acres per year (Southern Appalachian Assessment, Terrestrial Report, 1996; Schroeder, 1970). Such facts cast doubt on the popular position that fire has been a driving factor in southern Appalachian forests beyond the drier ridge sites.

We realize that some southern Appalachian forest types have a historic fire association, though we have questions as to which, if any, have fire dependency. We have reservations about the frequency and extent of the fire regimes in other forest types that are a part of the Lower Cowpasture Project.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. Prescribed burning and dozer lines were identified as project issues and were utilized in alternative development. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources beginning on page 45. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Ernie Reed, Wild Virginia and Heartwood): We are concerned of the potential for a frequent fire regime to have negative effects that include:

- a loss of humus layer
- a reduced ability for the forest to absorb precipitation
- a resultant loss of soil and water quality
- overall nutrient loss
- reduction in valuable micro and macro organisms
- an overall "xericizing" of the forest that could overall change its basic ecological character

Were Southern Appalachian forests allowed to develop according to natural processes, the issue of "fuel load" in much of the landscape would not be an issue. Fires would take place in areas where their association (mostly dry, south facing areas) warrants. It would be worth considering restricting anthropogenic fire to a few clearly xeric areas and the urban-wildland interface.

Agency Response: The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including soils, water quality and vegetation beginning on page 56. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Ernie Reed, Wild Virginia and Heartwood): There is absolutely no ecological justification for the scale of burning that the Lower Cowpasture Project proposes. While we understand that the financial incentives exist for this scale of burning, we believe that this is no reason to burn over 23,000 acres of forest in a 100,000 area, no matter what "benefits" you wish to create. We submit that natural disturbance regimes are sufficient for a naturally diverse forest ecosystem and natural process to dominate the project area. They should be allowed to proceed without the eternal management of an ecosystem by logging and fire.

We support prescribed fire as a tool to protect and restore rare, threatened or endangered species and ecosystems. Therefore prescribed fire should be relatively small and tightly focused, not large, sweeping and random. We request that the Lower Cowpasture Project identify such species and ecosystems and only focus prescribed burning in these areas and implement a long-term monitoring to assess effectiveness at meeting these goals and objectives.

Recent reports (*Using Phyiscal Chemistry And Tree Rings To Calculate The Likelihood Of Fire*, Richard Guyette, Frank Thompson, Jodi Whittier, Michael Stambaugh, Daniel Dey, Rose-Marie Muzika, University of Missouri, Columbia, USA, Northern Reseach Station US Forest Service, Columbia, USA, 2006; and others previously mentioned) bring into question many of the assumptions upon which the Fire Learning Network model is based.

We suggest that natural disturbance mapping and monitoring be a vital part of the Lower Cowpasture Restoration Project. The percentage of existing canopy gaps and existing ESH should be mapped throughout the project area *and* on a landscape area to determine the existing % of ESH and unforested/canopy gap area in the project area and on a landscape area. This should be required baseline information in determining any purpose and need for vegetation management to create ESH. Information should be monitored quarterly to account for "real time" natural canopy gap creation in the project area.

We are unaware of any monitoring that has been done in the project area that demonstrates that goals and objectives can or cannot be met through natural processes. We are unaware of any monitoring that confirms that the goals and objectives of the prescribed burn program are likely to be achieved. At the

very least, monitoring should be ongoing in order to generate this information critical to understanding the role of natural processes in the project area.

It is important to note the negative impacts that fire have on reducing the amount of leaf litter and corresponding salamander and millipede populations (Best 2014, Gagan 2002).

Finally, we want to point out the corresponding links between large tick populations and prescribed burns (Allan 2009; Willis 2012). It is important to note that the increased populations of *Amblyomma americanum* and corresponding vectors for various forms of lyme disease on the rise in VA correlates positively with increased burn programs in Virginia's forests.

We request that the majority of the area proposed for prescribed burning be removed from the proposal. We further request that significant "fire exclusion zones" of similar/identical forest types within the burn units be preserved and not burned. Joint monitoring of these adjacent areas as mentioned above can provide important information for future management of the forest by determining if the desired results are achieved.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including soils, vegetation, and wildlife beginning on page 56. Monitoring for the project is discussed in Appendix C of the Draft EA. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Bill Hardbarger): Prescribed Burn areas: Initially large areas were mapped for this on the southern steep slopes of beards mountain directly above the Cowpasture River. These areas are extremely steep shale terrain with very little leaf area understory and remote access which would not be beneficial of a prescribe burn. Have the Coffee Pot 361 Acres and Big Hollow 443 Acres been established as suitable and highly beneficial for a prescribed burn?

Agency Response: The purpose and need for the project includes the desired condition of the project area. Management activities such as prescribed burns will primarily serve to promote ecological restoration by: 1) promoting desired structural conditions for ecological systems, 2) promoting oak reproduction, 3) enhancing habitat conditions for declining early successional species and other Species of Greatest Conservation Need in Virginia, 4) restoring low diversity stands and systems severely altered from their historic range of variability (e.g., stands <40 years old, systems converted to white pine plantations, fire-dependent systems), and promoting resilient ecological systems capable of absorbing negative effects associated with various natural and human-caused stresses. The impacts of no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources are disclosed in Chapter 3 of the EA. Prescribed burning and dozer lines were also identified as project issues and utilized in developing Alternative 3.

Comment (Doug and Debbie Albrecht): Fire - continue evaluating twelve potential burn units totaling 11,500 acres. FS recognition of the benefits of controlled burns to manage understory, improving timber growth, and reducing fuel for wildland fire spread is of value to multiple users.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We strongly support the use of controlled burns in the project area, and generally the amount of acres proposed given the significant extent of fire-adapted systems in the LCRP area. We commend the addition of the Mill Mountain, Orebank, North Short Mountain, Short Mountain and Slicky Slide units, all part of a much larger, previously burned landscape that is already moving along the trajectory towards restoration of a fire regime within the natural range of variability. For all units, we support continued controlled burn treatments (i.e., reentries) that emulate the historic frequency, severity and seasonality of fire in the Central Appalachians.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We do suggest further evaluation of Brown Hollow, Pine Spur Ridge and White Rock Tower units which score lower in the Fire Learning Network's ecological prioritization tool, indicating lower percentages of fire-adapted communities within their boundaries, and which also appear to require fire line construction that may not be indicated in the Scoping Notice maps. White Rock Tower unit may also present smoke management issues along Interstate 64. We also suggest further evaluation of the Cigar Ridge unit, which does score highly in the Fire Learning Network's ecological prioritization tool, but requires significant dozer line construction.

Agency Response: All prescribed burn units have been field verified by district prescribed fire specialists. Needed fireline construction was also identified and mapped. Forestwide standards direct us to use existing barrier, e.g. streams, lakes, wetlands, roads, and trails, whenever possible to reduce the need for fireline construction and to minimize resource impacts (FW-155 Forest Plan, p. 4-16).

Comment (Jay C. Jefferies, VDGIF): We agree with the proposal to use prescribed fire on 12,907 acres (6.6% of project area). This management tool is critical to enhancing biodiversity for ecological restoration. It is important to re-enter burn sites on a rotation to maintain biodiversity, particularly oak regeneration, and mention of this should be made here (page 8 Table 3). There is an opportunity after fire lines preparation to develop a perennial grass/forb plant community via planting and this practice is recommended here as well.

Agency Response: Thank you for your comment. We will revegetate and waterbar firelines as quickly as possible, where necessary to prevent erosion (Forestwide Standard FW-34, Forest Plan p. 4-3).

Comment (Ernie Reed, Wild Virginia and Heartwood): The project proposes 11.8 miles of dozer lines. The environmental effects of these are significant, often more than even temporary roads, as they can become permanent fixtures by their continued illegal use. Dozer lines are areas of accelerated stream and sediment movement and erosion. Like unauthorized roads, dozer lines are vectors for illegal orv/atv/bicycle use and non-native invasive species.

For instance over 3 miles of dozer line is proposed along the top of Little Mountain in the Cigar Ridge Area. These ridgetopes are special ecotones where NW/SE slopes join. A dozer line there poses numerous ecological hazards and what is not needed from this project is what amounts to a temporary road that can be used for illegal access later. This burn unit should be dropped.

We submit that the use of fire, the level of which in this project we do not support, should absolutely be limited to existing roads and trails that can be used as fire breaks. No new dozer lines should be constructed.

Agency Response: Prescribed burning and dozer lines were identified as project issues and were utilized in alternative development. A no new dozer line alternative was considered see Draft EA page

39. The Draft EA discloses the effects of implementing the no action and action alternatives on various resources including water quality beginning on page 81.

Comment (Sherman Bamford, Sierra Club): Bulldozed fire lines are proposed adjacent to Rough Mountain Wilderness, along summit of Rough Mountain beyond the wilderness, and along more than 3 miles of Little Mountain in the Beards Mountain area of the project. Other long segments of bulldozed firelines are proposed elsewhere in the project area.

How will these bulldozed tracks impact (1) the wilderness, (2) potential for future designation of areas adjacent to the current wilderness as wilderness, (3) inventoried roadless areas and potential wilderness areas, (4) sensitive ridgetop communities, (5) existing trails in any of these areas, (6) soils, (7) watersheds, (8) water quality in trout streams and T&E waters, and (9) invasive species?

How will bulldozed firelines increase the potential for illegal off-road vehicle incursions into any areas?

Please consider alternatives to bulldozed firelines in the most sensitive areas and along wilderness boundaries. Please consider avoidance of these areas, hand-constructed firelines, and using natural firelines or existing features that can serve as firelines instead (including redrawing burn boundaries to avoid or minimize bulldozer fireline construction).

Agency Response: Prescribed burning and dozer lines were identified as project issues and were utilized in alternative development. A no new dozer line alternative was also considered see Draft EA page 39. The impacts of prescribed burning and dozer line construction on various resources are disclosed in Chapter 3 of the EA. This analysis is sufficient for the responsible official to make an informed decision in regards to this project. Three Inventoried Roadless Areas (IRAs) are located within the project area Beards Mountain, Mill Mountain, and Rough Mountain Addition IRAs. IRAs that are not recommended for wilderness study are assigned to management prescriptions that maintain their roadless character, and they will be managed consistent with requirements of the 2001 Roadless Area Conservation Rule.

Comment (Steven Krichbaum): If Yellow Pine communities are truly of concern, then why aren't prescribed burns restricted to or concentrated in these sites? Instead, the FS is burning and proposing to burn riparian areas and vast tracts of mesic hardwoods here.

Yet the FS asserts "not enough prescribed fire is occurring Forestwide" - 43
In actuality, the problem is that the burning is NOT "targeted at restoring the yellow pine community". The FS must do this instead of burning moister deciduous habitat used by biota such as salamanders. Indeed, for the Yellow Pine community the agency admits to "Lack of prescribed fire specifically targeted at restoring this community type . . ." - 48

Prescribed fires are currently NOT confined or limited to fire dependant ecosystems on the GWNF. The FS commonly sets fires in mesic hardwood sites. The FS has not been following/implementing their purported priority. This improper and unreasonable trajectory should not continue with this proposal and project area.
The FS planners must explicitly focus and target the great majority of prescribed fires on restoring the Forest's fire dependent ecosystems (*e.g.*, some yellow pine communities).

A chief rationale for much of the current and proposed burning is to reduce so-called "hazardous fuels". Much of what is commonly referred to as "fuels", forest ecologists know as woody debris. This material is the dead wood and trees that are essential for and characterize healthy forests. "Fuel" also includes the forest floor litter and humus. All this material is also commonly known as "food', "cover", or "habitat" for a wide variety of organisms including vascular and nonvascular plants, invertebrates,

vertebrates, bacteria, protists, and fungi (McMinn, J.W. and D.A. Crossley 1996). It is an integral part of the compositional, structural, and functional diversity of healthy forests. Fires consume woody debris (Van Lear, D.H. 1996). Litter amounts can also be significantly lower in burned plots (Waldrop, T.A. *et al*. 2007, Greenberg, C.H. and T.A. Waldrop 2008, and Elliot, K.J. *et al*. 2004).

Diminishment, removal, or absence of woody debris, litter, and humus has a dramatic impact on organisms that depend on them for food and shelter, as well as their predators (see McMinn, J.W., and D.A. Crossley 1996). In addition, woody debris contributes to soil fertility and increases moisture retention capacity throughout decomposition. Moisture retaining logs also serve as fire breaks as well as shelter for wildlife should a fire occur.

Burning can make sites hotter, drier and more open and exposed (to sun, wind, and predators). The decay process generally tends to mesify microsites, while fire tends to xerify microsites (Van Lear, D.H. 1996). Burns dry out the very conditions upon which the Forest Service has claimed that some species depend. Soil moisture is an important abiotic factor affecting the local diversity of soil fauna, such as snails (Martin, K. and M. Sommer 2004).

The incineration of forest material (*viz*., woody debris, litter, humus) not only directly destroys many small creatures, but also significantly alters the site quality for a great many other species. For instance, fire can have a negative impact on important components of habitat, such as leaf litter, thus degrading mesic micro-habitats (Ford, W.M. *et al*. 1999).

Invertebrates that live in the forest floor litter, topsoil, and "fuels", such as snails, slugs, millipedes, worms, and arthropods, are a significant component of forest diversity (see, *e.g*., McMinn, J.W. and D.A. Crossley 1996). Snail assemblages and densities are positively correlated with litter composition and depth (Martin, K. and M. Sommer 2004). Litter-related habitat characteristics also influence the composition of other forest floor faunal groups, such as earthworms and carabid beetles (*id*.). "[P]lots in which salamanders were captured, harbored significantly higher numbers of snails than plots in which salamanders were not captured." (Harper, C.A. and D.C. Guynn 1999)

The concern is about significant impacts resulting from the burns to the viability and distribution of species/populations/communities with limited mobility (see, *e.g*., Santos, X. *et al*. 2009 regarding negative effects to mollusks). Past experience with burns on the National Forest indicates that a managerial criterion of success for a burn is when a substantial proportion of the duff and leaf litter are incinerated. How long does it take litter/duff/soil populations to recuperate, reinvade, reestablish, and/or recover after they are destroyed or suppressed by fire? Does burning on short time periods (*e.g*., 5 years or 15 years or 25 years or more) allow them enough time to recover? Are their populations being chronically suppressed due to an accumulation of impacts over time? Precisely what monitoring data from previous fires do you have that refutes these concerns?

Burning can promote the spread of invasive plant species (Glasgow, L.S. and G.R. Matlack 2007b). On the GWNF in Virginia, sites that have been burned repeatedly are overrun with invasives (pers. obs. Krichbaum, S. 2007; see, *e.g*., areas adjacent to the Shenandoah River on the Lee RD). Enhancing or facilitating the spread of invasive species is not consistent with true "restoration". How does this proposal address this concern/issue?

Any burning should be confined to specific sites where it is indubitably ecologically needed in order to sustain the natural community there, *e.g*., fire-dependent plant communities (it is not clear that all yellow pine communities necessarily qualify). Or limited-scale precise areas where it is appropriate to benefit rare species, such as at dry scrub pine – oak- heath communities with Variable Sedge.
A lighter on the land approach is possible and beneficial here on the Forest. Such reasonable alternatives need to be seriously examined. These can and should be accomplished without heavy

machinery entering (for the construction of control line routes) and without burning of the material which enriches the sites and benefits visitors across a broad 19,125-acre area such as was proposed in 2006 on the DRRD. The FS must focus prescribed burns on the small sites and specific communities that actually need them (*i.e.*, fire-dependent plant communities, some yellow pine sites, or specific tracts with Variable Sedge).

If full and fair analyses indicate fires are actually needed here, the project-level decision and revised Plan can allow some lightning ignitions to burn more acreage on the Forest.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. Prescribed burning and dozer lines were identified as project issues and were utilized in alternative development. A no new dozer line alternative was considered see Draft EA page 39. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including soils, vegetation, and wildlife beginning on page 56. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): In addition, at present sites with salamanders and other sensitive taxa may be routinely subjected to intense ground disturbance by fabrication of fire control lines with dozers. Such construction may directly kill salamanders, destroy habitat, create additional habitat fragmentation, increase forest edge and negative edge effects, facilitate invasive species, provide for illegal motorized access and attendant harms (*e.g.*, poaching), and significantly degrade scenic beauty and recreation opportunities.

Fire control lines should not be fabricated with dozers except in an emergency situation where necessary to save human life.

The proposal to smash miles of dozer lines through the forests in roadless areas and Mountain Treasure areas is a particularly bad idea. Significant impacts may occur. This is far from restorative.

Agency Response: Please see previous response. Three Inventoried Roadless Areas (IRAs) are located within the project area. IRAs that are not recommended for wilderness study are assigned to management prescriptions that maintain their roadless character, and they will be managed consistent with requirements of the 2001 Roadless Area Conservation Rule. The published Wilderness Society report of "Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest" of July 2008, serves as an information source to the forest; however, it is not a regulatory or sanctioned management plan for state, private, or federal lands. A review of the 63 areas included in the "Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest" was conducted to determine which areas met our criteria to be placed on the Potential Wilderness Area inventory. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternative 2 & 3) on potential wilderness areas beginning on page 197. A no dozer line construction alternative was also considered see Draft EA page 39.

Comment (Stakeholders of the GWNF): Fire has long played a role as a natural disturbance shaping the composition and structure of oak, chestnut, and pine forests in this region. We support the use of controlled burning to safely restore this natural process that our forests need to be healthy, while also helping to reduce leaf litter and downed limbs that can increase wildfire intensity, which can have damaging effects on people, homes and neighborhoods. In general, we suggest the District consider the following as you continue to evaluate areas for fire management:

- Continue to implement burns within the Warm Springs Mountain Restoration Project in partnership with The Nature Conservancy and Douthat State Park. This landscape-scale, cross-boundary collaboration, with its intensive vegetation and avian monitoring programs, can be expanded to the entirety of the Lower Cowpasture Restoration Project area and continue to serve as a model for collaborative restoration and learning site for fire managers and scientists through the Central Appalachians.
- Prioritize additional burn units giving weight towards the following criteria:
  - Units that have been burned before, have existing fire breaks, or otherwise minimize the need for new fire break construction or unit configurations, e.g., Orebank, Mill Mountain, North Short Mountain.
  - Units that score higher based upon the Fire Learning Network's ecological prioritization tool, i.e., units that have higher percentages of fire-adapted systems and species.
  - Units that are identified as being within significant wildland-urban interfaces.
- Closely coordinate between fire and timber management staff on timing and intensity of burning in areas suitable for timber production and use the two tools in a complimentary manner to achieve objectives such as oak regeneration, open canopy conditions, and high quality wood products.
- Continue evaluation and documentation of the structural and compositional vegetation changes resulting from controlled burns, e.g., amount of young forest, open canopy conditions, species composition.
- Lastly, we recommend the District develop wilderness fire management plans for Rich Hole and Rough Mountain wilderness areas and their potential additions. Such a process will help proactively determine the appropriate response to natural and human-caused fires to accomplish wilderness management objectives.

Agency Response: As disclosed in the Draft EA we will continue to implement the Warm Springs Mountain Restoration in partnership with The Nature Conservancy. The projected temporal schedule of implementation for proposed burn units and timber harvests is available in Appendix B. Our timber and fire staffs will continue to coordinate on timing and intensity of burn areas to meet the desired conditions for the project area. Project specific monitoring is identified in Appendix C.

Vegetation

Comment (Doug and Debbie Albrecht): Vegetation Management - the listed thinning activities provide jobs, improve marketable timber harvest, but need to be conducted according to FS standards so as not to damage watersheds.

Agency Response: Each action alternative will follow the Forestwide common standards stated in the Forest Plan. In addition, management prescription area standards will also be followed and are stated in the Forest Plan on pages 4-27 thru 4-34, 4-39 thru 4-41, 4-50 thru 4-61, 4-76 thru 4-83, and 4-121 thru 4-135 .

Comment (Linda D. Ordiway, Ruffed Grouse Society): The amount of regeneration management proposed within the 77,000 plus acre project area totals 1.5% over 10 years for a mere 116 acres of regeneration cuts a year. Over 27,000 acres within the project area are classified as suitable for timber production, over 63,000 acres are > 80 yrs. old. The distribution and connectivity of the selected units for treatments is well established. It is my professional opinion that an over emphasis on management that produces closed canopy conditions within 5-10 yrs. will not provide the necessary habitat matrix for population recruitment and maintaining these potential recruitment levels in the future. The majority of the forest within the project area will remain in mature even-age condition and lacking structural diversity. If the effort is put forth for public opinion the same effort should be put forth for

positive impact management where stand conditions will remain for multiple generations of species to establish 'making a difference' in management.

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Linda D. Ordiway, Ruffed Grouse Society): As a member of the true conservation side I still question the hesitation within the USFS to utilize regeneration methods in substantial acreages within adequate spatial and temporal matrices to demonstrate a regional commitment to species of varying levels of conservation concern. Your management goals should reach beyond those species residing or breeding within the boundaries of the GW and Jeff National Forests to include the need of migratory species with reference to the geographic location of the project area and these two forests in general.

Agency Response: Please see previous response.

Comment (Linda D. Ordiway, Ruffed Grouse Society): RGS can support the efforts involved in developing the Lower Cowpasture Restoration Project but is opposed to the number of acres proposed for regeneration management. Our recommendation is to establish longer lasting disturbance ecology through regeneration harvest methods. The acres and ages are within the project area to expand upon. Establishing at least 4% of the project area in young forest should be an attainable goal. That is approximately 300 acres of regeneration cuts a year over the next 10 years. This is management for 'making a difference.'

Agency Response: Chapter 1 of the Draft EA described the purpose and need for the project. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Jay C. Jefferies, VDGIF): Overall agreement with the strategies proposed in this vegetation management section… active forest management, forest openings and water hole development, etc. However, we feel an objective of providing for a 100 years rotation on potential forest/wildlife management zones is ideal in allowing for a biodiversity of age classes within the manageable forest. This would require an increase from the proposed 2,207 acres in Table 1 (see Page 5… excludes "TSI" acreage of 1,498, which does not reset succession to Young Forest habitat) to a total of 3,851 acres over the 10 years project proposal. In arriving at this figure the following acres were omitted from the total 77,680 acres of the project: Management Areas 4,7,8,9,10,13 and proposed Wilderness additions of 5,658 acres. The active forest/wildlife management zone balance is Management Areas 14, 15 and 17 which is 38,508 acres.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Jay C. Jefferies, VDGIF): In tables listed here for "Cove Forests", "Oak Forests and Woodlands", and "Pine Forests and Woodlands" we see the "Early" columns show both 0-10 years and 0-15 years and recommend all tables be consistent, i.e., 0-10 years. Also, we question the accuracy of the last table "Pine Forests and Woodlands" in the "Early" columns for desired versus current, 13% and 12% respectively. The 13% reference seems high?

Agency Response: Early successional forest is defined as regenerating forest of 0 to 35 years of age, depending upon the ecological system. The desired structural condition for each ecological system is defined in the Forest Plan beginning on page 2-15. Desired structural conditions for Pine Forests and Woodlands are identified in the Forest Plan (Desired Condition DC-ESD-09, Forest Plan p. 2-16).

Comment (Wayne and Pat Thacker): The LCPRP Scoping Notice covers every aspect of how we use the NF to include birding, hiking, solitude, Grouse/Woodcock hunting, and fly-fishing. Please do continue to explore, plan and implement additional approaches to add more acreage of early successional forest growth -- to approach 10% in decade age-classes. We appreciate the attention to early successional through hardwood restoration (and reducing the pine plantation acreage) and the shelterwood harvests as primary means to achieve additional early successional growth. Hopefully, Warm Springs District can find means to achieve maximum advance toward the 10% target noted above.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Wayne Thacker, Rocky Mountain Elk Foundation Virginia State Leadership Team): The active forest management described to date for the Lower Cowpasture is badly needed to create young forest habitat within the project area. My input on the Lower Cowpasture as an individual supported maximum achievement of early successional habitat (ESH) to meet the needs of game and non-game species. Now I want to state that RMEF VA State Leadership Team strongly encourages a balanced forest mosaic at age-classes noted above.

Agency Response: Please see previous response.

Comment (Wayne Thacker, Rocky Mountain Elk Foundation Virginia State Leadership Team): We are very encouraged to see that proposed action described in the District's 14 July 2014 Scoping Notice reflects habitat improvement through active forest management. Creation of early successional

habitat is critical and results from regeneration through shelterwood methods (given no even-age cuts on the Lower Cowpasture under the applicable Forest Plan). We encourage establishing ESH as per age-classes noted above to offer user (human and other species) a forest mosaic.

Agency Response: Please see previous response.

Comment (Wayne Thacker, Rocky Mountain Elk Foundation Virginia State Leadership Team): We support a balanced forest mosaic along the Central & Southern Appalachian Mountain National Forests, focusing now on the Lower Cowpasture Restoration Project. We support active forest management to include commercial timbering methods (e.g., even-age, shelterwood, thinning) and prescribed fire to create a balanced forest mosaic that includes young (early successional) habitat at or as close to 10% age class 0-10 y.o., 11-20, etc. on all forest land suitable for timbering approaches as per applicable Forest Plans. We believe that these levels of age-class forest are achievable across the GWJEFF. When each Ranger District attends to their share of the forest mosaic, the GWJEFF attends to the needs of many species and human forest users all along the GWJEFF mountain backbone.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We are pleased to see the diversity of silvicultural treatments detailed on pages 3-4 and summarized in Table 1 of the Scoping Notice. Such a variety of treatments, in addition to or in cooperation with controlled burning, will begin to restore age and structural diversity to the landscape, particularly addressing the lack of mid and late successional open canopy conditions (i.e., open woodlands) and young forest (< 15 years old) historically associated with oak and pine-dominated forests of the Appalachians. We welcome the addition of shelterwood (traditional, first step), free thinning and thinning from below methods and encourage you to work towards desired conditions for those treatments that retain a dominant overstory while regenerating an herbaceous-dominated groundcover and understory of grasses and forbs. Monitoring of the first treatments may be required to determine the upper threshold of the residual basal area (e.g., 50, 60 or 70 ft^2/acre) necessary to provide enough sunlight to the forest floor to achieve these conditions. We are especially pleased to see the addition of the hardwood restoration treatments and encourage further opportunities to restore white pine plantations and other uncharacteristic habitat conditions to diverse forested communities within their natural range of variability.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): Other than in the discussion of the free thinning method on page 3, the Scoping Notice does not elaborate on the sequencing or other relationships between silvicultural treatments and controlled burning. As suggested in our previous comments, we would encourage staff implementing these techniques to continue collaboration on timing and intensity of burning in areas suitable for timber production and to use the two tools in a complimentary manner to achieve objectives such as oak regeneration, open canopy conditions and high quality wood products.

Agency Response: Appendix B outlines the projected temporal schedule for implementing Lower Cowpasture project activities. The temporal schedule was develop by the IDT and includes input from the Timber Management Assistant and Fire Management Officer. District timber and fire staff will continue to coordinate and work together doing project implementation.

Comment (Marek Smith, The Nature Conservancy): Lastly, we encourage evaluation of the existing Fire Learning Network forest structure and composition monitoring plots with proposed vegetation management activities to avoid any impacts from temporary road, wildlife opening or water hole development.

Agency Response: We are working with The Nature Conservancy and forest staff to avoid impacts from temporary road, wildlife opening, and water hole development on Fire Learning Network forest structure and composition monitoring plots.

Comment (Al Bourgeois, Virginia Department of Game and Inland Fisheries): Based on the data provided in Lower Cowpasture Restoration Project scoping notice, only 2,207 acres will be commercially harvested during the 10 year period of this project. Without doing other vegetation management projects, during this same time period, elsewhere on the Warm Springs and James River RD's, the total timber harvest acres will be well below the 2,809 acres harvested during the 10 year period from 2003 to 2012. This would also be well below ecological restoration goals and would negatively impact many wildlife species that are in significant decline and need young forest habitat to survive.

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed actions, while regenerating less than the desired range for early successional habitat for some ecological systems moves the project area towards the desired goal. The amount of acreage proposed for regeneration was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability. James River and Warm Springs Ranger Districts will be analyzing areas outside the Lower Cowpasture project area over the next 10 years to determine the need for project proposals to move areas toward the desired conditions outlined in the Forest Plan.

Comment (Stakeholders of the GWNF): Our desire is to develop recommendations that increase biodiversity, improve young forest habitat, and enhance ecosystem resiliency and overall forest health. Thus, we offer a combination of applicable habitat management techniques that restore ecological processes and mimic natural disturbances on the landscape, to primarily: 1) enhance habitat conditions for declining early successional species and other Species of Greatest Conservation Need in Virginia such as golden-winged warbler, chestnut-sided warbler, and American woodcock (VDGIF 2005), 2) increase diversity of overstocked, mid-successional (e.g., <40 years old) stands dominated by white pine or yellow-poplar, 3) restore and maintain fire-dependent ecosystems such table mountain pine, pitch pine, and dry oak communities and 4) promote oak reproduction.

Within this project area, 27,287 acres are classified as suitable for timber production (Workshop Handout May 20, 2013), providing the opportunity to use timber harvesting as one tool to increase early successional young forest habitat, thin crowded forests, and provide a range of high-quality wood byproducts which contribute to the social and economic well-being of people living in the region. We believe the potential timber management activities for four (4) sale areas (Lime Kiln, Beards Mountain, McGraw Hollow, Sandy Springs) discussed to date have the potential to achieve some of these goals, but can be greatly improved upon through changes in unit configuration and size, evaluating additional sale areas and units (e.g., Pads Creek, Cliftondale Road, Craft Road), considering alternate silvicultural prescriptions and harvest mechanisms, and better integration with other management tools. To help meet the objectives for young forest habitat, we recommend bringing the total acres treated with regeneration and other silvicultural techniques in this project area to around 2,100 acres over the 10 year period. This goal would equate to a 150 year forest rotation and align with the objectives and standards for timber management in the Draft Plan (3-23, 4-13). Utilize

other pre-commercial (TSI) and commercial silvicultural techniques inaddition to regeneration harvests to help meet the other objectives we have previously mentioned.

Agency Response: We evaluated additional areas for silvicultural opportunities including Pads Creek, Cliftondale, and Craft Road areas. Opportunities were included in the proposed action (Alternative 2) and preferred alternative (Alternative 3). Both alternatives include silvicultural presciptions for shelterwood with reserves, shelterwood, free thinnings, thinning from below, commercial timber stand improvement, hardwood restoration and timber stand improvement. The amount of acreage proposed for silvicultural treatment was determined based on the distribution of harvest across the project area with considerations for adjacent forest stand conditions, logging feasibility and operability.

Comment (Stakeholders of the GWNF): On January 31, 2014, a small number of us made a field trip to evaluate a subset of potential harvest units on the northern end of the Lime Kiln sale area, and to illustrate the approach we suggest above, we have attached some specific recommendations for those units (Appendix A). In general, we suggest the District consider the following as you continue to evaluate areas for timber management:

- To date, all units being considered for commercial regeneration harvest appear to be prescribed for a shelterwood with reserves (formerly modified shelterwood) harvest leaving a residual basal area of 10-15 ft^2/acre. We suggest the District consider a variety of even-aged, two-aged, and uneven-aged harvest methods to provide the necessary flexibility to move towards the desired conditions of both increased young forest and open woodlands.
- Consider some traditional shelterwoods leaving a residual basal area of 30-60 ft^2/acre, particularly in combination with controlled burning and if advanced oak regeneration is insufficient (i.e., the shelterwood-burn technique; Brose et al. 2012, Brose 2013, Burger and Keyser 2013). Traditional shelterwood harvests would serve to restore open woodland conditions on the drier oak and pine community types.
- Re-configure and expand some units to accommodate both shelterwood with reserves and traditional shelterwood techniques in the same unit. This would create both early successional habitat in the regeneration harvest and open conditions in the traditional shelterwood area, while helping to minimize the "hard" edge between harvest units and adjacent untreated stands.
- Re-evaluate most, if not all, of your TSI units, particularly those which can begin the restoration of oak forests from overstocked, 30-40 year old stands dominated by white pine or yellow-poplar. It has been unclear whether the proposals were pre-commercial or commercial for these units. We recommend that the District consider various pre-commercial and commercial treatments of these stands and various options for funding that work. We understand that a pre-commercial treatment, where trees are dropped and left on site, has expense to the agency, so may be unlikely to be implemented (Jeff Matthews, personal communication). Removal of the thinned material, either for pulpwood or biomass, would help cover some, if not all, operational expenses. Stewardship contracting may be the best fit for these treatments and should be considered. Such units could also be used to pilot designation by description and scaled sales. We recommend a residual basal area of 40-70 ft^2/acre of high quality oak and other hard mast producing species for commercial thinning. A thinning to this level would also achieve the goal of creating open woodland conditions, whereas a traditional thinning (to >70 ft^2/acre) would not. We also recommend considering whether the project area contains additional stands dominated by uncharacteristic white pine, yellow-poplar, or similar tree species, which could be considered for management as part of this project.
- Although we believe that harvest methods could be further diversified, we like how the proposed sale areas (e.g., Lime Kiln) have grouped the treatment units. Managing for clusters

of intensively managed silvicutural treatments in an area will enable wildlife species to disperse over a broader area of the forest, improving their survival. For the same reasons, we also suggest that, if possible, the sale areas themselves be distributed more broadly, both spatially and temporally, across the project area as currently they are all grouped on the western side and seemingly planned for the first 2-4 years of the project timeline. To the extent that silvicultural treatments align with other resource interests (e.g., recreation, wildlife, ecological restoration), we suggest considering their use in areas which are currently designated as "unsuitable" for timber harvesting but are within "suitable" management prescriptions and are not physically unsuitable for harvest, particularly when adjacent to other treatment areas.

- We applaud the District's intent not to build permanent roads for access to the harvest units proposed to date, and for their diligence in locating old temporary roads to use for access and landings. We suggest you continue to use this approach as you evaluate additional units for treatment.
- We appreciate the recognition of herbaceous clearings (aka wildlife openings) as important habitats for many wildlife species and support their development, particularly on landings, and some temporary roads used for timber harvesting when appropriate, and suitable sites within or adjacent to harvest units where terrain and soil provide good conditions for herbaceous openings. This will help to meet the desired condition of 4% of the Forest in open, herbaceous habitat (Draft Plan 2-9). We are mindful of the resources (e.g., labor, funding) necessary to maintain these clearings and therefore suggest that the District prioritize the creation of new clearings based upon maintenance support available from Virginia Department of Game and Inland Fisheries' National Forest Stamp Fund or other organizations dedicated to long-term management. Clearings could potentially be maintained through routine controlled burning depending on the re-entry frequency, thus placement within burn units should be considered.

Agency Response: Please see previous response. The Draft EA provides more detailed information on the silvicultural treatments beginning on page 104. Appendix A provides more details on proposed harvest area treatments. During forest land and resource management planning, the Forest Service is required to identify lands unsuited for timber production (16 USC 1604(k); 36 CFR 219.14). Timber production is defined as “the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.

Comment (Steven Krichbaum): At present on the GWNF there is an extreme disbalance in the distribution of age-class forest acres. There are generally very little or zero acres represented in the 131-140, 141-150, 151-160, 161-170, 171-180, 181-190, 191-200, 201-210, 211-220, 221-230, 231-240, 241-250, 251-260, 261-270, 271-280, 281-290, 291-300, 301-310, 311-320, 321-330, 331-340, 341-350, 351-360, 361-370, 371-380, 381-390, 391-400 years-old age classes at project areas. For “stands” said to be greater than 200 years old the FS recently identified only 11,014 acres on the Forest (1.06% of the Forest) (pg. G-40 in the September 2005 GW-JNFs Monitoring Report).

Further, “balanced” “age classes” is an artificial regime. It belongs on tree farms, not on the GWNF. A functioning natural forest ecosystem in the Appalachians does not have ”balanced” age classes. Natural functioning forest ecosystems here contain multi-aged or all-aged stands, with the great majority having old age trees (Braun, L. 1950, Ashe, W.W. 1922, Davis, M.B. 1996). A management scheme of moving toward a “balance” of constricted age classes fails to protect the compositional, structural, and functional diversity of the Forest’s ecosystems such that they are NOT “at least as great as that which would be expected in a natural forest” (in violation of the NFMA).
This begs the question: Just what is it that the planners are trying to “restore” here? How can the fabrication/maintenance of a disbalanced artificial regime be reasonably considered “restoration”?

FS planners must cease the use of constrained and constricted age classes and lumping of such. Planners must explicitly and fairly use older age classes, including those enumerated above, in analyses, monitoring, inventory, DFCs, objectives, and decision-making, particularly as regards issues of diversity, suitability, sustainability, and "balance".

Agency Response: The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. Chapter 1 describes the purpose and need for the project. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including vegetation beginning on page 99.

Comment (Steven Krichbaum): The FS does not properly consider the contribution of natural processes to maintaining wildlife habitat, particularly "early successional habitat" (ESH), on the GWNF.
This is a particular problem/concern/issue given that the overriding driver/goal/objective of this project is purportedly "restoration".
The FS planners fail to properly consider and analyse natural esh patches, particularly those under two acres in size (the scale of many canopy gaps). As a consequence, the GWNF managers constantly use a false "need" to fabricate such habitat as a rationale for cutting down valuable and important mature and old-growth forest habitat.
The agency's disclosure does not substantiate that purported "declines" in some esh species are necessarily a rational concern. The FS fails to fully and fairly consider the huge and unnatural erratic explosion in esh, and by extension esh-wildlife populations, that took place during and after the logging boom of 80-120 years ago; an expansion from which some maturing ecosystems are just now recovering.
The need to spend millions of dollars a year on heavy-handed management such as timber sales to fabricate esh is not apparent.
The FS intent is to maintain/"restore" an even-aged structure for much of the forest, conditions that are in many ways an artifact of past human alterations. This successional model is used to justify the unnatural "need" to perpetually generate man-made early succession patches; in other words, generating a constant stream of make-work projects such as (often-times below-cost) timber sales.
The Forest Service consistently rationalizes its sales of our irreplaceable mature and old-growth forest habitat to commercial logging interests by claiming a "need" to fabricate ESH for wildlife coupled with a "need" to move toward (*i.e.,* "restore) "balanced" age classes (see GWNF scoping letters and EAs). But this assessment of need is based on faulty data, as the Forest Service currently neither inventories nor counts the great majority of the ESH that results from natural disturbances.
In the interests of accountability, reasonable decision-making, science, sustainability, and forest health, the planners must fully survey, estimate, analyze, and consider of the contribution of naturally occurring ESH (down to 0.1 acre in size) to sustaining wildlife populations. The planners must clearly and thoroughly disclose supporting rationale and data for assertions that various amounts of ESH must be artificially fabricated through logging. This rationale must be available for public comment before a decision is reached on this project, since how the Forest Service goes about deciding where and how much ESH will be fabricated and maintained is an important public issue.

The GWNF planners fully and fairly evaluate and develop the option/dfc/alternative of ceasing to cut mature and/or old-growth sites and instead recut the sites recently logged on the GWNF (*i.e*., those 10-40 years old) if the analysis alluded to in the preceding paragraph indicates that early seral wildlife habitat must be fabricated (see Reynolds-Hogland, M.J. *et al*. 2006). Such alternatives, objectives, desired conditions, guidelines, standards, and goals must be fully developed, analysed, and evaluated; they are compliant with the NFMA.

Further, the agency must fully and fairly consider and analyze the ESH on private lands in the project area near our GWNF and its contributions to sustaining wildlife populations.

The Forest Service appears to be excessively focused on the early successional habitat that results from timber sales. But there is much more to esh than just the saplings that come up after logging operations.
Early successional habitat includes grasslands, shrublands, and young forests that originate after a disturbance (fire, flood, wind, or logging) or where conditions such as thin soils, regular flooding, or exposure to wind support the growth of herbaceous and shrub vegetation and preclude or diminish the growth of large trees. Among the many names that have been given to the landscapes that fall within the early successional forest category are thickets, grasslands, sapling-seedling stands, heaths, young forests, pole timber, and shrubland. A great deal of such habitat is scattered across the forested landscape as a result of tree deaths, blowdowns, hurricanes, ice storms, droughts, Beaver impoundments, edges, or inherent site conditions.
There are many types of esh that are not fabricated by logging. These include not only habitat from natural processes, but also places such as utility line corridors and maintained openings. Planning assessments must differentiate between and fully consider all the various types of early successional habitat. For example, do negative viability or wildlife findings for a management alternative result from reduced logging, or actually from a reduction in maintained permanent herbaceous/grassy openings? Analyses of wildlife and development of desired future conditions (DFCs), guidelines and objectives must fully recognize and consider the differing types of early successional habitat. If site-specific data indicate an actual need to fabricate wildlife habitat, the Forest Service must then fully and fairly consider the fabrication of small grassy openings instead of conducting extensive regeneration logging.

Agency Response: The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Draft EA describes the existing and desired conditions for the project area. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including vegetation beginning on page 99.

Wildlife

Comment (Doug and Debbie Albrecht): Wildlife - these modest clearings to create forage seem reasonable and will improve wildlife habitat, which provides recreation opportunities, and the accompanying employment opportunities to service sports persons and other outdoor enthusiasts.

Agency Response: Thank you for your comment.

Comment (Sherman Bamford, Sierra Club): VGIF's Fish and Wildlife Information Service lists species that could potentially occur in or near the Pads Creek, Limekiln, Mill Creek, Beards Mountain and other portions of the project area. See attached reports – VAFWIS GeographicSelect Options Limekiln 1, VAFWIS GeographicSelect Options Beard Mtn, VAFWIS Report BOVA Cowpasture R Mill Cr, VAFWIS Report BOVA Pads Cr, VAFWIS Report Wilson Cr Limekiln, VAFWIS Seach Report Pads Cr ; and maps – Limekiln North Map, VAFWIS Map Beards Mtn map, and VAFWIS Map Limekiln.

Surveys for Threatened, Endangered, Sensitive, and Locally Rare species should be conducted and impacts to these species should be assessed.

Agency Response: The Draft EA discloses the effects of implementing the proposed alternatives on the threatened, endangered, sensitive and locally rare plant or animal species and communities within the project area beginning on page 121. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Sherman Bamford, Sierra Club): The Virginia Wildlife Action Plan defines Tier I and II wildlife species as follows: "Tier I: Critical conservation need. Faces an extremely high risk of extinction or extirpation. Populations of these species are at critically low levels, face immediate threat(s), or occur within an extremely limited range. Intense and immediate management action is needed.

"Tier II: Very high conservation need. Has a high risk of extinction or extirpation. Populations of these species are at very low levels, face real threat(s), or occur within a very limited distribution. Immediate management is needed for stabilization and recovery." (p. 2-9)

According to VGIF, predicted habitat for aquatic Tier I & II species occurs in the Cowpasture River. Predicted habitat for terrestrial Tier I & II species occurs from the Bald Mountain area to the Brushy Mountain area and Little Brushy Mountain area (and along the valleys along some streams flowing from these mountains) on the northwest side of the project area – near the Limekiln and Sandy Springs areas.

Habitat for Tier I & II species should be adequately protected. Surveys should determine whether there are any occurrences of Tier I & II species outside of known areas.

Agency Response: The Draft EA discloses the effects of implementing the proposed alternatives on terrestrial and aquatic species beginning on page 121. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Steven Krichbaum): I am concerned about the potential for significant impacts to TESLR species.
"When adequate population inventory information is unavailable, it must be collected when the site has a high potential for occupancy by a threatened, endangered, proposed, or sensitive species." See Std. 240 at GWNF LRMP 3 - 149.

To maintain the Forest's diversity, communities, and sustainability, the Forest Service/revised Plan must retain and adhere to this directive to collect population inventory data on sensitive plant and animal species. Population inventory data should also be collected for locally rare species and species of concern to ensure their protection at this project area.

Agency Response: The Draft EA discloses the effects implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on TESLR species beginning on page on page 158. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): The Pine Snake (*Pituophis melanoleucus*) is one of the rarest reptiles in Virginia. "Northern pine snakes have fairly narrow habitat requirements, and, as their name suggests, prefer well-drained, sandy, upland pine and pine-oak forests throughout their range" (NJDFW 2009). Habitat of the types known to be used by Pine Snakes (upland pine and pine-oak forests) commonly occurs in the project area, and in addition such sites may be scheduled for intensive activities such as timber sales or burns.
Pine Snake habitats need to be strictly protected. There is the potential for project implementation to result in significant impacts (direct, indirect, and/or cumulative) to the distribution and/or viability of the Pine Snake. Special surveys are needed to detect Pine Snake occurrences at all project areas

within its range where there is suitable habitat. The FS must ensure that habitat and/or populations of the Pine Snake are strictly protected from loss and/or degradation.

Agency Response: The Draft EA discloses the effects implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on wildlife beginning on page on page 121. The Virginia Department of Conservation and Recreation's Division of Natural Heritage was contacted regarding the Lower Cowpasture project. Based on the analysis in the Draft EA and DCR's response there would be no direct or indirect negative impact to the Division of Natural Heritage's recognized conservation sites, special biological areas, rare communities, or species. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): I am very concerned about impacts to Forest Rattlesnake (*Crotalus horridus*) den sites in the project area. Surveys need to be performed and experts consulted (William H. Martin) to identify dens. All den sites must be strictly protected and buffered (perhaps several hundred meters).
I am concerned about harm to steep slopes, rocky outcrops, and seeps from intensive land altering activities. These areas must be extensively buffered in order to mitigate harmful edge effects.

Agency Response: The Draft EA discloses the effects implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on wildlife beginning on page on page 121. The Virginia Department of Conservation and Recreation's Division of Natural Heritage was contacted regarding the Lower Cowpasture project. Based on the analysis in the Draft EA and DCR's response there would be no direct or indirect negative impact to the Division of Natural Heritage's recognized conservation sites, special biological areas, rare communities, or species. The analysis is adequate for the Responsible Official to make a reasoned decision.

Old Growth

Comment (Sarah A. Francisco, Southern Environmental Law Center): We understand that, as part of the usual field surveys, the Forest Service continues to survey the project stands for old growth characteristics, according to the GW's protocol and the Southern Region's Old Growth Guidance. We commend the agency staff for their commitment to proper, accurate surveys. As discussed in our March comments, we believe that any patches of existing old growth that are identified should not be logged and should be added to the GW's old growth network. We understand that some existing old growth has been identified so far and that the current iteration of the project proposal avoids it, which we greatly appreciate.

Agency Response: Thank you for your comment.

Comment (Sara Francisco, Southern Environmental Law Center): A number of the surveys in the Limekiln area generated questions and Mark Miller with the Virginia Wilderness Committee (VWC) made an initial visit to those stands. Of those, we believe the following stands warrant further review and reconsideration for existing old growth conditions: Limekiln units #5, 18, 19, 20, 27, 28, 31

- Limekiln unit #5 is very steep and appears to have no existing road access. From the tally sheets, it appears that three of the six plots in the stand met all criteria for existing old growth, except the "disturbance" criteria. On visiting the stand, however, it is difficult to see any disqualifying disturbance.
- Limekiln units #18, 19, 20 all appear to have old growth hardwood and pitch pine in them, depending on aspect. The tally sheets document a number of old trees in these stands and a couple of plots seemed to meet all criteria for existing old growth.

- Limekiln #27 is a combination of hardwoods in the hollows and pine on the ridgetops. There may be less obvious, smaller-diameter old growth here, especially on the rockier, poorer sites.
- Limekiln #28 appears to be a patch of old growth forest, with particularly big trees in the hollows. Remarkably, the tally sheets show that half of the plots taken in this stand met all criteria for existing old growth. The tally sheet notes indicate that the unit has pockets that could be old growth and recommend eliminating the southwestern corner. Do the current project maps reflect that change? The remainder of the stand should be reconsidered for existing old growth conditions as well.
- Limekiln #31 was particularly compelling as existing old growth during Mark's field visit. This forest appears to be in old growth condition, with natural, gap phase dynamics occurring, as some of the oldest trees already have come down and others are losing their tops. The tally sheets seem to indicate that three of the plots in this stand met all criteria for existing old growth, except that disturbance – a road – was noted. This patch of forest does not appear ever to have been logged. The road runs along the edge of the stand and its use to disqualify the entire stand seems questionable.

First, we request that the Forest Service reconsider whether these units contain patches of existing old growth, based on a proper interpretation and accurate application of the Regional Guidance criteria.

Second, if any existing old growth is identified, we strongly recommend that the agency avoid logging or other activities which would degrade old growth characteristics there, for the reasons discussed in detail in our March 2014 comments.

Finally, if this project ultimately avoids or does not adversely affect existing old growth, the environmental assessment should document and reflect this commitment.

Agency Response: All stands proposed for harvesting were analyzed per Forest Plan direction and using the Region 8 guidance for inventorying old growth. A field review was conducted for old growth in all mature stands proposed for harvest in this project. The field review specifically looked at the four criteria set forth in the regional guidance: 1) minimum age of the oldest age class, 2) disturbance criteria, 3) minimum basal area, and 4) diameter at breast height of the largest trees. While several stands were identified as meeting all four operational definitions as old growth, upon further review of the area after the scoping notice was released, four more units were determined to exhibit old growth characteristics. The Preferred Alternative (Alternative 3) avoids harvesting any area identified as meeting all four operational criteria defining old growth in the R8 Guidance.

Comment (Sherman Bamford, Sierra Club): Given the importance of old growth forest and its scarcity in the national forests in the Southern Appalachian mountains, we have a strong interest in the identification and protection of existing old growth in the project area and on the GW generally. We understand that the Forest Service has surveyed the project stands for old growth characteristics, per the GW's protocol and the Southern Region's *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region*. We also understand and greatly appreciate that the current project proposal avoids a few stands that agency staff identified as existing old growth. Additionally, we believe that other conservation organizations have reviewed most of this project's old growth survey "tally sheets," visited some stands in the field, and are submitting comments regarding remaining questions about a few stands in the Limekiln area. We hope that the Forest Service will reconsider whether those stands or portions of them contain existing old growth and, if patches of existing old growth are identified, avoid activities in those sites that would degrade old growth characteristics. Finally, if the agency does intend for this project to avoid adverse impacts to

existing old growth forest, we hope that the environmental assessment reflects this intent and includes this commitment.

Agency Response: Please see previous response.

Comment (Jeremy Boggs, Virginia Wilderness Committee): Old growth-The VWC recognizes that there are significant tracts of old growth within the project area. Based on our review of the Southern Environmental Law Center's list of potential units that might contain old growth we would like to request a review of the following units in the Lime Kiln sale area (5,19,20,27,28,31). Of particular note is unit 31. It appears to meet many of the requirements for old growth but disturbances were identified on several plots. We request that the boundary of this unit be drawn to the proposed temporary road before resurveying the unit.

Additionally, if units 19 and 20 do not meet old-growth criteria we would request that the agency consider a Shortleaf Pine restoration project on these sites as well as on unit 18. We suggest that the Pitch Pine and remnant old-growth hardwoods be retained on the units while planting Short Leaf Pine seedlings in the understory with a short fire return interval to ensure their survival. Shortleaf Pine was common throughout the southern Appalachians at the turn of the 20th century. However, due to over logging, Shortleaf Pine is seldom found in the mountains of Virginia and its restoration would add a missing element to our forest mosaic.

Agency Response: All stands proposed for harvesting were analyzed per Forest Plan direction and using the Region 8 guidance for inventorying old growth. A field review was conducted for old growth in all mature stands proposed for harvest in this project. The field review specifically looked at the four criteria set forth in the regional guidance: 1) minimum age of the oldest age class, 2) disturbance criteria, 3) minimum basal area, and 4) diameter at breast height of the largest trees. While several stands were identified as meeting all four operational definitions as old growth, upon further review of the area after the scoping notice was released, four more units were determined to exhibit old growth characteristics. The Preferred Alternative (Alternative 3) avoids harvesting any area identified as meeting all four operational criteria defining old growth in the R8 Guidance. We will favor retention of short-leaf pine in harvest units with short-leaf pine. This does not change the type of harvest treatment proposed but is identified in the silvicultural prescription for each unit.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): We believe that some of the stands proposed for timber harvest are listed in the FSVEG database as having stand ages greater than the minimum old growth age for their forest type.
Under the Southern Region's Old Growth guidance and the draft revised GW forest plan, this "possible old growth" needs to be surveyed in the field to determine whether it meets the criteria for existing old growth. If any existing old growth is found, we believe it should not be logged.

The revised GW forest plan describes "a network of old growth areas composed of both Possible and Future Old Growth. This network consists of a mix of large, medium, and small patches." Draft Revised Plan at B-1. Although a few patches of existing old growth have been identified on the GW, "[t]here has been no formal inventory of old growth done for the George Washington National Forest." *Id.* So the old growth network consists almost entirely of unverified possible and future old growth. The network of large, medium and small patches is intended to provide the ecological integrity of old-growth communities, representation of all old growth forest community types, distribution of these patches and types across the landscape, and connectivity between the old growth patches. Regional Guidance at 15-18; Draft Revised Forest Plan at 2-18 to 19.

At the project level, the Regional Guidance and the draft forest plan require stands or patches that may be existing old growth to be field surveyed to determine whether they meet the definitions of existing

old growth. Regional Guidance at 26; Draft Plan at 4-8. *See also* Draft Plan at 3-24 and Appendix B. The Regional Guidance sets forth criteria for existing old growth. However, old growth surveys can be complex and are quite different from the usual silvicultural stand exams. We would welcome an opportunity to discuss old growth criteria and survey methods further with the District to ensure that accurate surveys are conducted.

If existing old growth is found, most old growth community types are unsuitable for timber production. Draft Plan at 3-24. The Plan clearly does not envision any timber-related activities that would degrade old growth characteristics in these types.

In the two most common types, Dry-Mesic Oak Forest Type, and Dry & Dry-Mesic Oak- Pine Forest Type, the plan directs:

> any existing old growth, in areas suitable for timber production, will be evaluated during project analysis to determine its suitability for harvest. If, during project analysis, it can be demonstrated that an identified existing old growth patch does not contribute to the Forest old growth inventory, then the patch could be suitable for timber production and harvest of the patch could occur. The project analysis will include a discussion of the old growth characteristics found in the area, the effect of the action on these characteristics, and the effect the action will have on the contribution of the area to the Forest's old growth inventory. Draft Plan at 3-24. *See also* Draft Plan at B-2 to 4.

The Plan further explains:

> The Dry-Mesic Oak Forest and Dry & Dry-Mesic Oak-Pine Forest communities are well-represented in both Possible and Future Old Growth; however there are specific forest types within this broader community classification which are not well-represented. When evaluating newly discovered patches which meet the operational criteria for existing old growth in these community types, specific forest types should be considered separately for their contribution to the matrix of large, medium, and small old growth patches. Draft Plan at B-4 (emphasis added).[20]

If existing old growth is identified, the Regional Guidance will provide additional information and relevant factors for this project level analysis to consider, as well.

Given the rarity of old growth in the Southern Appalachians and the little existing old growth identified on the GW, we firmly believe that any existing old growth should be protected and not logged. This seems particularly necessary given that the GW has no forest-wide, field- verified existing old growth inventory. So piecemeal, project-by-project surveys are presently the only means for identifying existing old growth on the forest. The precise amount of existing old growth and its patch size, quality, forest type representation and distribution are all unknown. The CISC and FSVEG databases are often unreliable, especially for the oldest stands, and often assigned stand ages don't capture all-aged old growth conditions very well. While some possible or future old growth patches are located in Wilderness or inventoried roadless areas where their long-term management for old growth conditions can be assured, other patches are located in forest plan prescriptions reconsidered every 10-15 years – not a useful timescale for protecting old forests. So it seems particularly appropriate to protect any existing old growth that is identified. Conversely, logging existing old growth based on unverified assumptions about its existence elsewhere would seem to run contrary to the evidence before the agency regarding the significance and rarity of old growth conditions and would be very difficult to justify, especially without an EIS.

Agency Response: All stands proposed for harvesting were analyzed per Forest Plan direction and using the Region 8 guidance for inventorying old growth. A field review was conducted for old growth in all mature stands proposed for harvest in this project. The field review specifically looked at the four criteria set forth in the regional guidance: 1) minimum age of the oldest age class, 2) disturbance criteria, 3) minimum basal area, and 4) diameter at breast height of the largest trees. While several stands were identified as meeting all four operational definitions as old growth, upon further review of the area after the scoping notice was released, four more units were determined to exhibit old growth characteristics. The Preferred Alternative (Alternative 3) avoids harvesting any area identified as meeting all four operational criteria defining old growth in the R8 Guidance.

Comment (Stakeholders of the GWNF): We recognize the wide array of wildlife, recreational, research, and cultural values of old growth. With over 63,700 acres (82%) of national forest lands within the project area being greater than 80 years old (Workshop Handout May 20, 2013; FSVeg query), there should be ample opportunity to conserve a well- distributed network of small, medium and large old growth patches (Draft Plan 2-18, 3-24) while also managing for a diversity of other age and structural conditions across the landscape. From a brief review of FSVeg (formerly CISC) stand age data, we think the District has generally done a good job avoiding possible old growth in their proposed harvest units, although some stands will need to be surveyed in the field, per the direction in the Region 8 guidance (USDA 1997) and the Draft Plan (2-18, 4- 8). However, to clearly show the distinction between areas available for active management and areas of current or future old growth, we suggest the agency map an old growth network in the project area using the Region 8 guidance. Large patches of the network should be readily identifiable from management areas unsuitable for timber harvesting such as wilderness, wilderness study areas, special biological areas, and remote backcountry.

Agency Response: An alternative was considered that would provide an expansive network of old growth/potential old growth areas within the Lower Cowpasture project area see Draft EA page 40.

Non-native Invasive Species

Comment (Dick Artley): You indicate you will be applying glyphosate to non-native invasive plant (NNIP) on approximately 1,400 acres. All (emphasis added) independent, unbiased research on glyphosate safety since 2008 indicate glyphosate is a potent carcinogen. Please add and cite the 87 other research conclusion papers authored by scientist not connected with the USFS in the Research section of your draft.

Agency Response: All non-native invasive plant species control projects listed in the Lower Cowpasture Restoration and Management Project are part of the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project. The decision to treat non-native invasive species is covered under the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project EA and Decision Notice.

Comment (Bill Hardbarger): The ester formulation from the use of Triclopyr for eliminating non-native plants really concerns me in areas along streams feeding the Cowpasture River and its watershed and other methods should be used whenever possible.

Agency Response: All non-native invasive plant species control projects listed in the Lower Cowpasture Restoration and Management Project are part of the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project. The decision to treat non-native invasive species is covered under the George Washington and Jefferson National Forest Forest-Wide Non-Native

Invasive Plant Control Project EA and Decision Notice. Forestwide Standards FW-106 through FW-120 (Forest Plan pages 4-11 thru 4-12) also apply.

Comment (Doug and Debbie Albrecht): Non-native Invasive Species - in favor of these proposed activities.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center): The scoping notice proposes to treat invasive plants on about 1,680 acres (280 acres of roads and sites in the Mares Run and Walton Tract areas, as well as on up to 1,400 acres post-logging). NNIS control is critically important, especially given that NNIS expansion in this project area by colonizing thinned or logged areas and access roads would undermine the goals of this project. The EA should disclose and evaluate the success of previous post-logging NNIS treatments on the GW and include specific measures to ensure NNIS control for this project is implemented and effective. The EA also could build in flexibility to treat additional NNIS discovered during implementation.

Agency Response: The Forest Service has identified the control of invasive species as a key objective in meeting the goal of restoring, sustaining and enhancing the nation's forests and grasslands. Given the current distribution of non-native invasive plant (NNIP) infestation sites on the George Washington and Jefferson National Forests, a comprehensive and integrated program of NNIP control to protect the integrity of natural plant communities was developed. The decision and environmental impacts of treating non-native invasive plants is covered under the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project Environmental Assessment (NNIP EA) and Decision Notice and Finding of No Significant Impact (DNFONSI) dated December 14, 2010. Prioritization and treatment of NNIP within the Lower Cowpasture project area will adhere to the NNIP EA and DNFONSI and the Forest Plan. Project monitoring requirements are also outlined NNIP EA and DNFONSI. All applicable Forestwide and Management Prescription Specific Forest Plan standards will also be followed.

Comment (Marek Smith, The Nature Conservancy): We appreciate the increased specificity in the Scoping Notice indicating non-native invasive species (NNIS) treatment locations in the Mares Run Vegetation Management Area and in the Walton Tract, both areas suggested by stakeholders. Given the acknowledged resource and time limitations of agency staff, a clear prioritization system for treatments and control methods is critical for the roadside areas and the additional uninventoried areas across the project area that contain infestations of NNIS. We recommend development of a decision tree, perhaps collaborately with stakeholders, to determine the most important areas and species to treat. We also suggest analyzing NNIS treatments through an adaptive NEPA process that allows early detection, rapid response methodologies and a change in tactics should monitoring results indicate pre-treatments prior to vegetation management or fire management activities are warranted.

Agency Response: Given the current distribution of non-native invasive plant (NNIP) infestation sites on the George Washington and Jefferson National Forests, a comprehensive and integrated program of NNIP control to protect the integrity of natural plant communities was developed. The decision and environmental impacts of treating non-native invasive plants is covered under the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project Environmental Assessment (NNIP EA) and Decision Notice and Finding of No Significant Impact (DNFONSI) dated December 14, 2010. Prioritization and treatment of NNIP within the Lower Cowpasture project area will adhere to the NNIP EA and DNFONSI and the Forest Plan. Project monitoring requirements are also outlined NNIP EA and DNFONSI. All applicable Forestwide and Management Prescription Specific Forest Plan standards will also be followed.

Comment (Jay C. Jefferies, VDGIF): We are in full agreement on the need to control invasive species. The use of appropriate herbicides is a viable management tool.

Agency Response: Thank you for your comment.

Comment (Stakeholders of the GWNF): We strongly support a comprehensive approach to non-native invasive species (NNIS) management, including: 1) prevention of new infestations, 2) elimination of new infestations before they become established, 3) containment or reduction of established infestations, and 4) reclamation of native habitats and ecosystems (Draft Plan, p.3-11). Integrated pest management, comprehensive monitoring, partnerships, and educational strategies will be necessary to address what we all recognize as one of the greatest threats to biodiversity. We are pleased to see invasive plant management activities included for this project area, but are not sure what areas and species the proposed treatments are specifically targeting? We suggest the District prioritize treatments in recent harvest units, such as the Mare Run Vegetation Project where we have noticed a significant tree of heaven infestation, and in areas within or adjacent to proposed harvest units. Additional recommendations include:

- Focus additional treatments on trails, roads, and special biological areas; one particular area of focus should be the Japanese barberry infestation expanding from Douthat State Park.
- Utilize volunteers to conduct inventories in wilderness, wilderness study areas, and other more remote areas of the project area.
- Implement a Don't Move Firewood campaign in cooperation with Douthat State Park, which strongly discourages bringing firewood into the Park to help prevent the spread of emerald ash borer, thousand cankers disease, and other invasive pests and pathogens. Although the dispersed nature of primitive camping within the national forest makes enforcement difficult, an educational campaign could still help reduce the risk of infestation.
- Continue to evaluate options for piloting an American chestnut restoration program in the project area.
- Evaluate areas where old(er) growth Eastern hemlock may not have been affected by hemlock wooly adelgid and/or develop a pilot program for future prevention in areas that have already been impacted within the project area.

Agency Response: The Forest Service has identified the control of invasive species as a key objective in meeting the goal of restoring, sustaining and enhancing the nation's forests and grasslands. Given the current distribution of non-native invasive plant (NNIP) infestation sites on the George Washington and Jefferson National Forests, a comprehensive and integrated program of NNIP control to protect the integrity of natural plant communities was developed. The decision and environmental impacts of treating non-native invasive plants is covered under the George Washington and Jefferson National Forest Forest-Wide Non-Native Invasive Plant Control Project Environmental Assessment (NNIP EA) and Decision Notice and Finding of No Significant Impact (DNFONSI) dated December 14, 2010. Prioritization and treatment of NNIP within the Lower Cowpasture project area will adhere to the NNIP EA and DNFONSI and the Forest Plan. Project monitoring requirements are also outlined NNIP EA and DNFONSI. All applicable Forestwide and Management Prescription Specific Forest Plan standards will also be followed. Alternatives 2 & 3 include chestnut planting activities. Hemlock and American chestnut restoration alternatives were also considered see Draft EA page 39.

Roads/Transportation

Comment (Dick Artley): The aquatic resource simply cannot deal with the massive amount of sediment originating from new temp road. Please be willing to accept a reduction in volume and build no new temporary road.

Agency Response: A no new temporary road alternative was considered. See Draft EA page 39. The effects to soils, riparian areas, water quality, water quantity and aquatics begin on page 56.

Comment (Ernie Reed, Wild Virginia and, Heartwood): The project proposes not a single foot of road closures. Note that the 19 miles of unauthorized road mentioned in the project area are not part of the roads inventory and don't even exist as parts of your roads analysis, despite the fact that their use impacts the forest. These should be totally restored and obliterated and restricted from access while the restoration is taking place. This should be done as benignly as possible.

Agency Response: Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified National Forest System roads that were no longer needed within the project area. IDT team recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195.

Comment (Ernie Reed, Wild Virginia and Heartwood): To identify the minimum road system necessary to meet forest objectives, a Travel Analysis Policy (TAP) Report was produced for the George Washington National Forest in 2011. Neither of these are referenced, noted, acknowledged or implemented in this project. They have been arbitrarily and capriciously ignored.

Agency Response: See previous response for more information.

Comment (Ernie Reed, Wild Virginia and Heartwood): Roads are also a significant source of sedimentation, particularly when they are not adequately maintained. In the mountain regions of Virginia, excess sediment is a grave threat to water quality and aquatic species. As a recent Environmental Assessment for a proposed timber sale and prescribed burn on the GWNF explains, "On National Forest System land, sedimentation is the primary factor in water quality degradation. Sedimentation may be introduced into stream channels from soil disturbing activities such as timber harvesting and road construction." (USDA FS, 2007)

Agency Response: Soils, water quality and aquatics are discussed beginning on page 56 of the Draft EA.

Comment (Ernie Reed, Wild Virginia and Heartwood): Road decommissionings should strike a balance between maximizing ecological and hydrological benefits while minimizing costs. At minimum, all decommissionings should include blocking entrances, removal of culverts, manual removal of invasive vegetation, establishing drainageways and installing waterbars.

In order to maximize recreational access and connectivity, we recommend that all decommissionings should be considered either as additions to the existing trail system or as "unauthorized" (unmaintained) trails.

Roads considered for closure and decommissioning within the project area should include, but in no way be limited to FS462 (Coffee Pot Barrens), FS336 (McGraw Hollow), FS328D, FS6008/125A (Brown Hollow), FS 125F (Piney Branch), FS364 IMare Run), FS1901 (between TR465 and TR620), FS1745 (Porter Hollow), FS337, FS365/243(west of Clifton Forge) and FS362 (Mill Mountain).

In our earlier comments, we recommended that the Lower Cowpasture Project include an aggressive program of road closures and decommissionings for all unnecessary roads, with a priority on those with the most severe hydrological problems and those in or adjacent to existing roadless, potential wilderness, research natural or special biological areas. It is troubling that no road closures have been recommended as part of the project.

Agency Response: A road decommissioning alternative was considered see Draft EA page 40. Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified NFS roads that were no longer needed within the project area. IDT recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195.

Comment (Ernie Reed, Wild Virginia and Heartwood): The road construction to access LK 14 follows the south bank of Porters Mill Creek. LK 11, 12 and 13 contain temporary road construction and they lie adjacent to Porters Mill Creek. This road construction has the potential to severely impact the quality of Porters Mill Creek. LK 2 road construction crosses Little Wilson Creek. We request that these units and that accompanying road construction be dropped from the project.

Agency Response: Impacts to water quality are disclosed beginning on page 81 of the Draft EA.

Comment (Doug and Debbie Albrecht): Transportation - support listed road maintenance, blocking of unauthorized roads on FS land, but trust plans to decommission will first seek additional public input of roads being considered for closure.

Agency Response: Alternative 3 does propose decommissioning 0.9 miles of FSR 125S (Lick Block) this road is currently closed to the public year round.

Comment (Sherman Bamford, Sierra Club): To what extent will road upgrades be made and how will these impact watersheds, soils, and the remote recreation experience of inventoried roadless areas and potential wilderness areas? Will road upgrades have an adverse impact in any particular areas? For example, Rt. 361 is a fairly narrow road. Some portions of it are no more than an old woods road. There are several logging units planned along (or near) this old road. Will the character of Rt. 361 be substantially changed and how will this impact watersheds, soils, and the Beards Mountain area?

Likewise, Rt. 1901 off of Rt. 194 is another narrow route with a (currently) small footprint – for the most part. There is also a blazed trail that coincides with this route. Proposed cutting units LK-42, 04, and 41 are along this route. How will the route/trail be upgraded? Will the character of the route be substantially changed? How will this impact watersheds, soils, and the Little Mare Mountain area?

Agency Response: The Draft EA discloses the effects of implementing the proposed activities on the various resources beginning on page 44. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): The list of potential project activities includes decommissioning roads, blocking unauthorized roads, treating NNIS along roads and in the Walton Tract, and culvert replacements or removals. Request for Input at 2-3. Addressing NNIS, improving aquatic passage, and reducing road density (which often reduces

cumulative erosion and sedimentation effects, as well as other impacts of roads) would all be positive ecological restoration activities. We are glad to see that no permanent, system road construction has been proposed for this project.

Agency Response: Thank you for your comment.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): For the GW plan revision, the Forest Service conducted a Travel Analysis Process (TAP). The forest-wide TAP was intended to implement the Forest Service rule that each national forest must use a science-based roads analysis to identify the forest's "minimum road system" which is economically and environmentally sustainable. While we have some concerns about whether the TAP went far enough in identifying a road system that can be adequately maintained within realistic budgets and in addressing the highest sediment risk roads (as discussed in our comments on the draft plan), the District certainly should consider the TAP in developing and analyzing this project. At a minimum, the project should be consistent with the findings of the TAP. We assume that the possible road decommissioning in this project would implement TAP recommendations. The District may wish to further consider whether other roads in the project area have low need but high environmental impact and should be considered for decommissioning or other uses, such as non-motorized trails. The District also should be careful not to use decommissioned roads or roads being considered for decommissioning as access roads for this project without acknowledging that and considering its implications for the effort to "right size" the road system.

Agency Response: Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified National Forest System roads that were no longer needed within the project area. IDT team recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195.

Comment (Steven Krichbaum): We recommend that the Lower Cowpasture Project implement an aggressive program of road closures and decommissionings for all unnecessary roads, with a priority on those with the most severe hydrological problems and those in or adjacent to existing roadless, potential Wilderness, VMTs, special biological areas (existing and proposed), or old growth tracts.

There are opportunities for decommissioning, closing, and revegetating roads in Virginia Mountain Treasures and Potential Wilderness Areas. We recommended various roads to the USFS in the 2010 Conservation Alternative (previously submitted to the FS); somehow this concern apparently did not make it to the District planners for this project:
"Some suggested candidate road segments to be evaluated for decommissioning, closure, recontouring, revegetating, and conversion to non-motorized trails (road numbers from 1993 GW Plan maps):
". . .
In Short Mountain MT (WSRD) the Lick Run road
In Mill Mountain MT (JR and WSRDs) FSRs 362 and 1923
In Beards Mountain MT (JR and WSRDs) FSR 361, 361C, 361E"

Agency Response: A road decommissioning alternative was considered see Draft EA page 40. Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road

system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified NFS roads that were no longer needed within the project area. IDT recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195.

Comment (Steven Krichbaum): The impacts of roads and their associated edge effects upon habitat loss, habitat degradation, habitat fragmentation, and forest fragmentation must be fully considered, disclosed, analysed, and evaluated. The extent and degree to which roads serve to act as barriers, alter the permeability of the landscape, and reduce accessible habitat must be fully considered, disclosed, analysed, and evaluated. See, *e.g.,* Eigenbrod, F. *et al*. 2008. The degree of the barrier effect of roads and associated habitat loss of course varies with the species and the type of road and the volume of traffic. "However, even minor roads may be a major barrier to movement for some species, such as salamanders (deMaynadier and Hunter 2000), invertebrates (Mader 1984), small mammals (Swihart and Slade 1984), and some snakes (Shine et al. 2004), due to the behavioral response of these species to the road surface." (*id*.) Even small unpaved forest roads can negatively affect salamander distribution, see, *e.g*., Marsh, D. M. 2007 and Semlitsch, R.D. *et al*. 2007.

"I took soil samples along transects leading away from the edges of unpaved roads in the Cherokee National Forest in the Southern Appalachian mountains of the United States. Roads significantly depressed both the abundance and the richness of the macroinvertebrate soil fauna. Roads also significantly reduced the depth of the leaf-litter layer. These effects persisted up to 100 m into the forest." (emphasis added) (Haskell, D.G. 2000)

Although there are various ways to examine it, at the least a meaningful effort must be made by the FS planners to in some way identify, quantify, measure, analyse, map, and disclose the road effect zone on the project area. Perhaps use 100 meters from both sides of all the roads on the Forest and evaluate the amount and distribution of this pattern. See Forman, R. T. T. 2000, Riitters, K. *et al*. 2004, and Reed, R. A. *et al*. 1996. However, analysis of a range of zones should perhaps be performed as a 100-meter effect zone is extremely conservative; see, *e.g*., 800 meters as regards Black Bears in Rudis & Tansey 1995 and Reynolds-Hogland & Mitchell 2007.

Agency Response: An analysis of biodiversity and fragmentation is more appropriately handled at the Forest Plan level rather than at the individual project-level, as it is extremely important that forest managers take a broad-scale perspective toward managing for diversity across the landscape, not maximum diversity on each acre of the forest. This broad scale analysis was completed in the Forest Plan and its accompanied FEIS. When looking at biodiversity for this project-area, only a rudimentary effects approach for flora and fauna can be taken and generally the approach would be to maintain existing vegetative species diversity to ensure viable populations of native flora and fauna. The Draft EA discloses the impacts of implementing the no action and action alternatives on wildlife and aquatic organisms beginning on page 121. This analysis is sufficient for the responsible official to make an informed decision in regards to this project.

Climate Change

Comment (Ernie Reed, Wild Virginia and Heartwood):

Climate Change is one of the most serious environmental, social, and economic threats the world is facing today. It is a significant issue and is to be considered a significant issue in all federal actions, including the Lower Cowpasture Project.

We request that the Lower Cowpasture Project NEPA analysis address carbon and climate effects in this project. In addition, the project analysis should acknowledge the effects that the no action alternative has on maintaining and increasing the ability of the project area to mitigate climate change currently and over time.

Agency Response: Issues used to formulate alternatives to the proposed action are discussed in the Draft EA beginning on page 27. The Draft EA also discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on climate change beginning on page 88. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Biomass

Comment (Sarah A. Francisco, Southern Environmental Law Center): We continue to have concerns about beginning woody biomass removals for energy generation from the GW and other national forest lands. It is important to place sideboards on woody biomass removals from national forests, to protect national forest resources and values (soil and water quality; plant, fish, and wildlife diversity, etc.) and to avoid over-relying on national forests to meet biomass energy demands.

In our August comments, we suggested that woody biomass be drawn only from stands cut for TSI, thinning, or restoration. We believed this project offered several thousand acres of these opportunities, which we thought would be sufficient to meet some stakeholders' interests in biomass. Since then, however, we have been informed that most of this project's TSI is not economic or feasible for woody biomass removals. We also have discussed this issue further with other participants in the GW Stakeholder Group, as well as with agency staff. A possible framework for this project's woody biomass removals, which seems likely to gain acceptance among many stakeholders, has emerged.

In that light, we wish to amend our prior comments. For the purpose of this project only, without setting any precedent for future projects, and with certain conditions discussed further below, woody biomass removals in the following activities could be acceptable: TSI thinning (about 541 acres); thinning from below (about 80 acres); free thinning (about 180 acres); hardwood restoration (about 260 acres); and a relatively small portion of the regeneration timber harvest (perhaps 25% or about 250 acres).

The draft environmental assessment (EA) should explain how woody biomass removals would be conducted, including explaining precisely the type and amount of woody material that could be removed and the type and amount that must be retained. The EA also should consider the impact of equipment access and operation (e.g., the size and location of access roads and log landings for biomass removal sites) and ensure that biomass removal does not substantially increase the amount of ground disturbance.

It is critical that the EA commit that the project will follow Forest Guild guidelines. See Forest Guild Southeast Biomass Working Group, Forest Biomass Retention and Harvesting Guidelines for the Southeast (Feb. 2012). We understand that, per these Guidelines, the GW intends to require that at least 30% of each stand's logging slash be retained on site, with more retained on poorer sites. The EA should analyze the stands considered for biomass removals based on the Guidelines' criteria (e.g., soil productivity and other characteristics, risk of acidification, intensity of harvest, etc.). See Guidelines at 5-6. The EA also should consider other relevant factors, such as impacts of biomass removals on water resources, amphibians, and small mammals. See USDA-FS, Northern Research Station, Michael R. Vanderberg, et al., Evaluating Forest Biomass Utilization in the Appalachians: A Review of Potential Impacts and Guidelines for Management, GTR NRS-106 (2012). Based on this analysis, the EA should

explain whether and what proportion of woody biomass may be removed from these stands. It may be necessary to retain more than 30% of the slash on some sites, based on these factors.

Equally critical, biomass removals from more intensive harvest sites, such as the regeneration units, should be allowed only if this project includes a meaningful study comparing the effects in logging units where biomass was removed and where it was not. The study's design (e.g., geographic scope, number/type of stands included, timeframe, effects to be studied, participants, etc.) should be further considered and explored with project participants as part of this project's public process. Logical partners would include the Forest Service's southern and/or northern research stations and nearby universities. While effects on soil nutrients and productivity for tree growth obviously would be a key focus of such a study, we hope participants could include forest ecologists or similar scientists and effects on other elements of the forest ecosystem (e.g., water and wildlife) could be considered as well.

Overall, any woody biomass removal in this project, especially in the more intensive regeneration harvests, should be viewed as a pilot or test project which would be carefully defined, monitored, studied, evaluated, and used to inform the consideration of any future proposals for woody biomass removal on the GW. Of course we recognize that many effects of woody biomass removals are likely to be long-term and cumulative in nature and, therefore, cannot quickly inform future projects. However, it seems sensible to begin such a study now and to use its results as they become available to inform GW management.

Agency Response: The revised Forest Plan was released in November 2014 and the plan does allow for the removal of biomass from NFS lands on the George Washington National Forest. Forest Plan standards are incorporated into the project. Proposed allowable biomass removal for the preferred alternative (Alternative 3) is disclosed in the Draft EA beginning on page 30 along with project specific guidelines for biomass removal. The Draft EA also discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources beginning on page 44. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): We understand that the Stakeholder Group has proposed that some of the normally non- commercial TSI and thinning might be done commercially if cut trees could be removed for woody biomass energy production. While we believe national forests generally are not appropriate sources of woody biomass for a number of reasons, including the effects of whole tree harvesting, it may be acceptable in certain limited circumstances, on a case by case basis with the necessary sideboards.

As a starting point, the draft revised forest plan provides:

"We do not envision the production of biomass to be a sole purpose and need of any commercial timber sale. However, we do believe that biomass fuels markets will enable cost-effective removal of wood where it achieves a desired objective (e.g. fuels reduction or thinning in young stands). When such activities occur, whole tree harvesting will be avoided on soils identified as high risk for soil acidification and nutrient depletion due to atmospheric deposition."
Draft Plan, pp. 3-22 to -23.

Further, any woody biomass removals for this project should be consistent with the Forest Guild's guidelines, *Forest Biomass Retention and Harvesting Guidelines for the Southeast*, by the Forest Guild Southeast Biomass Working Group (Feb. 2012) (attached).

For purposes of this project only, allowing biomass sales of relatively young or small- diameter trees cut for thinning or TSI, if consistent with the revised plan and the Guild's guidelines, could be acceptable, especially if allowing the biomass sale makes it financially possible for the agency to conduct sound restoration that has a net ecological benefit.

Agency Response: Please see previous comment and response.

Comment (Ernie Reed, Wild Virginia and Heartwood): Logging the Lower Cowpasture Project area for purposes of biomass incineration and energy generation is a contentious issue. We are aware that WestVaco has put on line a 85MW biomass incinerator that will power its Covington operations. The Covington mill and plant has for years been the single largest user of power from Dominion Power. The Lower Cowpasture Project has been considered a source of trees and wood fiber to fuel these operations. Commonwealth transportation credits also make possible the logging in the Lower Cowpasture Project for energy fuel markets and Dominion Power biomass burners in central and eastern Virginia.

It needs to be noted that the current Land and Resource Management Plan makes no mention timber as an energy resource. There is no reference to the extraction, removal or use of timber resources to be used as energy.

Any environmental analysis of this project must include both the effects of biomass removal (see above) and the effects of its use, since this is a single-use resource. The environmental effects of particulates (China 2013), carbon emmissions (Endres 2012, Hudiburg 2011, Jacobson 2014, Schulze 2012, Springsteen 2014) and water use should be analyzed.

We maintain that the use of timber and vegetation management resources for use in energy generation is an incompatible use of forest resources that is not suffieicntly addressed in the proposed plan amendment.

Agency Response: Please see previous response.

Comment (Jeremy Boggs, Virginia Wilderness Committee): Biomass- It has been suggested that biomass production in the project area be increased from the level proposed in the Scoping Notice. The scoping notice proposed a plan amendment supporting 541 acres of small diameter woody biomass removal. This issue has proven to be contentious. Ongoing discussion between you and your staff and members of the stakeholder collaborative has resulted in the framework for an agreement on the biomass issue. This framework includes 541 acres of biomass derived from TSI, 269 acres from hardwood restoration, 83 acres from thinning from below, and 180 acres from free thinning: Additionally, the framework includes approximately 250 acres of woody biomass derived from regeneration and shelterwood harvests.

The VWC is willing to support wood biomass removal throughout the project area with the following conditions. First, biomass removal should follow guidelines established by the Forest Guild and/or guidelines established in the draft management plan for the GWNF. Second, it should be recognized that the woody biomass removal on this project area does not set a precedent for other project areas. Each project area is unique in its own right and what is acceptable in one location may not be acceptable in another. Third, a pilot study in the project area should be conducted on the impacts of woody biomass removal to increase the agency's and general public's understanding of the impacts of woody biomass removal on soils. The VWC would be interested in sitting as a participant in the development of the study.

Agency Response: Please see previous response.

Comment (Malcom Cameron): Regarding biomass, I am concerned about the announcement at the July 21 meeting that biomass removal would go far beyond the 541 acres mentioned in the Scoping Notice and that there would be potential to harvest up to 70% of biomass for any timber sale. That is a significant difference and one that I do not support. I am concerned that removal of biomass will result in long-term effects on the health of the forest. Specifically, the soils will not be replenished by nutrients and organic matter, and this will result in the reduction of net primary productivity. We are hoping these timber stands can be harvested in a sustainable way for centuries to come, and protecting the soil is critical. Large scale biomass removal will also increase runoff and result in nutrients leaving the local watersheds, and the soil will dry out and be more susceptible to erosion. The slash left behind is critical for wildlife cover and food. Removal of slash would result in a negative impact on the whole food chain and possibly some sensitive species. I feel that caution is the best approach when it comes to removal of biomass. Our national forest is still recovering from the extensive deforestaion that culminated about 90 years ago. Soils can take centuries to recover from this type of abuse. We should always remember that today's slash provides the nutrients for tomorrow's young forests.

Agency Response: The revised Forest Plan was released in November 2014 and the plan does allow for the removal of biomass from NFS lands on the George Washington National Forest. Forest Plan standards are incorporated into the project. Proposed allowable biomass removal for the preferred alternative (Alternative 3) is disclosed in the Draft EA beginning on page 30 along with project specific guidelines for biomass removal. The Draft EA also discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including water quality, water quantity, soils, wildlife, and aquatic organisms beginning on page 56. This analysis is sufficient for the responsible official to make an informed decision in regards to the project.

Comment (Marek Smith, The Nature Conservancy): On page 8 of the Scoping Notice, you recommend an amendment to the 1993 Plan that would allow for removal of small diameter woody biomass. We support that amendment, but would recommend that it extend to not only the proposed 541 acres of commercial timber stand improvements, but also the hardwood restoration (currently 259 acres), the thinning from below (currently 83 acres) and the free thinning (currently 163 acres) treatments. From our discussions in the field, it has been suggested that without the utilization of small diameter woody biomass, these important restoration treatments would be less financially viable.

Agency Response: The preferred alternative (Alternative 3) allows biomass removal from the commercial timber stand improvements, hardwood restoration, thinnings from below, free thinnings, and from up to 25% of regeneration harvest units. The Draft EA provides more detail on removal of biomass proposed by Alternative 3 beginning on page 30.

Monitoring and Adaptive Management

Comment (Ernie Reed, Wild Virginia and Heartwood): The project needs to include commitments to monitoring of progress and projected outcomes. Historically, projects in the GWNF were not monitored to assess to what degree the projects were successful in achieving their objectives, purpose and need. This is a question of both cost and will. The GWNF lacks both the funding to do the monitoring and the will to allocate scant financial resources to projects after they have been completed.

We have great concern that many aspects of the Lower Cowpasture Project will not meet restoration objectives. The public and the agency need to know if they do in order to inform future projects. We submit that sufficient monitoring is critical to the success of any restoration project.

Changing environmental conditions, weather patterns, natural disturbance events and use patterns all have great potential to effect this project over a 10 year period. It is vital that environmental monitoring also note changing conditions that can effect the purpose and need of this project.

We suggest that the project include a clearly defined monitoring program for each of the projects umbrellaed under the Lower Cowpasture Project. Yearly and seasonal monitoring should continue throughout the duration of the project and extend for 5 years beyond in order to assess how well each project achieved its objectives, purpose and need.

Agency Response: Appendix C of the Draft EA discusses monitoring activities for the Lower Cowpasture project. Adaptive management and associated monitoring are also disclosed in the Draft EA beginning on page 37. Forest Plan monitoring activities will continue across the George Washington National Forest.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): It is essential that the EA describe and commit to a monitoring plan. Particularly given the large scale and long timeframe (10 years) of the project, monitoring is necessary to verify assumptions about results and impacts and to inform any adaptation needed over the life of the project. As stated above, this is the first project of its kind on the GW and it is important that the District checks along the way to ensure that the project works out as intended – and that the District can assure the public that such checks are in place.

We recommend that the EA explicitly discuss and commit to using an adaptive management approach for this project. The EA should describe the monitoring that will be used to determine whether the action is having its intended effects and should "clearly identify the adjustment(s) that may be made" when monitoring "indicates the action is not having its intended effect, or is causing unintended and undesirable effects." 36 C.F.R. § 220.7(b)(iv).

For monitoring, the EA should outline goals and quantifiable objectives for project activities and set forth a plan for monitoring their outcomes to measure whether and to what extent they were met. For example, for commercial or non-commercial timber harvest, there should be specific objectives for desired forest structure and species composition and those elements should be monitored. In another example, erosion and sediment control BMPs should have implementation and effectiveness monitoring.

Particularly if the Forest Service intends to prepare an EA for this project (not an Environmental Impact Statement (EIS)) and to rely on mitigation measures to support a Finding Of No Significant Impact (FONSI), then the agency will need to support that finding with evidence that monitoring will determine whether those measures are effective and that the agency has a plan in the event they are not.

Once monitoring information is collected, it should be evaluated and any needs for change considered. This could be done by setting up a schedule of periodic reviews of various aspects and phases of the project. For example, the timber-related work is proposed in four areas (Lime Kiln, Beards Mountain, McGraw Hollow, and Sandy Springs) and more sites may be added. So we assume the District would implement this project through a series of four or (probably) more separate timber sales and contracts over 10 years. When preparing each phase of work, monitoring results from earlier phases could be evaluated and any needs to adapt considered. The District also should commit to continued collaboration with project participants throughout implementation, for example, sharing monitoring results and considering any needs for adaptation with project participants. In another example, we recommend that the Distinct commit to inviting project participants to visit the harvest units during and/or after sale layout and marking and prior to sale advertisement to see and discuss the units.

Agency Response: Please see previous response.

Comment (Marek Smith, The Nature Conservancy): We will not elaborate further here, but simply refer to our previous comments suggesting the District consider piloting a multi-party monitoring program for ecological, social and economic factors which could be modeled after such programs being used as part of the Collaborative Forest Landscape Restoration Program. Monitoring could be coordinated with other groups and utilized in periodic reviews of the project, as well as adaptive management mechanisms that are evaluated through the NEPA analysis.

Agency Response: Adaptive management for the Lower Cowpasture is identified in the draft EA beginning on page 37. Additional monitoring activities for the project are disclosed in Appendix C.

Comment (Stakeholders of the GWNF): As mentioned throughout these comments, we believe an effective monitoring program is just as important to the success of the project as the restoration and management actions themselves. We support the continued use of forest structure and composition monitoring for fire effects and the development of a similar program for timber harvesting. We also recommend the District consider piloting a multi-party monitoring program for ecological, social, and economic factors which could be modeled after such programs being used as part of the Collaborative Forest Landscape Restoration Program. Monitoring need not be implemented by agency staff alone and could be coordinated with other groups, much like the fire effects monitoring is conducted in partnership with The Nature Conservancy.

We also recommend the District consider periodic reviews of various aspects and phases of the project, or at minimum a 5-year review of the overall project. Such reviews may allow the District to modify some activities if results are not being achieved or if circumstances change, but appropriate adaptive management mechanisms (such as triggers; Nie and Shultz 2011) would need to be built into the NEPA analysis. At a minimum, these reviews provide a means to update the public on the status of aspects of the project.

Agency Response: Adaptive management and monitoring are discussed in the Draft EA beginning on page 37. In addition to Forest Plan monitoring, project specific monitoring is identified in Appendix C of the Draft EA. Due to the collaborative nature of the project development, we envision conducting monitoring trips with the public prior to, and throughout implementation of the activities within the Lower Cowpasture project.

Eastern Brook Trout

Comment (Ernie Reed, Wild Virginia and Heartwood): The project fails to address Eastern Brook Trout restoration. Wild Virginia and Heartwood first raised this issue at the May 19, 2014 public meeting.

Wilson Creek, Smith Creek and Simpson Creek are listed by the Virginia Department of Game and Inland Fisheries as Wild Trout Waters. Each of these wild trout streams are in the project area fisheries stand to be significantly degraded by proposed actions.

Many of the Lime Kiln and Sandy Springs harvest units occur in the Wilson Creek watershed. Up to 7 miles of temporary road construction are proposed. Numerous TSI areas are proposed in the Wilson Creek Watershed as well.

Numerous Sandy Springs harvest units and TSI areas line the western Smith Creek watershed. TSI units also occur on the relatively steep east side.

The Craft Road Harvest units and at least one TSI area all occur in the Simpson Creek Watershed.

It is difficult to fathom why these are proposed as part of a "restoration" project when all have the potential to negatively impact native trout populations.

The resulting sediment load to the streams and the rise in water temperatures as a result of timber activity, road building, canopy removal and removal of down woody debris will combine to negatively impact native trout populations.

Wild Virginia recommends that these actions be cancelled and that these areas be designated as management exclusion zones for the restoration of Eastern Brook Trout.

Conserving the Eastern Brook Trout: Action Strategies, prepared by the Conservation Strategy/Habitat Work Group, Eastern Brook Trout Joint Venture, January 2011 notes that

Brook trout Salvelinus fontinalis are a recreationally and culturally important species, regional icon, and indicator of high water quality. Biologists have long known that brook trout populations are declining across their historic eastern United States range, which spans from Maine to Georgia. For purposes of this document, a population of brook trout is defined as a group of individuals that are reproductively isolated from other groups. In recognition of this trend of long-term decline and continued vulnerability, representatives from over 50 state and federal fish and wildlife management agencies, nongovernmental organizations, and academic institutions met in June 2004 to discuss the opportunity for a collaborative approach to the conservation of brook trout in the eastern United States. In addition to identifying threats to brook trout across their historic range, it was the group's consensus there was an opportunity to form an Eastern Brook Trout Joint Venture (EBTJV). A collaborative approach to brook trout management is justified because (1) brook trout are declining across their entire eastern range; (2) causes for these declines are similar; (3) an integrated approach would be cost effective; and, (4) watersheds of concern span state borders and state and federal jurisdictions.

Goals and strategies of the EBTJV include

Work closely with state and federal permitting agencies to avoid or minimize potential impact to brook trout habitat or water quality.

Develop a comprehensive management plan to protect the genetic integrity of remaining southern Appalachian brook trout populations and restore populations where appropriate.

Develop a list of potential projects based on brook trout distribution data, land ownership, likelihood for success and angler access.

Use the state's restoration biologists to develop natural stream designs for habitat restoration projects.

Use historic brook trout distribution information, current land use data, water quality data and location of spring sources to develop a list of streams that could be restored with a high potential likelihood for success.

Maximize fishing opportunity through regulation:
Monitor populations to determine if angling pressure is adversely impacting brook trout populations
Insure optimum populations of brook trout are available for anglers through the appropriate use of size, creel and gear restrictions.

Conduct periodic creel surveys on selected brook trout waters to determine angler use, harvest, and preferences.

We fail to see any reason why the Lower Cowpasture Restoration Project should not present an important opportunity to implement these goals and strategies. There are ecological and recreational opportunities for the Lower Cowpasture Watershed that are not being considered. They should be.

At the very least, management activities should be prioritized that benefit native brook trout populations and those that hamper, hinder or negatively impact existing populations should be removed from consideration.

Increasing the population of eastern brook trout, restoring them to areas within their historical range and actively monitoring their populations and range should be goals of the Lower Cowpasture Restoration Project.

Agency Response: The purpose and need for the project includes the desired condition of the project area and is outlined in Chapter 1 of the EA. Large wood placement is specifically designed to improve brook trout habitat and is incorporated into the preferred alternative (Alternative 3). Several of the streams within the project area are in the long-term monitoring program for the Virginia Trout Stream Sensitivity Study, started in 1987, and include Blue Suck, Mare Run, Panther Run, Porters Mill Creek, and North Branch Simpson Creek. These streams will continue to be monitored. Chapter 3 of the Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including water quality, water quantity, riparian areas, soils, and aquatic organisms. The Virginia Department of Game and Inland Fisheries Board of Game and Inland Fisheries is the policy-making entity responsible for conserving, protecting, replenishing, propagating and increasing the supply of game birds, game animals, fish and other wildlife of the Commonwealth of Virginia.

Trails/Recreation

Comment (Malcolm Cameron): I would like to see enough new trails to create some circuit hikes and adequate access for the public to enjoy Wilderness areas; however, the number of miles of new trail seems excessive given the amount of labor it takes to build trails and the absence of a strong volunteer program on the District.

Agency Response: After further field review of trails proposed in Alternative 2 by district personnel, it was determined that sections of the proposed trails did not meet the criteria of a sustainable trail. Thus, new trail segments were located to replace these sections. Under Alternative 3, the Forest Service would construct approximately 14 miles of National Forest System trails in the Pads Creek and Rich Hole areas.

Comment (Nelson Hoy, Cowpasture River Preservation Association): signage at the USFS Walton Tract is misleading and potentially engenders public safety risks and exposures for forest recreational users about to embark upon a 16-mile float by canoe, kayak or raft down the Cowpasture River. The Cowpasture River below the Walton Tract and above Simpson Creek is private property and the next “public” take-out point is 16 miles downstream. . . . In the past, the USFS signage at the upper Walton Tract boat access point stated in effect that the location was an "access" point. The USFS signage at the lower Walton Tract boat egress point stated in effect that the location was a "take-out" point. There may possibly have been a sign that informed recreational boaters that the lands downstream were "private". At this juncture, however, the USFS signage at the lower Walton Tract boat egress point states that the location is an "access" point. A canoeist, kayaker or rafter who crosses below the lower Walton

Tract egress point may unknowingly commit him- or herself to a 16 mile trip downstream to the next "public" take-out point and a 16 hour ordeal. . . . the GWNF should consider taking down the lower Walton Tract boat "access" sign and replacing it with a boat "take-out" sign. Also, future GWNF signage, narrative and/or maps on the Walton Tract should state that it is a 16-mile and 16-hour trip downstream to the next "public" take-out point with private property in between. Better signage would allow river users to make more informed and safe decisions.

Agency Response: The Warm Springs Ranger District is working with the Cowpasture River Preservation Association and Virginia Department of Game and Inland Fish to develop appropriate signage for the Cowpasture River access sites on the Walton Tract.

Comment (Doug and Debbie Albrecht): Recreation/Wilderness…All listed projects would be MUCH appreciated by back country FS users, and likely, with some publicity following improvements, increase usage by the public, including scouts, schools, church groups, clubs, and groups.

Agency Response: Thank you for your comment.

Comment (Bucky Wells): Before adding more wilderness to Rough Mountain, cut some pine timber and create wildlife plots. There is not enough food on the mountain to sustain a deer herd nor turkey nor squirrels. I have not seen a grouse on the mountain for years. To increase access to Rough Mountain, improve the old logging trail at the south end of Coffee Pot Road along route 42. The trail goes to the top of the mountain but is quite overgrown. Convince the railroad folks to stop harassing hunters from crossing the tracks at Pads Creek. In fact improve access across those tracks and improve Pads Creek Road from Copeland to Griffiths. Where the National Forest comes all the way down to route 42, create access roads to a point where it is wide enough to add a small parking lot. North end of Coffee Pot Road for example.

Agency Response: The Forest Plan allocates the Rough Mountain Addition area to Management Prescription (MP) 1B (Wilderness Study Area). These areas are classified as unsuitable for timber production (MP Standard 1B-005, Forest Plan p. 4-33), and expansion of existing openings and creation of new openings are not allowed (MP Standard 1B-002, Forest Plan p. 4-32). No opportunities were identified for access and potential trails in Rough Mountain Wilderness by Forest Service personnel when the area was reviewed. CSX owns the railroad and railroad corridor and public safety is an important to the company; harassment of hunters by CSX employees is outside the scope of this project and should be addressed with CSX.

Comment (Bill Hardbarger): Rich Hole/Rough Mountain Wilderness expansions are very logical and better define the Natural boundaries – we would like to see steep remote areas of beards mountain suggested for this designation.

Agency Response: The Forest Plan allocates NFS lands to Management Prescription Areas including Recommended Wilderness Study Areas (Management Prescription 1B). For this project, proposed amendments to the 1993 Forest Plan were based on the expectation the Revised Forest Plan was expected to identify two Recommended Wilderness Study Areas within the Lower Cowpasture project area, the Rough Mountain Addition and the Rich Hole Addition. The Revised Forest Plan was completed in November 2014 and allocated these two areas to Management Prescription 1B. Designating or allocating portions of Beards Mountain as a Recommended Wilderness Study Area is outside the scope of this project.

Comment (Jay C. Jefferies, VDGIF): We are in full agreement on proposed actions for trails maintenance and development.

Agency Response: Thank you for your comment.

Comment (Sherman Bamford, Sierra Club): We are pleased that the proposal includes new trail proposals in some areas, but how will existing trails, viewsheds, camping/picnic areas along trails, or the trail experience be impacted?

For example, how will Lasso Loop Trail (655), Little Mare Mountain (714), Salt Pond Ridge Trail (620), Brushy Ridge Trail (456), Middle Mtn-Fore Mtn (473), White Rock Tower (466), Beards Mtn Trail (459), Beards Mtn Spur Trail (459A) and other trails be impacted?

For example, there are a number of natural openings along Beards Mtn Trail/Beards Mtn Spur Trail that overlook the Beards Mountain portion of the project area. (See photos). The viewsheds of these and other trails may potentially be impacted by activities proposed in specific areas. How will negative impacts to trail viewsheds be eliminated?

The Douthat State Park is a vitally important regional recreation resource and receives a large number of visitors. How will viewsheds from access routes to the state park and from the network of trails to/from the state park be affected?

The Forest Service should confer with the Virginia Department of Conservation and Recreation regarding this project, including whether and how project activities may affect recreational uses of the Park and the surrounding area.

Agency Response: The impacts of no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including recreation and scenic quality are disclosed in the Draft EA beginning on page 181. This analysis is sufficient for the responsible official to make an informed decision in regards to this project.

Comment (Marek Smith, The Nature Conservancy): The proposed trail segments in the Pads Creek, Rich Hole and Douthat State Park areas are a welcome addition to the project's scope and will provide important opportunities for tourism and increased public visitation to the National Forest. We encourage careful consideration of the 17 miles of proposed trails in the Pads Creek and Rich Hole areas to determine the subset that serve to connect existing trails, provide loops of varying lengths and/or are most likely to be maintained.

Agency Response: After further field review of trails proposed in Alternative 2 by district personnel, it was determined that sections of the proposed trails did not meet the criteria of a sustainable trail. Thus, new trail segments were located to replace these sections. Under Alternative 3, the Forest Service would construct approximately 14 miles of National Forest System trails in the Pads Creek and Rich Hole areas.

Comment (Marek Smith, The Nature Conservancy): We would also like to suggest signage and infrastructure enhancements at the Walton Tract which would serve to clarify river access put-ins and take-outs, improve road conditions and generally better orient visitors to this rare public access location on the Cowpasture River.

Agency Response: The Warm Springs Ranger District is working with the Cowpasture River Preservation Association and Virginia Department of Game and Inland Fish to develop appropriate signage for the Cowpasture River access sites on the Walton Tract.

Comment (Steven Krichbaum): In addition to those mentioned at pg. 35 of the DLRMP, "Scenic Corridors" should include Boiling Spring road (rt. 18) (route number from 1993 GWNF Plan map). This road receives high amounts of regular use for which the GWNF supplies critical aesthetically pleasing scenery. This issue was brought to the attention of GWNF planners in 2010. The potential impacts of proposal implementation upon this scenic corridor need to be fully and fairly considered, analysed, and disclosed. As a related issue, what is the FS rationale for refusing to designate this as a "scenic corridor"?
In re designation of corridors, planners need to consider the visual middleground, not just the foreground.

Agency Response: The proposed Forest Plan amendments identified in the scoping letter were designed to amend the 1993 Forest Plan with site specific amendments to incorporate the best available science we gathered during the revision process for the revised Forest Plan and to align the project area with the revised plan. The revised Forest Plan was completed in November 2014. Boiling Springs and State Route 18 are outside the project area thus this is outside the scope of this project.

Comment (Stakeholders of the GWNF): We appreciate the District's inclusion of recreational interests among the activities being considered as part of this planning process and we specifically have the following recommendations:

> Continue to explore opportunities to better connect trails between the national forest and Douthat State Park, particularly the Claylick Draft to Beards Gap and Whispering Pines Campground to Brushy Hollow connections.
>
> Continue to explore opportunities to create better access and loop trail opportunities adjacent to Rich Hole Wilderness, particularly connecting the old CCC trail to the Rich Hole Trail, utilizing the old roads which terminate near the crest of Pleasant Mill Ridge and a trail along the ridge connecting the White Rocks Tower Trail to the old CCC Trail.
>
> Improve way-finding and trail head signage throughout the project area, but specifically for trails in the multi-use, 63-mile Allegheny Highlands Trail System, the Little Mare Mountain Trail and its connectors, and Rich Hole Wilderness.

Agency Response: Alternatives 2 and 3 include trail opportunities to create better access and loop trail opportunities adjacent to Rich Hole Wilderness. James River and Warm Springs Ranger District recreation staff continue to review the National Forest System Trails and signage within the Lower Cowpasture Project area.

Aquatic Passage/Watershed Improvements

Comment (Nelson Hoy, Cowpasture River Preservation Association): The "slope-dependent riparian corridor widths" planned or proposed for the Lower Cowpasture Restoration Project area and also called, "minimum riparian conservation zones", appear as a prudent best management practice. The Cowpasture River Preservation Association assumes that the primary application of these riparian buffer formulas will be during timber production operations. The Association recommends, however, that the "slope-dependent riparian corridor widths" should apply also as best management practice under prescribed burn scenarios where the burn area encompasses steep slopes adjacent to rivers, streams, wetlands, ponds and particularly, karst features and where there is an inherent risk of erosion and sedimentation.

Agency Response: Virginia's antidegradation policy (9VAC25-260-30) applies to this area. That policy says that actions may not interfere with or become injurious to existing beneficial uses unless the State

Water Control Board determines that such action is socially or economically justified. Monitoring BMPs effect on protecting existing uses (validation monitoring) is also occurring, primarily by Forest Service research. Here again, BMPs will be adjusted as research indicates to further protect beneficial uses. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternative 2 & 3) on various resources including, riparian areas, water quality, water quantity, and aquatic organisms beginning on page 80.

Comment (Malcolm Cameron): I have been particularly interested in the Simpson Creek/I64 slope failure and erosion problem. The slope drain method you have proposed should be adequate to drain the water as long as adequate measures are taken at the outlet to dissipate energy and catch sediment. It is not clear how the eroded slope will be stabilized. Given the terrain and the depth of the gully, it will be challenging. The slope stabilization will need to be effective long term.

Agency Response: Thank you for your comment. It is unclear how well the proposed treatment will stabilize the slope failure. Thus, the Draft EA describes the uncertainty of the proposal along with monitoring and adaptive actions to meet the purpose and need for action beginning on page 37 of the Draft EA.

Comment (Nelson Hoy, Cowpasture River Preservation Association): Please note that the Lower Cowpasture Restoration Project plan and proposals make reference to the following: (a) 400 miles of potential aquatic stream habitat, (page 9), (b) VDGIF cold water stream habitat (page 10), and (c) Management Area classification for Scenic River and Recreation River (page 8). The Project plan and proposals, however, never connect the dots – i.e., there are no goals, strategies or actionable items. The Lower Cowpasture Restoration Project should explicitly describe actionable best management practices that promote colder water temperatures, less sedimentation and lower nutrient levels in favor of native brook trout and other aquatic life.

Agency Response: Virginia's antidegradation policy (9VAC25-260-30) applies to this area. That policy says that actions may not interfere with or become injurious to existing beneficial uses unless the State Water Control Board determines that such action is socially or economically justified. Monitoring BMPs effect on protecting existing uses (validation monitoring) is also occurring, primarily by Forest Service research. Here again, BMPs will be adjusted as research indicates to further protect beneficial uses. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternative 2 & 3) on various resources including, riparian areas, water quality, water quantity, and aquatic organisms beginning on page 80.

Comment (Lynn Cameron, Friends of Shenandoah Mountain): The solution you have posed for the slope failures along Simpson Creek should be economical and hopefully will be effective, as long as the stabilization of the eroded portion of the slope is adequate.

Agency Response: Thank you for your comment. It is unclear how well the proposed treatment will stabilize the slope failure. Thus, the Draft EA describes the uncertainty of the proposal along with monitoring and adaptive actions to meet the purpose and need for action beginning on page 37 of the Draft EA.

Comment (Bill Hardbarger): I-64 Erosion (culvert project): What has the DEQ suggested the Forest Service do to correct this washout and is there other similar threats to the Tier III designated Simpson Creek water shed along the I-64 corridor?

Agency Response: We are not aware of any other similar slope failure along the I-64 corridor within the Simpson Creek watershed within the Lower Cowpasture project area. VDOT and DEQ have a MOU in place that allows VDOT to do their own permitting.

Comment (Bill Hardbarger): Table 5 Historical Stand Treatment: The notice only goes back to 1989 which is after the 1985 November 5th Flood and only list the Lick Block Run 54 acres timber sale in 1996 in the area of the Wilson Creek Dam Stabilization Project. What created the need for this project was the large amount of timbering (clear cuts) in that watershed and therefore we would like to see the reservoir restored to its deep pool native brook trout habitat that it once was as evidenced by the surrounding steams (Lick Block/Wilson Creek above the dam and Little Wilson). Let's learn and pass on the lessons from previous mistakes by looking at the longer history.

Agency Response: An alternative to remove the Wilson Creek dam was considered. See Draft EA page 39.

Comment (Doug and Debbie Albrecht): Aquatic Passage/Watershed Improvements - all of the referenced projects appear worthy of pursuit to improve fish passage, stabilize the Simpson Cr./I-64 slope failure, and consider the historic and ongoing utilitarian value of Wilson Dan.

Agency Response: Thank you for your comment.

Comment (Jay C. Jefferies, VDGIF): We agree on all management strategies proposed in aquatic restoration and maintenance, and in particular riparian corridor conservation strategies. If not already included we recommend a comprehensive study and aquatic restoration plan for the Simpson Creek watershed to address slope failure and thermal stress from day lighting caused by a power line. Should culvert replacement/removal be done in stages we recommend that a prioritization plan be developed to address aquatic restoration needs.

Agency Response: The Draft EA discloses information on aquatic resources within the project area beginning on page 81. We will use information from the Crossing Assessment Decision Support System (CADSS) to help us prioritize culvert replacements within the project area as disclosed in the aquatic resource section beginning on page 163.

Comment (Jay C. Jefferies, VDGIF): We feel that a different management strategy be given to Wilson Dam. Recognizing that there is archeological value at this site, and as importantly a fisheries conservation issue we feel it is imperative that allowing for fish passage is vital to ecological restoration within this watershed. We recommend a plan revision where both archeological resources and fish passage are included as project objectives.

Agency Response: An alternative to remove the Wilson Creek dam was considered. See Draft EA page 39.

Comment (Marek Smith, The Nature Conservancy): Reiterating our previous comments, sedimentation and erosion control are significant challenges currently impacting the Upper James River watershed and its aquatic species. Thus, we strongly support this project's planned activities to: 1) prevent or reduce surface erosion from roads, 2) repair or replace stream crossings and culverts to withstand major storm events and allow for improved aquatic passage and 3) repair slope failures. We commend you for working with the Center of Aquatic Technology Transfer at the Forest Service's Southern Research Station on a stream crossing study and beginning to utilize those results to prioritize watershed improvements. We would encourage collaboratively developing proposals to enable additional work not funded through agency appropriations.

Agency Response: Thank you for your comment. We will use information from the Crossing Assessment Decision Support System (CADSS) to help us prioritize culvert replacements within the project area as disclosed in the aquatic resource section beginning on page 163.

Comment (Marek Smith, The Nature Conservancy): We recognize that the Wilson Creek dam may be considered an archaeological resource, but we would encourage continued evaluation of how the site's cultural history can be preserved while also restoring the hydrologic flow, connectivity and aquatic organism passage to nearly 24 miles of cold water streams.

Agency Response: An alternative to remove the Wilson Creek dam was considered. See Draft EA page 39.

Comment (Steven Krichbaum): In the current Forest Plan, most of the attention given to water resources focuses on riparian areas. This is not sufficient. Management must address entire watersheds (at multiple scales/orders), not just riparian areas. The Forest Service is supposed to be engaged with "ecosystem management"; for planning purposes this entails the use of ecological units at scales that incorporate watersheds (Grumbine, R.E. 1990 & 1994; Noss, R. 1999). The paradigm of landscape ecology must also serve as a foundation for effective conservation (Harris, L.D. *et al*. 1996). The project must do much more than that proposed in order to meet a major goal of the Forest Service Strategic Plan: "Improve watershed condition" (USDA Forest Service 2004).

Agency Response: The Revised Land and Resource Management Plan for the George Washington National Forest was approved in November 2014. The proposed action and alternatives were developed to move the existing condition of the Lower Cowpasture project area towards the desired condition outlined in the Forest Plan for the George Washington National Forest. The Forest Plan specifies the overall direction for managing all resources on the Forest, and consists of Forest-wide and Management Prescription Area-specific desired conditions, goals, objectives, standards and guidelines. The EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area. This analysis is sufficient for the Responsible Official to make an informed decision in regards to this project.

Comment (Stakeholders of the GWNF): As noted in the Draft Plan (DEIS G-17), stream sedimentation and flow alterations are among the most common impacts associated with the decline of aquatic species. Virginia's Strategy for Safeguarding Species of Greatest Conservation Need from the Effects of Climate Change (VDGIF et al. 2009) further notes that sedimentation and erosion control are significant challenges currently impacting the James River and its aquatic species. Climate change is expected to exasperate these effects due to increased flooding and extreme weather events and some aquatic species such as brook trout and James spinymussel are also among those considered most vulnerable (Kane et al. 2013). Thus, we strongly support the District's intent to improve roads to prevent or reduce surface erosion, repair or replace stream crossings and culverts to withstand major storm events and allow for improved aquatic passage, and repair slope failures.

We recognize that decommissioning roads which are causing significant resource damage may be necessary, but we request that any decisions on repair versus closure consider user groups such as hunters and anglers which may depend upon that access. Additionally, like many activities under consideration for this project area, we recognize that resources are limited and a prioritization system will be necessary. We understand the District is working with the Center of Aquatic Technology Transfer at the Forest Service's Southern Research Station on a stream crossing study and we encourage use of this analysis to prioritize watershed improvements, particularly within municipal drinking water supplies and Priority Watersheds identified in the Draft Plan. We also understand that the agency is

working with the US Fish and Wildlife Service and VDGIF to locate habitat suitable for James spinymussel augmentation and we would be interested to know if this is a possibility for this project area.

We do not have specific recommendations for the Wilson Creek dam removal project or the I-64 slide project, though we think both are worthy of consideration and we look forward to hearing about the results from further studies.

Agency Response: Thank you for your comment. Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified National Forest System roads that were no longer needed within the project area. IDT team recommendations were incorporated in Alternative 3. The proposed road decommissioning project is on a road currently closed to the public year round. See roads section of the Draft EA beginning on page 195. We spent time with FWS and VDGIF looking for James spinymussel habitat in the Lower Cowpasture area. We did not locate any highly suitable sites for augmentation.

Soils, Water Quality and Aquatic Habitat

Comment (Nelson Hoy, Cowpasture River Preservation Association): The Lower Cowpasture Restoration Project plan and proposals do not explicitly acknowledge that advancing or furthering water resource quality and quantity is a purpose or goal of forest management practices. Clearly and unequivocally, in a multiple-use scenario the provision for or assurance of cool, clear and potable water is a significant product of the national forest that must be managed on a sustained-yield basis. Every single citizen within the Lower Cowpasture Restoration Project area is wholly dependent upon potable water from aquifers for life and health. Since the Cowpasture Watershed in Alleghany and Bath Counties is underlain by fragile karst topography and because the Cowpasture River within the Project area is fed in part by karst springs and the River feeds in part karst aquifers; the absolute silence of the Lower Cowpasture Restoration Project plans and proposals with regards to water quality and quantity is a troubling oversight.

Agency Response: Water quality and quantity were identified as project issues for the Lower Cowpasture project. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on water quality and water quantity beginning on page 81.

Comment (Sarah A. Francisco, Southern Environmental Law Center): We are glad the scoping notice starts to acknowledge the important aquatic resources here, explaining there are over 400 miles of creeks in the analysis area, including about 95 miles of cold water, wild trout streams. The EA also should consider the special context of the watershed of the Cowpasture River, which probably is the highest quality river of its size in Virginia. To ensure ground disturbing activities will not risk sedimentation of trout streams and the Cowpasture River, the EA should analyze the slopes and soil limitations of the logging units (erosion hazards; soil suitability for logging roads, landings, ground-based harvest, etc.) and consider avoiding riskier sites or adding mitigation. This soil information is readily available from the USGS for download and analysis in GIS.

Agency Response: Water quality and quantity were identified as project issues for the Lower Cowpasture project. The Draft EA discloses the effects of implementing the no action (Alternative 1)

and action alternatives (Alternatives 2 & 3) on water quality, water quantity, and soils beginning on page 81,

Comment (Sarah A. Francisco, Southern Environmental Law Center): We would welcome a greater emphasis on protection and restoration of water quality and aquatic habitat. The proposals to decommission and maintain roads, install fish-passable culverts, and stabilize slope failures in the Simpson Creek drainage are positive, however.

Agency Response: Water quality and quantity were identified as project issues for the Lower Cowpasture project. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on water quality, water quantity, and soils beginning on page 81,

Comment (Sarah A. Francisco, Southern Environmental Law Center): Limiting new bulldozer firelines as much as possible also would help to avoid soil and water impacts, as well as the spread of NNIS and illegal vehicle use. The District may wish to consider additional restoration that would further these goals, such as treating or protecting hemlock, which are an important component of the forest ecosystem and benefit coldwater trout streams.

Agency Response: Water quality and quantity were identified as project issues for the Lower Cowpasture project. Prescribed burning and dozer lines were also identified as a project issues and were utilized in project development. A hemlock restoration and no dozer line construction alternatives were considered see Draft EA page 39. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources including water quality, water quantity, and soils beginning on page 81.

Comment (Sarah A. Francisco, Southern Environmental Law Center): For the first time, the scoping notice clarified that the roads proposed for decommissioning are all unauthorized roads. As discussed in our March comments, we encourage the District to consider the information and analysis in the Travel Analysis Process (TAP) conducted for the plan revision. According to the Forest Service's direction for identifying an economically and environmentally sustainable road system, the TAP assessed existing system roads in light of their benefits/needs, environmental risks, and realistic maintenance budgets. Roads with low benefits and high risks should be considered for decommissioning or other uses. The EA should disclose whether this project proposes to invest maintenance in roads which are candidates for decommissioning in the TAP and, if so, consider the implications.

Agency Response: Currently there is an ongoing effort with regards to management of the Forest road system referenced as a Travel Analysis Process (TAP). This effort is aimed at the identification of the minimum road system necessary to meet management objectives and identify opportunities for increased resource protection, eliminating the backlog of deferred maintenance, optimal performance of maintenance, and better service to Forest users. Road recommendations based on the TAP were incorporated into the Forest Plan and were reviewed for the project area. After reviewing recommendations from the TAP, the IDT identified National Forest System roads that were no longer needed within the project area. IDT team recommendations were incorporated in Alternative 3. See roads section of the Draft EA beginning on page 195. An additional road decommissioning alternative was also considered see Draft EA page 40. The Draft EA also discloses information on National Forest System roads within the project area beginning on page 19.

Comment (Sherman Bamford, Sierra Club): There are steep slopes on the upper portion of Rt. 361 and the road is already a narrow road with little room for widening at this point (attached photo). What is the potential for landslides or other soil problems (from either the use of the road by trucks without any

changes or from upgrades) along this road segment? There is already some slumping along the lower portion of the road (attached
photo).

What is the potential for erosion or landslides along other roads in the project area?

Agency Response: The impacts of no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on soils are disclosed in the Draft EA beginning on page 56. This analysis is sufficient for the responsible official to make an informed decision in regards to this project.

Comment (Sarah A. Francisco, Southern Environmental Law Center, 03-20-2014): The Cowpasture River is perhaps the highest quality river of its size in Virginia. It once was found by the Virginia DEQ to be eligible for listing as an exceptional state water (i.e. Tier 3), although ultimately the listing was not approved due to divided local opinions. Its water quality, aquatic life, and scenic setting truly are exceptional. The EA should recognize the special watershed in which this project is proposed and the exceptional values of the river. The Forest Service should be careful to ensure that this project does not adversely affect or degrade those values. For example, the agency should ensure that the ground-disturbing activities do not cause erosion and increased sedimentation in the Cowpasture River. Additional mitigation measures may be necessary or may be necessary on some sites to ensure this outcome. The agency should avoid logging, with its associated ground disturbance, on any steep slopes and high erosion-hazard soils in this watershed. The agency also should continue its practice of limiting the intensity of prescribed burns to protect soil quality.

Agency Response: Water quality and quantity were identified as project issues for the Lower Cowpasture project. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on riparian areas, water quality, water quantity, and soils beginning on page 56,

Comment (Sherman Bamford, Sierra Club): The FS should pay particular attention to how ground disturbing activities and loss of shading and canopy near streams could affect trout habitat and trout populations in streams in the area - since this is an important area for trout. The Forest Service should assess the degree to which proposed activities could affect water quality, sediment levels, levels of large woody debris and water temperature in the specific streams and stream reaches in the project area. Cumulative effects should also be assessed.

There are several class i, ii, and iii trout streams in the project area. For example, in the Limekiln portion of the area, portions of Porters Mill Cr are class iii waters, portions of Mill Creek are class i waters, portions of Little Wilson Cr are class ii waters, and portions of Wilson Creek are class ii waters. Portions of Guys Run are trout waters but have no classification by VGIF. In the Sandy Spring portion of the project area, portions of Lick Block Run are class ii waters, portions of Left Prong Wilson Creek are class ii waters, portions of Smith Creek area class ii waters, and portions of Wilson Creek are class ii waters. In the Pads Creek portion of the project area, portions of Lick Run is a class ii stream, portions of Pads Creek are stockable trout waters. These are based on the last edition of Virginia Water Quality Standards that I have. If more up to date classifications of trout streams are available, these should be examined. See also VGIF Wildlife Information maps of trout streams (attached).

There are a high number of high quality trout streams in the project area. Adequate protection of these and other trout streams in the project area should be a high priority. Perennial, intermittent, and ephemeral tributaries of trout streams should also be considered because these play an important role in downstream water quality. Downstream reaches and tributaries feeding into these downstream reaches should also be considered, especially when there is potential for trout movement in and out of

these reaches. For example, the Wilson Creek watershed in the McGraw Hollow portion of the project area should be evaluated if there is potential wild trout habitat or potential for trout use of this area.

Agency Response: Virginia's antidegradation policy (9VAC25-260-30) applies to this area. That policy says that actions may not interfere with or become injurious to existing beneficial uses unless the State Water Control Board determines that such action is socially or economically justified. Monitoring BMPs effect on protecting existing uses (validation monitoring) is also occurring, primarily by Forest Service research. Here again, BMPs will be adjusted as research indicates to further protect beneficial uses. The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternative 2 & 3) on various resources including, riparian areas, water quality, water quantity, and aquatic organisms beginning on page 80.

Comment (Sherman Bamford, Sierra Club): There are Federal and State T&E waters in the project area, particularly along the Cowpasture River. See VGIF Wildlife Information maps of wildlife habitat for Federal and State Threatened and Endangered Species (attached).

The Forest Service should ensure that water quality is remains high in these waterways and in the tributaries flowing into these waterways. For example, the Beards Mountain portion of the project area adjoins the Cowpasture River and some tributaries within the Beards Mountain area flow into the Cowpasture River. Mill Creek, within and downstream from the Limekiln area, also flows into the Cowpasture River. Other streams within the project area may flow into the Cowpasture as well.

The Forest Service should consult with the U.S. Fish and Wildlife Service regarding whether and how project activities may affect federally-listed aquatic and terrestrial species and their habitat.

Agency Response: A Biological Evaluation/Biological Assessment of Threatened, Endangered, Proposed and Forest Service Sensitive Species of the Lower Cowpasture Restoration and Management Project dated October 31, 2014, considered all known federally listed species. The Biological Evaluation/Biological Assessment (BE/BA) documents the analysis of potential effects of the proposed project alternatives to these species and associated habitat, as well as, analyzing effects on Forest Service Sensitive species. It serves as biological input into the environmental analysis for project-level decision making to ensure compliance with the ESA, National Environmental Policy Act (NEPA), and National Forest Management Act (NFMA). The BE/BA was submitted to the US Fish and Wildlife Service's Virginia Field Office as part of the informal consultation process. Concurrence of effect determination was received on March 30, 2015. Effects to threatened, endangered, proposed, and sensitive species are disclosed in the Draft EA beginning on page 158. Please see previous response for information regarding water quality.

Comment (Steven Krichbaum): The GWNF planners must fully and fairly consider and disclose effects of acid deposition on soil productivity at the project area, in conjunction with effects of removal of tree biomass (boles) from the project area's logging sites, and the affects of these (deposition and removal) upon nutrient depletion (*e.g.*, calcium), long-term productivity and sustainability, and sustained yield at the sites and the project area. See Gasper, D. C. 1997, and Rentch, J.S. 2006.

Acidification of streams in the project area is of course an additional issue of great concern. See Webb, R. 2004. Potential effects of stream acidification must be fully and fairly considered and analysed. Cumulative effects to stream habitat and water quality from acidification combined with impacts from logging, road building, and fire implementation (such as, *e.g.*, sedimentation) are of great concern.

Agency Response: The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including soils,

water quality, and aquatic resources beginning on page 56. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Stevens Krichbaum): Is part of the reason numerous sites on the Forest have low site indices (*e.g.*, 40-60) due to the fact that have been intensively logged in the past? How and to what extent will continuing to log these low site index sites make their productivity even poorer? What are the effects and situation associated with poor soil quality, low buffering capacity, and/or high leaching rates? How much N-loading is occurring on the Forest and what is projected? What are the impacts from past, current, and future N deposition? What data, monitoring, information, and research is the Forest Service using to address these concerns/issues?
Individually, acidic deposition or poor nutrient availability might not be enough in and of themselves to affect long-term sustainability, but what about the synergism and/or amplification of numerous factors that may increase susceptibility to other stresses? And different communities/species differ in their susceptibility or vulnerability, as do mature or old growth systems differ from younger seral stages. The FS must properly and adequately address and evaluate the issues of long-term and cumulative impacts to soils and trees and other vegetation, particularly in conjunction with the massive logging assault of 80-130 years ago.

I am concerned about the sustained yield of populations, habitat, and site productivity under the potential cumulative impacts that could accrue were the proposed project or similar alternatives be implemented. The LRMP and FEIS do not reflect the full and fair consideration of this issue. The issues, concerns, and factors (*e.g.*, high N-loading, old growth, soils with poor acid neutralizing capacity, low nutrient sites, and ozone) discussed in the McLaughlin and Wimmer (1999) paper are relevant here:

"Over longer-term cycles, repeated harvesting can also be evaluated as a soil-acidifying process associated with the net removal of cation bases from the soil (Ulrich & Matzner, 1986). . . . Knowledge of the relative importance of weathering, leaching and uptake rates by vegetation coupled with estimates of the pools in foliage and forest floor can provide forest managers important insights into long-term sustainability of nutrient cycles with available harvesting options. . . . It appears that in both the USA and Europe longer-term supplies of soil Ca can be expected to be chronically reduced for many forest systems if high N-loading continues. . . . The association of Ca deficiency with accelerated plant senescence, derived principally from experience with crop plants and horticulture (Pooviah, 1988), appears to have particular relevance to potential Ca limitations on the size and age of mature forest trees, and the structural integrity of old-growth forests.
"How might this occur? As trees increase in age and stature, the challenges of providing carbohydrates to support increasingly large maintenance respiration rates of support structures lead to an increasingly narrow margin of physiological flexibility to meet the demands of growth, reproduction and defense (McLaughlin & Shriner, 1980; Waring, 1987). The logistics of supply of nutrients and water to aboveground structures becomes increasingly difficult with larger, older trees as root systems are weakened by the increasing carbohydrate demands of maintenance and defense and transport systems are extended. . . .

"For example, decreases in Ca supply by natural soil or climatic limitations can be further amplified by increased N deposition, which typically shifts carbohydrate allocation to shoots at the expense of roots (Persson & Majdi, 1995). Under these conditions, potential reductions in transport of water and Ca would probably act to amplify the influence of Ca deficiency, whatever the primary cause. Loss of membrane integrity in roots or foliage, and increased rates of respiration resulting from Ca deficiency would be expected to amplify the effects of carbohydrate shortages associated with aging stress in larger, older trees, or competitive stress of younger trees growing under conditions of intensive demand on site-supply capacity. The expected consequence in either case is increased sensitivity of trees to a variety of stresses. Likely mechanisms for such responses include altered structural integrity of woody tissues above and below ground, and increased susceptibility of these tissues to structural damage from wind and ice as well as reduced capacity to repair damage and defend against disease." (McLaughlin, S.B and R. Wimmer 1999)

Elevated aluminum levels are of concern.

The FS needs to identify and map the soils and sites on the GWNF here that are at risk of nutrient depletion due to cumulative impacts associated with acidic degradation. These sites must not be "suitable" for logging. There is a methodology available for accomplishing this; see Monongahela NF FEIS and FS planners.
Identify areas on the GWNF where there is the potential exceedance of critical acid loading. Identify areas on the GWNF where there is the current actual exceedance of critical acid loading. These potential and existing sites must not be "suitable" for logging. The FS needs to map and disclose these areas. See McNulty, S.G. *et al*. 2007.

Agency Response: The Draft EA discloses the effects to soils beginning on page 56. The analysis for NFS lands suitable and unsuitable for timber production is completed during forest plan revision. The revised Forest Plan identifies lands unsuitable for timber production.

American Chestnut

Comment (Bill Hardbarger): Chestnut planting area seems much more likely for success if done in the rich riparian areas of the Walton Tract or Evans Tract than the Bubbling Springs Pads Creek area.

Agency Response: We worked with The American Chestnut Foundation on site layout for blight resistant chestnut plantings within the Lower Cowpasture project area. We considered a Chestnut Restoration Alternative which included planting chestnut on the Walton Tract. This alternative is discussed on page 39 of the Draft EA. Chestnut plantings within the Evans Tracts was not considered for this project because the area is outside of the Lower Cowpasture project area.

USDA Forest Service researchers and TACF scientists work together to establish test plantings that will allow us to evaluate our potentially blight-resistant American chestnuts called Restoration Chestnuts 1.0. These plantings will be monitored over the course of many years, to document how the trees resist the blight and their growth characteristics. Gathering this information from real forests environments is invaluable to our progress.

The long-term goal of this work is the establishment of self-sustaining populations of American chestnut. Until we are at a point when the American chestnut tree can regenerate on its own, these clustered plantings on national forests are necessary and serve as the first step in the species' restoration.

Comment (Doug and Debbie Albrecht): American chestnut - This is a MOST worthy collaborative project that holds great, long term commercial and occasional-user potential. District Ranger's willingness to consider partnering with disease-resistant producers and donor/purchasers by supplying/supporting planting areas/crews is most welcome.

Agency Response: Thank you for your comment.

Comment (John Hancock, MeadeWestvaco): As I have state previously, I support the Lower Cowpasture Restoration Project. I am encouraged by the variety of groups and individuals represented at the many public meetings. I support the objectives of increasing the diversity of the forest through various management techniques to improve forest health, wildlife habitat, and age structure. I support

the improvements to recreational opportunities, watersheds, and additions to existing Wilderness areas.

Agency Response: Thank you for your comment.

Comment (John Hancock, MeadeWestvaco): I believe it is important to use the products generated through timber harvesting to support local markets, which include sawtimber, timbers for cross-ties, pulpwood, and biomass. I believe harvesting each of these materials is consistent with the Forest's plan to provide forest products for the local economy. I also believe it is environmentally responsible to support the growing wood-to-energy market, which did not even exist under the old GW forest plan but which will likely be addressed in the new forest plan. It is appropriate for the Lower Cowpasture project to look forward to the new forest plan for guidance in this area.

Agency Response: Thank you for your comment.

Comment (Marek Smith, The Nature Conservancy): We support piloting an American chestnut restoration project and reiterate our previous comments suggesting evaluation of areas where old(er) growth Eastern hemlock may not have been affected by hemlock wooly adelgid and/or development of a pilot program for future prevention in areas that have already been impacted. Both projects lend themselves towards stakeholder engagement during both planning and implementation phases and we strongly encourage continued public involvement in their development.

Agency Response: Thank you for your comment. We considered A hemlock restoration alternative. This alternative is discussed on page 39 of the Draft EA.

Comment (Jay C. Jefferies, VDGIF): We are in full agreement on this experimental restoration project.

Agency Response: Thank you for your comment.

Comment (Steven Krichbaum): Returning the grandeur of the American Chestnut to the Forest must be an agency priority, as must be halting the loss of Hemlocks. Prior to introduction of the Blight, Chestnut was a dominant canopy species throughout many of the lands of the GWNF (see Braun, L. 1950). It had a tolerance for a wide range of site conditions and its growth and reproduction characteristics gave it a competitive edge over many species. Its widespread occurrence also confirms the lack of a significant natural fire regime here. (see Q. Bass material previously submitted to the GW-JNFs' managers during the revision of the JNF Plan) Through the efforts of The American Chestnut Foundation a blight-resistant hybrid suitable for planting is or will soon be available.

There are many miles of currently open, closed, and temporary roads, "wildlife openings", and recent even-age logging sites on the project area that could and should be used as planting sites to reintroduce American Chestnut. Various roads can be decommissioned, recontoured and revegetated with Chestnut. Similarly, the vegetation at various game openings and recent logged-over sites needs to be manipulated so as to reintroduce Chestnut at these sites. New logging is not needed to restore the Chestnut to the GWNF.

By using existent roadbeds and recent logging units for Chestnut restoration, several restoration goals (providing for remote habitat and recreation, interior forest, helping to impede the influx of invasive species, decrease road densities and road maintenance expenditures, improve watershed quality) can be accomplished in one action.

Agency Response: USDA Forest Service researchers and The American Chestnut Foundation scientists work together to establish test plantings that will allow researchers and scientists to evaluate our

potentially blight-resistant American chestnuts called Restoration Chestnuts 1.0. These plantings will be monitored over the course of many years, to document how the trees resist the blight and their growth characteristics. Gathering this information from real forests environments is invaluable to our progress.

The long-term goal of this work is the establishment of self-sustaining populations of American chestnut. Until we are at a point when the American chestnut tree can regenerate on its own, these clustered plantings on national forests are necessary and serve as the first step in the species' restoration.

Hemlock Restoration

Comment (Ernie Reed, Wild Virginia and Heartwood): The Lower Cowpasture Restoration Project should include the establishment of Hemlock Restoration Areas

With the passage of the 2014 Farm Bill and based on recent requests by Virginia's Governor and confirmation by the USFS, the entire GWNF has been identified as a qualifying area due to wooly adelgid infestation. The Farm Bill authorizes the USFS

to carry out forest restoration treatments that--
`(A) maximizes the retention of old-growth and large trees, as appropriate for the forest type, to the extent that the trees promote stands that are resilient to insects and disease;
`(B) considers the best available scientific information to maintain or restore the ecological integrity, including maintaining or restoring structure, function, composition, and connectivity;(sec. 603).

In earlier comments, Wild Virginia and Heartwood request that project planners inventory the project area and identify areas that contain the most significant existing live hemlock populations. We further suggest that these identified areas be identified as Hemlock Restoration Areas under Sec. 603 of the 2014 Farm Bill and that individual trees be selected based on relative health, age, and population density for targeted chemical treatment to prevent their decline from the impacts of the wooly adelgid. The purpose and need would be to maintain the genetic heritage and genepool of eastern hemlocks in these areas. These areas should be monitored regularly and treated a necessary with the goal of increasing the population density of eastern hemlock in the areas.

Agency Response: A hemlock restoration alternative was considered see Draft EA page 39.

Financial Analysis

Comment (Sarah A. Francisco, Southern Environmental Law Center): The EA should include a financial efficiency analysis for this project, as required by Forest Service Handbook 2909.18, Ch.30, that realistically estimates the costs of each type of activity, the timber sale receipts, and other funds available or potentially available. If the project or portions of it may be implemented with stewardship contracting, the EA should explain that.

It is becoming clear that several aspects of this project carry significant costs. For example, at the July 21 public meeting it was estimated that wildlife openings cost about $2,000 per acre. If this is accurate, the 322 acres of wildlife openings proposed would cost about $ 644,000 to create. Is this figure correct and does it include long-maintenance costs? NNIS control may be another significant expense associated with this project.

The EA and K-V plan should prioritize necessary mitigation, such as NNIS control and soil and water-related mitigation. Many of the non-commercial aspects of this project have broad public support, so including them covers their NEPA analysis if they can be funded. However, the public should have a realistic understanding of the project's components and their priority, costs, and any uncertainty regarding their ultimate implementation.

Agency Response: The Draft EA discloses the comparison of the expenditures and revenues associated with Lower Cowpasture project beginning on page 203. Table 3C6-1 will be updated and corrected in the Final EA for the Lower Cowpasture project as the current table is incorrect.

Table 3C6-1. Cost/Revenue of the Lower Cowpasture Project by Alternative

Activity	Alt. 1	Alt. 2	Alt. 3
Estimated Harvest Volume			
TOTAL HARVEST VOLUME (CCF)	0	33,158	29,990
Project Planning Cost*			
NEPA-EA & Support ($9.00/CCF)	**-298,422**	**-298,422**	**-298,422**
Timber Sale Implementation Cost			
Timber Sale Preparation	0	-198,948	-179,940
Timber Sale Administration	0	-109,421	-98,967
Total	**0**	**-308,369**	**-278,907**
Timber Sale Revenue ($)			
Gross Stumpage	0	904,556	817,416
Road Costs	0	-47,625	-47,625
Net Stumpage (Gross - Road Costs)	0	**856,951**	**769,791**
Reforestation	**0**	**-78,672**	**-68,576**
Total Net Revenue (dollars)	**-298,422**	**171,468**	**123,866**
Post Sale Activities ($)			
Rx Burning - 12,908 acres / 11,971 (Alt 3)	0	-516,320	-478,840
TSI - 1,450 acres / 1,515 (Alt 3)	0	-348,000	-352,080
Wildife Openings – 320 acres / 297 (Alt 3)	0	-640,000	-594,000
Waterholes – 22 units	0	-22,000	-22,000
Trails – 17 miles /14.6 miles (Alt 3)	0	-425,000	-365,000
Simpson Creek Slope Stablization	0	100,000	100,000
Road Decommissioning	0	7,500	7,500
Closing unauthorized roads	0	9,500	9,500

* Project planning costs are calculated based on the original estimated volume of the proposed action and do not vary by alternative.

Other

Comment (Wayne and Pat Thacker): Please consider maximizing and structuring volunteer efforts to implement aspects of the finalized action plan -- these efforts can augment FS staff in trail maintenance/development, invasive control and watershed improvements. Bringing together volunteers from varied conservation organizations (e.g., hunting and preservation) on a project may go

a long way to continue the collaborative efforts which began during the recent GWNF Forest Plan revision process. Further, there are several large NGO organizations involved in this effort that have and can help organize volunteer workforces.

Agency Response: Thank you for your comment. We think it is a good idea.

Comment (Bucky Wells): At the Walton track, keep the fields cut and plant some food. I do not see enough timber there to support logging except on the west side of Beards Mountain along Hickman Draft. I would suggest planting a buffer along all of the fields at the Walton Tract to obscure the vision of the road hunters.

Agency Response: The Walton Tract Prescribed Unit in Alternatives 2 and 3 would maintain the fields within the Walton Tract area.

Comment (Bucky Wells): Limekiln Road needs some tree removal, controlled burning and a few food plots. There are not many deer or squirrels on that property and few turkeys except for the north end near Blue Grass Hollow.

Agency Response: Alternatives 2 & 3 propose activities within the Limekiln area including vegetation/wildlife improvements. While the Lower Cowpasture project does not include any prescribe burning in the Limekiln Area it is within the Warm Springs Mountain Restoration Project area which does include prescribed burning in the area.

Comment (Stakeholders of the GWNF): Although any proposed actions resulting from the Lower Cowpasture Restoration Project will not involve recommendations for wilderness study areas, as the agency's recommendations are made during forest plan revision, we do wish to acknowledge that the project area includes two areas being considered (i.e., Rich Hole Addition, Rough Mountain Addition; Draft Plan 4-32; Stakeholder Group Comments, October 17, 2011). After the environmental analysis is completed and enough stages of this project have been implemented to demonstrate measurable progress towards collaboratively-developed and agreed upon objectives, our organizations would then begin building additional support for the legislative process necessary to implement these two congressional designations in this project area.

Agency Response: Thank you for your comment.

Comment (Steven Krichbaum): Air pollutants/contaminants/effects of concern include acidification (acidic deposition), nitrogen and sulfur deposition and saturation, changes in nutrient dynamics (*e.g.*, elevated/mobilized aluminum and increased leaching of base cation minerals), calcium depletion, heavy metal toxicity, pesticide toxicity, and visual impairment.

For instance, at the ecosystem level, deposition/saturation/acid precipitation has been linked to calcium depletion in the Central Appalachians (Adams, M. B. 1999). The GWNF project planners must adequately address these issues and concerns and provide for long-term sustainability and productivity and sustained yield. The FS planners must fully and fairly address the direct, indirect, and cumulative impacts of acidic precipitation and deposition upon many taxa, such as trees, herbs, lichens, snails, birds, reptiles, and amphibians. For example, acid deposition that causes a decline of soil calcium on poor soils (soils with poor buffering capacity are found throughout the GWNF) could reduce snail populations (Hotopp, K.P. 2002).

Areas of the Forest (James River and Lee RDs), including this proposed project area, are within or adjacent to ozone (and fine particulate?) “non-attainment areas” (see map in USDA FS 2007 GWNF Draft Comprehensive Evaluation Report at pg. 106). The nearby Shenandoah National Park is a Class

1 Air area. The EPA's Regional Haze Rule and Air Quality Policy on Wildland and Prescribed Fire are in effect here on the Forest. Forest management activities are also subject to the General Conformity regulations of the Clean Air Act. Activities must not impede a state's progress toward attainment of National Ambient Air Quality Standards. The Forest must make a conformity determination prior to implementing projects affecting air quality within areas designated as nonattainment or maintenance. - DCER-107 [Unless otherwise noted, in this submission the numerals appearing after dashes following quotes or paragraphs signify pages in the 2007 DCER.]

However, the agency apparently moves ahead with burn projects on the Forest without making conformity determinations (see, *e.g.*, the project file and DM for the 2007 Lee RD burn project). Such decisions are not compliant with federal law, regulation, policy, guidelines, and/or standards. This project analysis must explicitly address this issue.

The FS must ensure that this unlawful situation (*viz*., failure to make conformity determinations) does not continue on the Forest with this proposed project.

Agency Response: The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including air quality, soils, vegetation, and wildlife beginning on page 45. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): The Forest Service's recent stance toward analysing the affects of their roads, timber sales, and other actions is a betrayal of science and reason. The agency relied upon the amounts of "forest cover" to evaluate large-scale fragmentation (see JNF FEIS 3-122-123). Use of this rationale denies the very concept and significance of fragmentation - that it is not just the amount of habitat that is lost or altered, but also the *distribution* of that loss or alteration (see, *e.g.*, Fahrig 2002, Eigenbrod *et al*. 2008). Such rationale further ignores the cumulative fragmentation that occurs at scales other than some arbitrary "large". The FS must fully and fairly consider, analyse, and disclose the issue/concern of the effects of habitat fragmentation, perforation, and edge effects at this project area.
The FS has thus far failed to recognize the significance of the internal fragmentation (aka perforation) (Harris, L. and G. Silva-Lopez 1992) from roads, logging, utility corridors, and other openings that perforate the Forest. The discussion in innumerable GWNF EAs confines the analysis of affects to habitat just to "the number of acres cut." But this is not sufficient as current scientific knowledge recognizes a potential 600-meter edge effect. This edge effect (*e.g.*, increased predation) extends into the forest from the roads and cutting sites. Edge effects accumulating throughout the Forest have not been thoroughly and explicitly addressed. Edge effects and fracturization/fragmentation are "forest health" issues.

The effects of fragmentation are multifarious and multi-scalar (Fahrig, L. 2003; Saunders, D.A. *et al*. 1991). Many of the management actions implemented, promoted, or allowed by the FS and/or the Forest Plan (*e.g.*, logging cuts, roads, firelines, utility developments) entail the fabrication of edges and result in edge effects on the Forest. However, "[t]he hypothesis that increasing edge habitat increases species diversity and abundance may be among the most widely accepted and broadly applied guidelines in wildlife management that has not been rigorously tested or evaluated." (Sisk, T. and N. Haddad 2002)

Invasion by organisms abundant in the matrix is also frequently implicated as the cause of ecological change in fragmented/fractured habitats. "Fragmentation of forests may lead to changes in ecological processes, reduction in biological diversity and the spread of invasive species from disturbed edges. Even small openings may introduce these impacts deeper into the forest. . . . About half the fragmentation consisted of small (less than 7.3 hectares) perforations in interior forest areas." (Tkacz, B. *et al*. 2008) Also see With, K.A. 2002.

"The regional-scale loss of interior forest in Appalachia is of global significance because of the worldwide rarity of spatially extensive temperate deciduous forest (Riitters et al. 2000)." (Wickham, J.D. *et al*. 2007)

The failure by the GWNF planners thus far to sufficiently deal with harmful fragmentation and edge effects on the Forest (see DCER and DLMP) is particularly unreasonable given that numerous researchers point to the significance of such impacts. Habitat fragmentation or edge effects not only affect birds, but also amphibians, reptiles, herbaceous species, invertebrates, etc.; see, *e.g.*, Ness, J.H. and D.F. Morin 2008, Matlack, G. 1994b, Graham, M.R. 2007, and Flint, W. 2004. For further example, amphibians may be particularly affected by fragmentation and/or edge effects since they "generally have lower rates of movement per generation than invertebrates, mammals or reptiles (Bowne and Bowers, 2004)." (Cushman, S.A. 2006)

Timber cuts, roads, development, and other conversion of habitat result in the fabrication of ecological edges with a multitude of deleterious impacts. Edge width or depth/distance of edge influence (DEI) is the result of the penetration distance of various environmental variables and gradients (*e.g.*, soil temperature, air temperature, litter moisture, photosynthetic active radiation effect on vegetation patterns, alien plant species invasion, and ingress by herbivores or predators) (Zheng, D. and J. Chen 2000).

We are concerned about the sustained yield and sustainability of unfragmented/unfractured/unperforated habitat [or whatever the FS chooses to label this] for various taxa (for examples, see those mentioned in above discussion) and unfragmented/unfractured/unperforated forest conditions. We are concerned about the direct, indirect, and cumulative impacts of Forest management activities that diminish the sustained yield and sustainability of unfragmented/unfractured/unperforated habitat for various taxa and unfragmented/unfractured forest conditions. We are concerned about the direct, indirect, and cumulative impacts of Forest management activities that diminish the sustained yield of "interior" and/or "remote" habitat (from anthropogenic edge effects resulting from mechanisms such as logging or roads) for various taxa (*e.g.*, warblers, herbaceous plants, carnivorous mammals). See also discussion under "Ovenbirds" below. We are concerned about the direct, indirect, and cumulative impacts of Forest management activities that result in edge effects. Of concern also are the direct, indirect, and cumulative impacts of Forest management activities upon area-sensitive species.
We are concerned that the effects of management are such that the compositional, structural, and functional diversity of the Forest's ecosystems are NOT "at least as great as that which would be expected in a natural forest" (in violation of the NFMA).
Regarding issues and concerns (and extensive citations) involved with these factors, see as well as the previously submitted S. Krichbaum comment letters to GWNF FS planners in Roanoke dated June 23, 2009, Jan. 8, 2009, Oct. 30, 2008, Oct. 24, 2008, Sept. 14, 2008, and Aug. 8, 2008 (all incorporated by reference).
Have the GWNF planners formally contacted and consulted with Forest Service researcher Mr. Riitters regarding fragmentation on the GWNF and ways to evaluate, consider, and disclose it? If not, Riitters, then whom?

Even if the FS does not consider there to be fragmentation on the Forest, it still must deal with the impacts of edge effects. The impacts of deleterious edge effects translate to a form of habitat loss or reduction for various taxa (Harris, L.D. *et al*. 1996). The ecological footprint of edge effects and this concomitant habitat loss and degradation must be fully considered, analysed and disclosed in the NEPA analysis for the project. Due to the multitude of mechanisms resulting in edge effects, the quantity and quality of these impacts are significant.

Much of the fragmentation of core forest in the eastern US is attributable to small (less than 7.29 ha) perforations (Riitters, K.H. *et al*. 2002). Aside from direct habitat loss, these result in habitat degradation from edge effects. The "perforations" (on the Forest that result in habitat fragmentation/fracturization and/or edge effects are not just areas of non-forest such as roads, utility corridors, developed sites, or maintained openings, but also include the areas of former mature forest and old-growth forest that are/have been intensively logged (*i.e*., by even-age methods). Many of these perforations (or "openings in the canopy") are small enough to not be evident on or portrayed by land cover maps generated from satellite imagery (Riitters, K.H. 2007).

These altered sites modify the permeability, composition, structure, and/or functionality of the landscape and result in habitat loss, degradation, fracturization, and/or fragmentation that may last many decades for various taxa. These losses, degradations, perforations, fracturization, and/or fragmentations of "late successional habitats" are overlapping (in time and space) and cumulative, even if some of them are, as the FS labels them, "temporary". Even if the FS persists in considering these chronic habitat modifications "temporary", they or their effects last for decades (perhaps until the site is again "mature" or "old growth" or "late successional"); for various species of salamanders, herbaceous plants, and birds the negative effects last at least for the duration that the revised Plan will be in effect.

The FS planners must in some way identify, quantify, measure, analyse, and map the amounts and spatial distribution of the logging effect zone on the Forest here. For example, use all the areas that have been logged in the last 80 years (the general age where forest is said to reach maturity) on the Forest (particularly the even-age sites and group selection cuts) and the area within 100 meters extending out from the borders (edges) of all these sites and evaluate and analyse the amount and distribution of this pattern of fragmented/fractured mature forest.

This analysis must also be then synthesized with the amounts and distribution of the fragmentation/fracturization (including edge effects) resulting from the road system and other non-forest openings (*e.g*., utility corridors, developed sites, and maintained openings) to get a picture of the overall fragmentation/fracturization taking place on the project area. Researchers found that even a narrow edge effect zone (*e.g*., 35-74 meters) means that a large area of National Forest can be degraded or unsuitable habitat for species such as salamanders or herbaceous flora (Semlitsch, R.D. *et al*. 2007, and Matlack, G.R. 1994; see also Graham, M.R. 2007, Flint, W. 2004, and Flamm, B.R. 1990). The extent and degree to which roads and other perforations serve to act as barriers, alter the permeability of the landscape, inflict deleterious edge effects, and/or reduce/degrade accessible habitat must be fully considered, disclosed, analysed, and evaluated (see, *e.g.,* Eigenbrod, F. *et al*. 2008, Zheng, D. and J. Chen 2000, and Forman, R.T. 2000).

This has clear on-the-ground implications and applications. Without the full and fair consideration, evaluation, qualification, and quantification of the above relevant factors/issues (*i.e*., the existing situation or baseline conditions), the formulation of objectives, goals, desired conditions, and management actions is neither well-informed nor reasonable and is an abuse of discretion on the part of the agency. Meaningful public participation in the decision-making process is thereby thwarted. Implementation of a decision uninformed by the in-depth analysis of these significant issues/potential impacts would violate the NFMA, MUSYA and NEPA.

In the analysis of edge effects, the Forest Service should use a range of various spacial scales (*e.g*., 10-, 30-, 60-, 100-, 200-, 300-, 500-, 800-meters) and temporal periods (e.g., 10-, 30-, 50-, 70-, 100-years) in order to assess the quality and quantity of current and post-proposal edge effects on the Forest; this will reflect/represent varying edge penetration distances and the differing sensitivity of different taxa. See Didham, R.K. 2007, Fletcher 2006, Zheng & Chen 2000, Sisk, Haddad, & Ehrlich 1997, Fernández *et al*. 2002, Honnay *et al*. 2002 & 2005, Sisk and Haddad 2002, Harper *et al*. 2005,

Fischer and Lindenmayer 2007, and Matlack 1993. This is the distance of edge effect or DEI (the penetration distance of various environmental variables and gradients) of Zheng and Chen (2000) (also see Hambler 2004). The means are readily available to the FS (*i.e*., GIS technology) to make these estimates/determinations.
"Our multi-scale analysis accounts for variability in the penetrating distance of the different edge effects reported in the literature." (Wickham, J.D. *et al*. 2007) For instance, orientation or aspect influence microclimatic variables within forest edge (Matlack, R.M. 1993). Also see Schlaepfer and Gavin (2001) who contend that abiotic and biotic conditions are unlikely to be consistent among forest edges because variation as a function of distance and magnitude likely is affected by landscape variables.

For example, regarding Central Appalachian salamanders: "Because of high moisture levels, salamander populations may be less sensitive to habitat alteration in mesic forests relative to more xeric forest types (Petranka et al. 1993; Petranka et al. 1994; Ford et al. 2002b). Similarly, our modeling efforts suggest that edge effect magnitude is influenced most by landform attributes associated with moisture, particularly aspect. . . . because of diverse topography throughout the Appalachian Mountain region, forest edge effect magnitude may be exacerbated when located on southwesterly slopes." (Moseley, K.R. *et al*. 2008)

Confining the analysis of affects to nesting habitat of MIS Ovenbird just to "the number of acres cut" (see past GWNF EAs) is not sufficient as current scientific knowledge recognizes a potential 600-meter edge effect for bird populations (see "Roadside Surveys: Changes in Forest Composition and Avian Communities with Distance from Roads" by P. Leimgruber, W.J. McShea, and G.D. Schnell [submitted to FS], and Wilcove, D.S. *et al*. 1986, 1987).

For instance, planners must calculate the effect upon Ovenbird habitat quantity and quality if edge effects extend 150 m from roads and other human-made openings (much of the forested area in the project area may already represent lower-quality habitat for Ovenbirds); these calculations must include estimates for both pre- and post-implementation so that meaningful comparisons can be made for decision-making and public disclosure.

This edge effect extends into the surrounding extant forest from roads and cutting sites. Edge avoidance is exhibited by various species, including Ovenbirds (Villard, M.-A. *et al*. 1998). The inadequacy of the analysis is implied when past GWNF EAs referred to depredation and nesting habitat. As the Ovenbirds would no longer be nesting at the cutover sites, the increased predation would not be occurring there, but would be elsewhere. So the affects are obviously not confined just to the number of acres cut. The extent, distribution, and affects on that "elsewhere" are what have not been receiving the legal and necessary "hard look". "Being tolerant of edge environments, such species [mesopredators] not only increase in abundance, they further reduce the effective habitat area available to forest-interior species because they compete with, prey upon, or parasitize them or their nests." (Harris, L.D. *et al*. 1996) (emphasis added) See also Porneluzi, P. *et al*. 1993.
For Ovenbirds, a "ubiquitous distribution of roads through forested areas potentially represents a significant cumulative reduction in abundance of the species (Rich et al. 1994). If edge effects extend 150 m from roads and other human-made openings, 40% of the forested area in the northern half of the GMNF may represent lower-quality habitat for Ovenbirds. Roads themselves account for more than 50% of the edge area in the region. . . . diminished productivity would limit the forest's capacity to function as a population source for forest fragments outside the GMNF that are population sinks (Pulliam 1988). As private lands become increasingly susceptible to subdivision and development, public lands such as the Green Mountain National Forest will become more important sources of contiguous forest habitat needed to sustain populations of forest-interior species (Askins 1994). Our study suggests that even narrow forest roads should be viewed as sources of habitat fragmentation that exert negative effects on the quality of habitat for forest-interior species such as the Ovenbird."

(Ortega, Y.K. and D.E. Capen 1999) (emphasis added) See also Rich, A.C. *et al*. 1994 and Reed, R.A. *et al*. 1996. Concerns/issues/effects such as were mentioned above for the GMNF are also *apropos* here. "Some potential mechanisms for edges influencing bird distributions include changes in habitat structure, food availability and species interactions near edges (Fletcher & Koford 2003a; Ries et al. 2004), some of which could potentially be exacerbated near multiple edges." (Fletcher, R.J. 2006) For example, in hardwood forests of Wisconsin's Nicolet NF and a state forest, edge effects on Ovenbird nest success and clutch size extended 300 m into intact forest from recent clearcuts <6 years old (Flaspohler, D.J. *et al*. 2001). Concerns/issues/effects such as were mentioned above for the NNF are also *apropos* here.

In addition to "interior" species, of concern are the direct, indirect, and cumulative impacts of Forest management activities upon area-sensitive and/or "remote" species (*e.g*., Least Weasel, Northern Saw-whet Owl, Black-billed Cuckoo, Swainson's Warbler, Cerulean Warbler, Forest Rattlesnake, Jefferson Salamander, Scarlet Tanager, and Black-throated Blue Warbler).

Of additional concern are the direct, indirect, and cumulative impacts of Forest management activities upon the Deer population/habitat. Who could reasonably think there is a shortage of Deer? There is already a very high density of Deer on the Forest, recently estimated at 31/square mile (DCER - 45). In Virginia, the White-tailed Deer population has increased 400% since 1968, and Virginia's human population has increased 61% (Donaldson, B.M. 2005). Deer are the most dangerous wild animal to human safety in the country (*id*.). High Deer populations harm flora and fauna, including rare species (*e.g*., sensitive plants and ground-nesting birds) (see JNF FEIS 3 – 137, references). High Deer densities also reduce tree seedlings such as regenerating oaks.
If there is a problem with oak regeneration on the GWNF, what is not being properly considered is that perhaps a major 'problem' for oaks can be called (as in the popular vernacular): 'It's the Deer, stupid'. See, *e.g*., Rooney, T.P. *et al*. 2004. Is there actually a lack of oak regeneration on the Forest? Or is there regeneration, but the regeneration is being eaten and suppressed/destroyed by Deer? The FS must clearly and fully analyse and disclose this issue.

There are already excessive Deer numbers as regards forest or ecological health. For instance, Deer populations such as are found at the current density on the Forest are considered harmful by Maryland state biologists and others; see, *e.g*., 15-20/sq. mi. in Marquis, D.A. and M.J. Twery 1992. Also see Deer numbers for Alts. 3 & 8A at GWNF FEIS 2 – 28.
At pg. 46 the FS expresses concern about "increasing deer damage to plant communities". Unfortunately, and incongruously and unreasonably, the agency's response is "increased management to enhance deer forage on the GWNF".

Of course, this "increased management" will serve to enhance Deer populations (deer/browse treadmill), which of course exacerbates ecological damage from Deer, and on and on *ad nauseum*. In addition, logging ("enhance deer forage") directly and indirectly damages plant communities in other ways.
See Rooney, T.P. and D.M. Waller 2003; Meier, A.J. *et al*. 1995; Russell, F. L. *et al*. 2001; Miller, S.G. *et al*. 1992; Côté, S.D. *et al*. 2004; Waller, D.M. and W.S. Alverson 1997.
And the harmful effects of the Deer herd are not limited to plants; see, *e.g*., W. McShea, 1997, "Herbivores and the ecology of forest understory birds", in The Science of Overabundance, McShea, Underwood, and Rappole, editors.
The FS has known for years that high/current numbers of Deer are a significant problem (see, *e.g*., Waller, D.M. and W.S. Alverson 1997, McShea, W. 1997, and Miller, S.G. *et al*. 1992). Yet, the FS response here is the exact opposite of what should be done. We need to restore areas that have been and are being impacted by high Deer densities by implementing management practices that would serve to reduce the deer population. Instead, implementation of this proposal would maintain a damaging situation or make it even worse.

The agency has elsewhere rationalized this mess with "deer populations can be sustained at levels to meet public demands for viewing and hunting" - 46.
What public viewing demands? What data source? How was this so-called "viewing" demand quantified? And fewer hunters are already killing more Deer than ever - how easy must it be made for them? What hunting demand? What about the demand for a quality hunting experience (as opposed to sheer quantity)? What about the public demand for viewing Deer at population levels that are not damaging to forest ecosystems? How are the GW planners responding to this issue? What actions has the FS taken to educate "viewers" about the harms posed by high Deer populations?
The FS proposed response to maintain and even increase Deer numbers (to "enhance Deer forage" at this project area which will serve to enhance Deer population numbers) is quite simply unreasonable. For one thing, on top of ecological damage, Deer are already a significant economic problem (*e.g.*, personal injuries and insurance claims of $1 billion/year) and source of property damage (*e.g.*, crops and automobiles) (Donaldson, B.M. 2005; Clark, B. 2003).

Agency Response: Habitat fragmentation is a key issue for viability of local populations of breeding birds and other species like salamanders in some mature mesic deciduous forest settings. Birds in this group avoid forest edges during nesting and are adapted to forest interior conditions. Most are neotropical migrants that primarily nest and raise young in the temperate Americas. These species are grouped for effects analysis due to their sensitivity to forest fragmentation and edge effects (Forest Plan EIS, page 3-127). Effects to wildlife are disclosed in the Draft EA beginning on page 121. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): To assess the impacts to fish or aquatic species, Brook Trout and sunfish are used as MIS on the GWNF (see 1993 LRMP 2 – 8-9).
However, according to numerous site-specific EAs, trout and sunfish do not exist in the project areas (see, *e.g.*, Pedlar RD Shady Mountain TS EA-43); or they may not exist in all streams in a project area (such as here).

As a consequence, there are no MIS in such project areas or streams with which to survey, inventory, and monitor so as to estimate, gauge, analyze, and assess the affects of the projects and existing roads upon aquatic populations and communities.

Nor are there any MIS in such project areas or streams with which to survey, inventory, and monitor so as to estimate, gauge, analyze, and assess the affects of future projects upon aquatic populations and communities.

Nor are there any MIS in such project areas or streams with which to survey, inventory, and monitor so as to estimate, gauge, analyze, and assess the affects of past projects upon aquatic populations and communities. There are no aquatic MIS with which to assess the impacts of the previous logging and "X miles of open unpaved road" there and, consequently, nothing in the projects' administrative records on the effects (based upon MIS monitoring) of these roads and recent past cutting upon aquatic populations.

And there are no MIS in such project areas or streams with which to survey, inventory, and monitor so as to estimate, gauge, analyze, and assess the cumulative effects upon aquatic populations and communities from those projects in conjunction with other past, present, and reasonably foreseeable future actions.

Even if trout or sunfish are not present, streams and waterways in project areas have aquatic populations and communities living in them. These species, populations, and communities are dependent upon the aquatic habitat in these streams. And there may be populations of Locally Rare species in these streams. Various beneficial uses that we gain from project area streams are dependent upon the existence of these aquatic species, populations, communities, and diversity.

Further, there are no indicator species that are monitored in intermittent and ephemeral streams, many of which exist in project areas.

FS planners must explicitly use in detail some other species/methodology to analyse and consider and estimate and disclose impacts to stream species and communities and diversity and sustainability where trout and/or sunfish do not occur.

Agency Response: The 1982 planning regulations guiding implementation of the National Forest Management Act charge the Forest Service with managing national forests to provide for a diversity of plant and animal communities consistent with overall multiple-use objectives. One planning tool used to accomplish this requirement is the designation of Management Indicator Species (MIS). They and their habitat needs are used to set management objectives and minimum management requirements, to focus effects analysis, and to monitor effects of plan implementation. MIS have been chosen to represent: threatened and endangered species; species with special habitat needs; species commonly hunted, fished, or trapped (demand species); non-game species of special interest; and species that indicate effects to major biological communities. The Forest Plan selected wild brook trout to indicate effects of acidification of stream systems, and the effectiveness of management in mitigation these effects and effectiveness of management in meeting public demand for this species. Selection of MIS is done at the plan level and is outside the scope of this project.

The Draft EA discloses the effects of implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on various resources within the project area including wildlife and aquatic organisms beginning on page 121. The analysis is adequate for the Responsible Official to make a reasoned decision.

Comment (Steven Krichbaum): We are concerned that consideration of riparian areas by the GW planners is inadequate, unreasonable, and/or unduly constrained.

Agency Response: The Draft EA discloses the effects implementing the no action (Alternative 1) and action alternatives (Alternatives 2 & 3) on riparian areas and wildlife beginning on page 80. The analysis is adequate for the Responsible Official to make a reasoned decision. To protect riparian areas, all alternatives were designed to avoid harvesting in floodplains, wetlands, and riparian corridors (Management Area 11), as delineated on the ground on the basis of soils, vegetation, and landform in accordance with Appendix X of the Forest Plan. Forestwide Standards FW -139, FW-140, FW-142 thru 145 also apply (Forest Plan p. 4-15).

Comment (Jay C. Jefferies, VDGIF): We are in agreement . . . with the need for promoting biological diversity and ecological restoration. Again for communication reasons we suggest the use of "Young Forest" where appropriate in these sections. It would be important in any discussion of ESH to differentiate between Young Forest habitat and permanent herbaceous openings.

Agency Response: We have used the term early successional forest which is defined as regenerating forest 0 to 35 years of age, depending upon the ecological system.