From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments to proposed GWNF planning document
Date: Monday, October 17, 2011 9:47:12 PM

Dear Planning Committee and GW Forest Stakeholders:

All throughout the draft planning document there is one recurring theme: protect the quality of the water.

I think this is very commendable in theory, but in practice will be very hard to monitor and control.

One significant risk factor is the proposed permitting of hydraulic fracturing.

Oh yes, the proposed plan states there will be NO horizontal fracking.

But what exactly does that mean? Horizontal to what? Possibly the terrain surface - which can vary a lot?

And opposed to what? Vertical? Then it needs to be spelled out what "Vertical" really means – i.e. will there

be a fudge factor of say 2 to 3 degrees? Or more?

The planning document provides no definition for "horizontal fracking"– at what point will a deviation from

"horizontal" be considered "vertical" and thus legal?

I ask you to please spell out the criteria, so that when a permit is issued there will be no doubt, and also no

doubt when the inspector comes to look at the well.

Speaking of inspectors – intentions are all well and good, but with ever tighter budget constraints it is a

sad fact of life that inspections will be sporadic and not comprehensive. Inspectors need all the regulatory

help they can get to be able to do their job.

Unfortunately, accidents have happened in the past. There is plenty of evidence in the Western states

where fracking has been going on for years and the quality of drinking water, irrigation water, and the health

of residents in general have been severely compromised.

Fracking is inherently risky!

Respectfully,

Ulrike H. Wertz

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: FOREST PLAN
Date: Monday, October 17, 2011 10:12:35 PM

Friends,

I was involved with the Virginia Wilderness efforts back in the early '70s. I knew Ernie Dickerman, he was an incredible inspiration. His advice was – be patient, eventually people will understand the value of wilderness and act to preserve what is left. We identified roadless areas and special stands of old growth. We went to hearings to advocate that these areas be set aside as wilderness area. At these hearings we were the recipients of verbal and physical abuse. I do not think that other members of any other groups were treated this way and I am sure that no one form the wilderness community treating others like that.

I am not sure of where that animosity comes from but it has not changed or abated. I was recently advocating for wilderness (for the first time since the 70s) at a meeting of the Rockbridge County Board of Supervisors. Same abuse, same people and guess what? – some of the same few little parcels of National Forest were still being talked about. And, in spite of the fact that the Board urged the Forest Service to designate these area as wilderness, the Forest Service declined to do so.

In the 70s we advocated that Laurel Fork be designated a wilderness. It is still not a wilderness but to this day remains one of the best candidates for wilderness designation in the state (and I am including all present wilderness areas). There are a limited number of roadless areas on the GW / J National Forest. If all of those areas were made wilderness by the gods this evening it would be hardly noticeable in terms of timber, minerals, wildlife management or any of the multiple uses the Forest Service needs to consider. If all of those areas were made wilderness there would probably be no more calls for wilderness designation.

Why the animosity and why the resistance to the designation of these few acres of the forest by the Forest Service? It is politics, plain and simple. I believe that the Forest Service and the commercial users of the Forest have used the wilderness community as a scapegoat. An idea and group(s) that the Forest Service and the commercial interests can bond together and agree to dislike and disparage. This is seen by the commercial interests as the Forest Service / government as being responsive to their wishes and interests. If the Forest Service decided to recommend all of the areas as wilderness the wrath of the commercial interests and the Goodlatte would be incredible.

So, although I know that it is a waste of time I will follow Ernie's advice – be patient.

Perhaps the Forest Service will decide to do the right thing backed by science and not beholden to the politics of the situation. But I know that time is running out, climate change and the thirst for government land for energy - be it wind, natural gas or biofuels as well as rural sprawl will make it harder and harder to make the right (difficult) decision. In spite of the fact that there are few federal rep[s available to carry the ball and submit any wilderness bills, I hope you will go back and add all of the possible wilderness areas suggested in the past by the Virginia Wilderness Committee to your recommendations.

Thanks,

Chris

John C. Wise
Fairfield, VA 24435

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: GW Forest Management Plan
Date: Monday, October 17, 2011 9:47:25 PM

The Tidewater Appalachian Trail Club is responsible for the maintenance of the Appalachian Trail from Reeds Gap to the Tye River. For the most part, we support Alternative G. Though this proposal does not involve any changes to the Fire Road (from Love Gap into Maupin Field) or Maupin Field itself, we would like to reiterate the importance of keeping these areas outside of the Wilderness Boundary as they are vital for site management of Maupin Field as well as enabling emergency access to the Appalachian Trail. Our section of the Appalachian Trail forms a very popular "loop hike" with the blue-blazed Mau-Har Trail that is enjoyed by thousands of hikers annually. Accidents occasionally occur and if not for the access afforded by the Love Gap Fire Road many evacuations would have been next to impossible.

We would also like to take note of the possible designation of the area around and including the Appalachian Trail Tye River Suspension Bridge as RWSA, as in Alternative C. We are opposed to this designation as this would make bridge maintenance and repair extremely difficult.

Phyllis Neumann
President
Tidewater Appalachian Trail Club

Shenandoah Riverkeeper
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Boyce, VA 22620
540.837.1479
www.shenandoahriverkeeper.org

October 17, 2011

Maureen Hyzer, Forest Supervisor
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear Supervisor Hyzer,

On behalf of Shenandoah Riverkeeper I would like to submit comments regarding the George Washington National Forest Draft Land and Resource Management Plan and Draft Environmental Impact Statement. Shenandoah Riverkeeper has approximately 500 members who have joined the organization so that their use of the Shenandoah River and its tributary streams can be protected. Numerous important headwater streams within the GW National Forest drain into the Shenandoah and are important sources of cold clean water for river users, wildlife, not to mention the fact that the forest was originally established in part to protect the drinking water source for millions of DC Metro area residents.

I have endorsed George Washington National Forest Stakeholder Group Consensus Agreement and Comments on the Draft Plan Version 1.12 dated September 16, 2011. Additionally I would like to submit very brief comments on Marcellus Shale Exploration.

Shenandoah Riverkeeper emphatically supports your proposed ban on horizontal drilling in the Forest on the portions of the GW National Forest where the gas rights have not been severed from the surface rights – where the US Government retains ownership. The industrialized development of the Marcellus Shale formation with horizontal drilling is a completely incompatible use of the National Forest. If permitted, the development of the Marcellus Shale would give nearly entire use of the National Forest over to private interests and corporations for the entire duration of the development. It is incompatible with hiking, biking, hunting, fishing, camping, birding, bird –watching, ecosystem establishment and maintenance, wilderness areas, roadless areas and more.

If gas is developed and there are no accidents, the impacts will still be tremendous due to water withdrawals, sediment pollution, noise pollution, air pollution, surface disturbance leading to loss of use and enjoyment of the forest by private citizens and loss of wildlife abundance and diversity in direct conflict with all public uses of the forest.

If gas is developed and there are accidents and/or permit violations, then direct and dire long term pollution of the streams and forests that drain into the Shenandoah River will result in direct conflict to all public uses of the Forest.

Thank you for considering my comments,

Sincerely,

Jeff Kelble - Shenandoah Riverkeeper

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: comments on the george washington national forest plan revision
Date: Monday, October 17, 2011 9:55:41 PM

Proposed Forest Plan for the George Washington National Forest

Thank you for the opportunity to comment on the Draft Forest Plan and Draft Environmental Impact Statement for the George Washington National Forest. I write as a member of Trout Unlimited, a resident of the Shenandoah Valley, and a George Washington National Forest user, to support the Forest Service's recommended Forest Plan and the proposed protection for native eastern brook trout including the prohibition on horizontal drilling in the George Washington National Forest.

Brook trout populations throughout the East are drastically reduced from historical levels. In Virginia, only 29% of the historically occupied habitat still supports intact healthy brook trout populations. Much of the remaining habitat is found in the George Washington National Forest, which supports 60% (1,120 miles) of the state's brook trout streams. Protecting these watersheds will ensure future recreational opportunities on the Forest and off. The clean, cold water that flows from the George Washington National Forest helps to sustain fisheries in downstream waters such as the Shenandoah River, Potomac River and Chesapeake Bay, serving an integral function of supporting Virginia's $734 million fishing industry.

The George Washington National Forest has proven commodities that provide recreational opportunities and contribute to Virginia's economy. Activities such as fishing for wild trout and hunting deer, bears, and turkeys generate millions of dollars for local communities. These recreational opportunities are too valuable to Virginians to be put at risk for an unproven (in Virginia) natural gas reserve. In Virginia, the Marcellus Shale play is unproven and given the area's geology may not even be at economically recoverable levels.

Brook trout in Virginia already face an uphill battle to remain at current population levels. In the George Washington National Forest, adding another threat from horizontal drilling and hydraulic fracturing could be devastating for the species. At every step of the drilling and fracturing process brook trout would be put at risk if the large quantities of water necessary for hydraulic fracturing were taken from headwater streams leaving them dry, or if produced waters from the drilling and hydraulic fracturing process were spilled or disposed of in a brook trout stream.

I strongly support the Forest Service for including a prohibition on horizontal drilling on any new federal oil and gas leases in the George Washington National Forest. I thank the Forest Service for including these provisions and others such as increased widths for riparian corridor buffers and making brook trout a management indicator species in the

Draft Forest Plan. These measures will help ensure that brook trout and coldwater resources of the forest are sustained, and I urge the Forest Service to maintain these provisions in the final Forest Plan.

Sincerely,

Seth Coffman

VIRGINIA COUNCIL, 8644 Rivers Edge Lane, Weyers Cave, VA 24468

October 15, 2011

George Washington Forest Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear Supervisor,

The Virginia Council of Trout Unlimited (VCTU) would like to thank the US Forest Service for the opportunity to be involved in the development of and to comment on the revised Forest Management Plan for the George Washington National Forest. The watersheds of the George Washington and Jefferson National Forests are the last great strongholds for brook trout in Virginia, and together with Shenandoah National Park, make up over 70% of the remaining suitable brook trout habitat in Virginia. Trout Unlimited is the America's foremost coldwater conservation organization, composed of over 140,000 conservation–minded anglers and a professional staff of over 160. The Virginia Council represents the efforts of 4,000+ members and 15 chapters throughout the Commonwealth of Virginia. VCTU has been a strong partner to the GW&JNF for many year and have brought significant manpower and financial resource to such recent projects as St. Mary's Wilderness, North River, Glen Alton and the Holston River.

Over the past year VCTU representatives have participated in four USFS Inter-Disciplinary Team meetings focused on the drafting of the forest management plan prescriptions and defining the NEPA alternatives. We enjoyed collaborating with USFS's professional staff. Early in that process VCTU submitted formal comments on the types of coldwater fishery management and watershed protection & improvement measures we would like considered for the forest plan revision. We also provided three maps of brook trout distribution, relative population health, and preferred management options for each watershed within GWNF based on TU's Conservation Success Index mapping. GIS layers for the distribution of the Marcellus Shale Formation in Virginia and access to our Shenandoah Headwater Home Rivers Initiative staff were provided to assist in the assessment of the emerging gas shale hydrofracking issue. VCTU members participated in at least five of the public comment meetings that the Forest Service held throughout the region.

VCTU representatives also participated in eight meetings of a GWNF Stakeholder Group, a mediated group of representatives from the wood products industry, wilderness and conservation

groups, access advocates, sportsman groups, and agency representatives. Our participation stemmed from our interest in developing an inclusive, multi-user agreement regarding the forest. Please note that VCTU is a signatory to the collaborative document submitted by the stakeholders group.

Based on this record of involvement, VCTU would like to offer the following comments regarding the draft management plan and supporting NEPA documents:

The Virginia Council of Trout Unlimited fully endorses the adoptionofpreferredAlternativeG as written and fully supports the NEPA environmental evaluation developed for the proposed Forest Plan revision. Though small improvement can always be voiced, VCTU feels that the GWNF staff has developed a thorough and comprehensive document supporting the multi-user mandate of the National Forest while providing greater fishery and watershed protections. We would rather that the existing documents and management prescriptions, including the proposed ban on horizonal drilling, remain unchanged from those currently stated in Alternative G. We are concerned that opening up the preferred option to further revision will result in an overall reduction in the protections that the draft plan provided.

In particular, VCTU supports the continued designation of brook trout as a special management species and the greater widths stipulated for the protection of perennial, intermittent and ephemeral drainages. We support the continued removal of fish movement barriers, the increased use of large woody debris, and other in-stream habitat work. Adequate discussion and monitoring is provided for the mitigation of landscape scale environmental degradation problem including acid precipitation, climate change, and the loss of environmentally significant species such as the eastern hemlock. Although TU's national policy is to support the designation of wilderness for the preservation of intact and healthy trout populations, we support the USFS resistance of additional designations until adequate environment monitoring and mitigation has taken place. The proposal of a ban on horizonal drilling on federally owned mineral rights for the duration of the plan (~15 years) seems reasonable and appropriate given to current state of environment controversy the practice has creating in other states and the Forest Service's mandate to protect public lands. VCTU has provided comments under separate cover for shale gas management if the complete ban is not upheld.

VCTU would like to commend the work of Dawn Kirk and the entire biology staff on their excellent grasp and application of modern, science-based conservation and landscape management. The GWNF Planning and NEPA staffs also deserve special recognition for their professional management of the very complex NEPA process and handling of the more contentious elements of the forest plan.

The VCTU fully supports Alternative G as written and fully supports USFS in its adoption without modification. Thank you for protecting, reconnecting, restoring, and sustaining America's coldwater resources.

Graham H. Simmerman, Jr., Chair
VIRGINIA COUNCIL OF TROUT UNLIMITED

VIRGINIA COUNCIL, 8644 Rivers Edge Lane, Weyers Cave, Va 24468

October 15, 2011

George Washington Forest Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear Supervisor,

The Virginia Council of Trout Unlimited (VCTU), representing 4,000+ members and 15 chapters throughout the Commonwealth, supports the NEPA process undertaken by the USFS and the resulting Alternative G, the USFS's preferred alternative for the George Washington National Forest Management Plan. This plan alternative calls for a complete ban on horizonal drilling on all federally controlled mineral right properties for the life of the proposed management plan (~15 years). VCTU believes this is a reasonable and protective stance given the newness of the shale gas extraction industry in the Appalachian region, the pattern of cumulative impacts being demonstrated in other states, and the "gold rush" mentality with which shale gas development is moving forward.

The VCTU fully supports Alternative G as written and fully supports USFS in its adoption without modification. We understand however that the energy extraction industry and its agents, which had previous refrained from participating in the forest planning process, are now bringing political pressure to this issue. Given some potential that the horizonal drilling ban could be reduced, and the certain impact that uninformed and unfettered energy development in GWNF would present, VCTU has elected to forward a list of reasonable provisions and controls for shale gas development within the national forest. This list, developed in consultation with Trout Unlimited's national conservation staff, reflects our informed observations on options to balance the ecological impact and the possible energy development given our experience with shale gas development throughout the eastern states.

If horizontal drilling and hydraulic fracturing are permitted within the GWNF, then the following restrictions and best management practices should be implemented:

1. Prohibit drilling in certain land use area prescriptions (roadless areas, special biological areas, concentrated recreation areas, special regulation waters, and designated wilderness

areas). Absolute prohibition of drilling in critical drinking water supply watersheds identified in the forest plan.

2. Conduct a full cumulative impact analysis and build-out of all possible water withdrawals, wastewater accumulation and well pads in the GWNF, prior to issuing permits for drilling.

3. Comprehensive hydrogeological test results from an independent source should be conducted to assess impact of withdrawals on groundwater and surface water. Results should include amount of available water in aquifer and aquifer recharge rate. If water withdrawals are permitted within the GWNF, then metering should be required at each site and authority for the USFS to cut off such withdrawals, if conditions demand, should be explicit and unrestricted in any water withdrawal agreement. Additionally, stream gauges and data loggers should be required upstream and downstream of the withdrawal point.

4. Prohibit water withdrawals from trout streams within the GWNF. Prohibit drilling processes (including transportation of wastewater, drilling, or hydrofracking) in trout watersheds during spawning season.

5. Prohibit land application of wastewaters, on-site waste burial or open wastewater storage pits.

6. Establish minimum setbacks of at least 300 feet from riparian resources, USFS roads, developed recreational areas, and property boundaries for well pads, compressor stations, storage pits, and other drilling-related infrastructure. Prohibit drilling, construction of impoundments and well pad location in the 100-year floodplain.

7. Prohibit disruption of existing trails, roads or other forest uses. Respect the state's long-held sporting traditions and prohibit drilling activity (including road traffic) on opening days of hunting and fishing seasons.

8. Develop regulations to limit tankage and equipment size, noise and emissions limits, and the aggregated impact of multiple pad or operations in close proximity.

9. Require minimization of vegetation loss in construction of well pad and associated drilling infrastructure. Prepare a plan for remediation of well site and re-vegetation, requiring native vegetation.

10. Require implementation of stormwater best management practices for well pad and road and utility/pipeline construction and ensure that such practices are functioning, prior to allowing drilling to move forward.

11. Require drill/frack fluid containment design minimums, including storing drilling waste and wastewater in closed loop systems. Require the operator to submit, as part of the permit application, all plans related to treatment, storage and disposal of drilling waste and wastewater.

12. Require operators to install GPS units in trucks that will be transporting drilling waste and wastewater from the sites for disposal and/or treatment. Require each truck to carry a

manifest that describes the volume of wastewater, chemicals used, concentrations, location taken from/going to, and well pad name.

13. Require operators to demonstrate appropriate wastewater management plans, including identifying where the wastewater will be treated, certifying that a contract has been signed with an appropriate treatment facility (where appropriate), and demonstrating that the treatment plant has the ability to treat the waste. Prohibit the discharge of treated drilling wastewater into streams and on lands within the GWNF.

14. Pre-, during-, and post–development water quality monitoring should be required for surface and ground waters. Locations of monitoring sites should be based upon well pad proximity, the extent of the horizontal leg of a well bore, and sensitive downstream watersheds. Parameters tested should include flow, TDS, chlorides, conductivity, Barium, Strontium and Radium, and other chemical and benthic parameters. Monitoring should occur at least one year after drilling and hydraulic fracturing is completed. If multiple hydraulic fracturing episodes are to undertaken for periodic well re-development, monthly or quarterly sampling should occur though out the well life.

15. Air emission monitoring for local and cumulative effects. Air permit should be required and enforced where necessary.

16. Require an invasive species control management plan for each land clearing operation. Require inspection of all vehicles for invasive species (invasive flora and fauna), including pumper trucks, construction equipment, tractor trailers transporting rig components. Require sub-contractors and drill workers to undergo training on what species are invasive and how to clean equipment prior to entering site.

17. Wherever aquatic invasive species may be present (such as the Jackson River) and in watersheds where DEQ investigation fish kills, water treatment and restrictions on the extra-basin transfer of surface water should be put in place.

18. Require bonds to ensure road maintenance (maintaining in current condition) and adequate environmental performance bonds to ensure compliance with permit conditions and regulations (flat fee plus % of production).

19. Require permit fees to go toward a remediation reserve fund for GWNF use.

20. Require operators to sign sharing agreements to limit the number of collection lines, gathering systems and pipelines. Require that all proposed pipeline stream crossings meet certain criteria designed to reduce impacts to aquatic life and habitat.

21. Require adequate site sanitation requirements for all temporary and permanent manned operations.

22. Establish reasonable lease permit timeframes (preferably five years, and definitely not beyond the forest plan period, ~10 to 15 years) to ensure that the USFS has the opportunity to revisit lease conditions.

23. Develop a plan for inspection, monitoring and enforcement of gas drilling related activities and provide opportunities for public comment. Require operators to submit for approval an emergency spill/accident contingency plan and to certify that spill teams can respond within a specific short time frame.

24. Develop formal utility assess terms & limitations and develop construction & operation standards and protective of GWNF. Avoid the use of herbicides and pesticides in close proximity to surface water and wildlife. Use appropriate, low-maintenance seed mix for re vegetation any denuded areas.

25. All easements should contain reversions clauses to clearly convey back to USFS upon inactivity.

As matter of national policy, Trout Unlimited does not object to reasonable and environmentally neutral mineral and energy development, so long as those operations do no impact and degrade our shared coldwater resources and watersheds. We continue to support the full ban on horizonal drilling as a reasonable and appropriate decision for the duration of the current forest plan. If the ban is reversed, in part or in whole, we implore USFS to consider and implement the environmental controls offered above.

Thank you for protecting, reconnecting, restoring, and sustaining America's coldwater resources.

Graham H. Simmerman, Jr., Chair
VIRGINIA COUNCIL OF TROUT UNLIMITED

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments on the Draft GWNF Land and Resource Management Plan
Date: Monday, October 17, 2011 10:34:00 PM
Attachments: Rick_Webb_101711-GWNF_Plan.docx
Rick_Webb_101711-GWNF_Plan.pdf

My comments follow and are also attached as Word and a PDF documents -- Rick Webb

October 17, 2011

Maureen Hyzer, Forest Supervisor
George Washington National Forest
5162 Valleypointe Parkway
Roanoke, VA 24019-3050

RE: The Draft Land and Resource Management Plan for the George Washington National Forest

Dear Supervisor Hyzer:

My comments focus on the issue of commercial-scale wind energy development in the George Washington National Forest (GWNF).

The draft Land and Resource Management Plan would allow this type of development on a large part of the GWNF. My view is that the cost of this type of development, with respect to the scale of disturbance and negative impact to other GWNF attributes, is disproportionate to any possible benefits related to energy supply, reduction in fossil fuel extraction and use, or reduction in carbon and pollutant emissions.

The cost-benefit ratio associated with commercial wind development in the GWNF is much worse than in many other regions of the U.S. where wind development has occurred or is proposed. This is due to:

(1) The large amount of land disturbance required for the construction of turbines and associated roads and other infrastructure on forested ridges.

(2) The environmental quality and sensitivity of forested ridges in the GWNF.

I believe that the Forest Service will, in fact, reject proposals for wind development in the GWNF if resource managers are able to conduct assessments supported by access to the information required for objective cost-benefit analysis.

Although the wind industry and its advocates make claims concerning the benefits of wind development that are purported to outweigh the environmental costs of this development, analysis to support these benefit claims is nonexistent, weak, or unavailable for public review. In other words, the wind industry asks for acceptance of claims that cannot be verified. This is largely because the industry will not or cannot provide the data that would allow verification.

For example, I served on a National Research Council committee that sought to evaluate the environmental costs and benefits of wind energy development in the Mid-Atlantic Highlands region, which includes the GWNF (National Research Council, 2007. Environmental Impacts of Wind Energy Projects. Washington, DC: National Academy Press, http://www.nap.edu/catalog/11935.html). The committee found that estimates of wind-energy contributions to reduction of air-pollutant emissions in the U.S. are highly uncertain due lack of access to critical data, including proprietary or confidential information related to both wind-energy performance and identification of displaced electricity generating units.

If the GWNF Land and Resource Management Plan is to allow commercial wind development, I request that the plan include the following standards or requirements:

(1) Any permit application for any wind energy project shall include publically reviewable data and analysis that quantify any purported benefits associated with the particular proposed project.

(2) As a condition of wind energy project approval, the project owner shall be required to provide annual reports that quantify any benefits of the project, including all data used to quantify the benefits, including the complete record of hourly electricity generation from the wind project and all other data used to quantify displacement of other electricity generation units.

In addition to these requirements for full transparency and accountability related to benefits, I also request that proposed projects be assessed in relation to potential environmental impacts, including forest and habitat fragmentation, earth disturbance and soil loss, impacts to ground and surface water, direct and indirect impacts to wildlife, and damage to other Forest qualities. I also request that any permitted project be subject to independently designed wildlife mortality monitoring requirements, with mortality thresholds established that require project curtailment or termination.

It is my perspective that commercial wind energy development is an inappropriate use of the GWNF and that it should be prohibited in the GWNF Land and Resource Management Plan. However, I also believe that strict requirements for full disclosure with respect to environmental benefit claims and full accountability with respect to environmental costs should achieve the same result as prohibition and effectively prevent commercial wind development in the GWNF.

Thank you for taking my concerns and perspectives into consideration.

Sincerely,

Rick Webb

481 Ravens Run Road
Monterey, Virginia 24465
rwebb@vawind.org

The Shenandoah Valley Bicycle Coalition
PO Box 1014 Harrisonburg, VA 22803
www.SVBCoalition.org

October 11, 2011

Maureen T. Hyzer, Forest Supervisor
Attn: George Washington Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019–3050
comments-southern-georgewashington-jefferson@fs.fed.us

Dear Ms. Hyser:

The Shenandoah Valley Bicycle Coalition (SVBC) is a non-profit organization based out of Harrisonburg, Va and focused on all types of cycling. We have been involved with the George Washington National Forest for nearly two decades, previously as the Shenandoah Mountain Bike Club. Much of our historical focus has been on volunteer trail work in the North River and Lee Ranger Districts. Lately we have also been involved with forest planning in an effort to protect access for what is an increasingly popular and growing sport. We greatly appreciate the openness and transparency of the most recent GW planning process. The ability to attend IDT meetings has been invaluable for our own education and have been a great opportunity to gain access to the planning process in its early stages. The SVBC has been involved and endorses two separate initiatives that have an interest in the planning process. Each of these initiatives have submitted comments concerning the draft plan. These are the Friends of Shenandoah Mountain and the GW Stakeholders initiative.

Friends of Shenandoah Mountain

The SVBC was an early supporter of the Friends of Shenandoah Mountain agreement (FOSM) and has worked to ensure that the special blocks of remote land on Shenandoah Mountain remain protected for future generations. At the same time ensuring continued access to many of the trails for bicycles and mechanized maintenance. Wilderness proposals were crafted with boundary adjustments to take into account the unfortunate reality that bicycles are currently prohibited from traveling on trails within wilderness boundaries. As such the FOSM wilderness recommendations would only impact two seldom used trails within the Little River Roadless Area and create boundary adjustments to eventually open a portion of the Shenandoah Mountain Trail (currently in Ramsey's Draft) to bicycles.

The SVBC supports all of the comments submitted by the FOSM and looks forward to working

with the Forest Service to make Shenandoah Mountain a special management area within the George Washington National Forest. The trails located on Shenandoah Mountain are nationally recognized as a phenomenal place to ride a bicycle. National caliber events such as the Shenandoah Mountain 100 further demonstrate the quality of trails located within the FOSM proposal.

GW Stakeholder Group

The SVBC has been involved with the GW stakeholder group since inception. As an active and involved participant, the SVBC has represented mountain bikers in addition to more general recreational interests. The stakeholder planning recommendations have been crafted to meet the access needs of mountain bikers who desire access to trails and the ability to use mechanized means to maintain and construct new trails. As such the SVBC fully supports the GW Stakeholder Consensus agreement that has been submitted as comments to the draft plan. As the stakeholder process moves onto the project level phase the SVBC looks forward to the assisting the forest service by improving existing system trails through routine maintenance and continued re-location of legacy trails onto sustainable alignments. The SVBC also plans to use the stakeholder process as an avenue to begin planning and development of stacked loop trail systems in the George Washington National Forest.

The stakeholder process echoes many of the FOSM recommendations including Wilderness Study Areas for the following Inventoried Roadless Areas: a portion of Little River, a portion of Ramsey Draft and High Knob (aka Skidmore Fork). The following would be recommended for National Scenic Area designation: Gum Run/Oak Knob/Hone Quarry/North River Gorge (aka Shenandoah Mountain) –approximately 55,000 acres. In addition, the stakeholder group agreed to recommend the following for wilderness study areas: Three Ridges Additions – approximately 370 acres, Beech Lick Knob – approximately 6,200 acres, St. Mary's West – approximately 300 acres, Rough Mountain Addition – approximately 1,900 acres, Rich Hole Addition – approximately 8,200 acres.

Trails and Access

While the SVBC advocates for the creation of new trail systems in the GW and hope to some day have stacked loop trail systems with a variety of difficulty levels. At the same time, we are acutely conscious of the funding hurdles to bring trail projects to life. The draft plan limits new trails to three percent or less than thirty miles. Such a limitation could have far reaching consequences on future trail building efforts especially given the mileage required to develop sustainable curvilinear trails. The SVBC opposes planning decisions that limit or prohibit an increase in human powered, non-motorized, trail-based recreation opportunities. Once a part of the management plan, such a stipulation would greatly impair the ability of volunteer groups such as the SVBC to bring money to table for the creation of new trails.

We would like to see the creation of stacked loop trail systems which offer multiple loops that provide different experiences and offer varying levels of difficulty. Typically stacked loop systems have easier loops adjacent to trail-heads and difficulty level increases as the loops extend from the trail-head deeper into remote backcountry terrain.

Wilderness and Roadless Areas

- We strongly encourage the management of all Potentiail Wilderness Areas as Inventoried Roadless Areas (IRAs) under the 2001 Roadless Rule.
- We are pleased to see that the Wilderness section of the draft plan contains an explicit statement that bicycles would continue to be permitted in Potential Wilderness Study Areas.
- The SVBC recognizes and appreciates that Wilderness recommendations do not impact trails. Forest Service consideration of mountain bikers when mapping Wilderness recommendations is also of great importance to the mountain bike communtiy.

Gas Drilling

The mountain bike community in Virginia and the SVBC are concerned about the potential for hydraulic fracturing in the Marcellus Shale Bed. The SVBC supports the draft plan's proposal to prohibit horizontal drilling on future federal oil and gas leases in the George Washington National Forest. After observing the drastic impact of natural gas drilling on recreation in the Allegheny National Forest in Pennsylvania, the SVBC and it's members adamantly oppose any similar activity that may fragment the forest and impact recreation. As such, the SVBC encourages the Forest Service to continue with a proposed moratorium on hydraulic fracturing for natural gas.

Fire

The SVBC supports the draft plan increase of prescribed burns with the caveat that trails are not adversely impacted by fire operations. The recent trend of increasing Rx burn acreage provides for fewer trails to be used as fire lines and is to be applauded. Trails are a precious resource to the mountain bike community and a high quality single-track trail is very difficult and expensive to replace if large mechanized equipment widens the trail for use as a fire break. As such, the SVBC echoes IMBA's comments concerning Rx burns:

- When conducting Fire Management Operations, please restore to previous or desired condition (with Fire Management funds) any recreation facilities, including trails, damaged during fire management ops.
- The cost of restoration should be part of the fire management cost analysis and planning. Hand-built single-track trails have been bulldozed into 8-foot wide fire breaks with no restoration. Example: Hone Quarry, Shenandoah Mountain Trail.

Final Comments

The SVBC would like to recommend the Forest Service consider the following:

An increase of funding for recreational trails to reflect their benefit to the local economies.

- Mountain bike tourists come from all over the Atlantic seaboard to the GWNF for primitive backcountry mountain biking experiences.
- More and better trails improve quality of life which increases the ability of local businesses to recruit high quality employees. Examples: SRI, Merck

- More and better trails increase property values for local residents.

Adopt the Great Eastern Trail (GET) corridor as a shared-use trunk trail that connects the western GWNF ranger districts.

Follow sustainable design principals for all new trails and roads. These include following contour alignments, average grades under 10%, and frequent grade reversals.

- This will result in reduced maintenance costs and reduced resource impact.
- This will increase the trails' sustainable carrying capacity, improve accessibility, and create a higher quality recreation experience for Forest visitors

Potential locations for stacked loops systems:

- North end of Crawford Mtn- This location has a number of pre-existing road beds that could be used with new singletrack to create a multiple loop system with a trailhead located just off of US 250. This would provide a trail system with excellent access from I-81, Staunton, and Charlottesville. This easy access would reduce travel on USFS maintained roads and facilitate volunteer participation in development and maintenance.
- Narrowback, Hearthstone, Wolf Complex – This area provides an excellent opportunity to develop a stacked loop singletrack system from an existing trail network. Potential enhancements include developing additional trails on the east side of Narrowback Mountain to create loops, formalizing existing sustainable hunting and social trails. Another possible enhancement would be to develop a trail parallel to Tillman rd from State road 257 to the Wild Oak trailhead. This system would build on past trail enhancements by SVBC and the USFS. The objective would create multiple all singletrack loops attractive to mountain bike riders, day hikers, and trail runners, an experience that is not currently available in the North River district.

Respectfully,

Kyle Lawrence and the SVBC Board

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: George Washington National Forest Plan
Date: Monday, October 17, 2011 11:06:48 PM

Dear Sir or Madam,

I would like to support the ban on horizontal natural gas drilling in the National Forest. My family has property in the Runions Creek area. Also, my husband is the pastor of Pleasant View Church of The Brethren. Many people in his congregation live close to this area. I just happened to see this address in the North Fork Paper to be able to let you know of my feelings. I am sure that most people in this area feel the same way but haven't known how to let you know. The chance of water pollution and environmental damage are too strong to risk in something that doesn't benefit the local people. I hope that you listen to the local people rather than the energy companies in this situation. Thank you, Shon Tucker

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: RE: GW National Forest Plan
Date: Monday, October 17, 2011 11:08:18 PM

To Maureen Hyzer, Forest Supervisor

I thank you for offering an opportunity for the public to comment on the GW national forest plan and ask that I am kept informed as this planning process continues.

My family owns 19 acres in the Deerfield area, with a large border on the GW National Forest. Cold Springs Rd borders our land, which is a National Forest Rd and not state maintained.

My parents - who were born and raised in the Shenandoah Valley Churchville and Weyers Cave area - used the cabin for many years, first as a hunting cabin and more recently as a multi-purpose recreational home. Currently, my siblings and I, plus extended family and friends, use the cabin and treasure its beauty, quiet and the wonderful solitude.

In planning for the future of the GW Forest I believe we have to tread very lightly. I appreciate that there is pressure to develop and use the resources in GW national forest but I also believe there is equal pressure for Virginia to retain and preserve a glorious natural resource that future generations can appreciate.

I join others offering commentary who applaud the Forest Service for the many positive elements of its preferred alternative -- including a ban on horizontal natural gas drilling and expanded protection for stream-side areas. However I think the Forest Service needs to strengthen its protections for old growth forests. Also I am totally against turning large parts of the forest over for other types of hydrofracking .

I agree with comments sent by my brother, Wilson Rankin, who wrote "I don't want drilling, or wind farms, or new roads, or energy exploration, or any hot button issue. I want the GWNF to stay as untouched and unaffected by these political hot potatoes; let these issues be resolved elsewhere. We should keep the GWNF to a higher standard, one of minimal impact by man."

Thank you for your serious consideration of my comments.

Teresa Rankin
****
Only the individual sender is responsible for the content of the message, and the message does not necessarily reflect the position or policy of the National Education Association or its affiliates.

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments - GWNF - OHV Access
Date: Monday, October 17, 2011 11:18:54 PM

I am an avid user of GWNF lands throughout Virginia. I enjoy camping, sight seeing, dual sport motorcycle riding and 4x4 travel. I spend a lot of my time in the Shenandoah Mountain area west of Harrisonburg.

Overall I am pleased with the new plan but I want to make sure that traditional OHV routes are maintained in the forest. Several seemingly obscure roads give motorized access to lesser known primitive camping spots and great views. Alternative G states that the “Current level of high clearance roads” will be maintained. This is an admirable goal but the TAP (Transportation Analysis Plan) as well as language in the full plan indicates that closures – seasonal or complete are looming. The new plan also does not cite specific OHV routes which is concerning.

I ask that attention is paid to ensure that all featured OHV routes outlined in the 1993 Plan remain open year round. These routes are included below. I also encourage the forest service to coordinate future seasonal road closures with off road user groups and to also explore ways to re-open closed roads (ie Peavine). Please keep in mind that closures that only allow for access during hunting season are a direct conflict to the interests of responsible motorized users.

Thank you for considering my comments.

Thanks,

David Hopewell

Falls Church, Virginia

Roads to Keep Open or Reopen:

Jerkemtight	399
Old Man's Run	1117
Union Springs	225

Stone Camp	2258
Skidmore Fork	227
Germany River	232
Camp Rader Run	2328
VEPCO	240
Dry Run	304
Dictum Ridge	422
Gauley Ridge	423
Second Mountain	502
Old 33 Raccoon Run	549
Long Run	72
Feedstone Mountain	72C
Bother Knob	85-4
Flagpole	85A
Peters Mountain	175
Peters Mill Run	1702
Taskers Gap	1716
Poplar's Cove	1154
Cashaw	1158
Coon Bridge	1167
Bald Mountain	162
Enchanted Creek	1881
Dancing Ridge	317A
Peavine	318
Slaty Gap	318B
Bear Tolley	36E
Tom Glass	510
Cow Camp	520

Friends of Blackwater Canyon

October 17, 2011

Maureen Hyzer, Forest Supervisor
George Washington National Forest Plan Revision
5162 Valleypointe Parkway
Roanoke, VA 24019
comments-southern-georgewashington-jefferson@fs.fed.us

Re: Comments on Forest Plan Revision for the George Washington National Forest

Dear Maureen Hyzer,

Please accept these comments on the George Washington National Forest Plan Revision on behalf of the Friends of Blackwater (FOB). FOB has had a long-standing interest in the management of the Monongahela NF and the George Washington National Forest in actions affecting the West Virginia northern flying squirrel (Glaucomys sabrinus fuscus) and its habitat. We are plaintiffs in the lawsuit against the U.S. Fish and Wildlife Service (FWS) over the delisting of the squirrel. The decision to remove the squirrel was overturned on March 25th by federal Judge Emmet Sullivan who returned "Ginny" to the endangered species list. [Friends of Blackwater v. Salazar, Civ. No. 09-212 (D.D.C. March 25, 2011)]

Friends of Blackwater (FOB) is a not-for-profit West Virginia membership organization with supporters through the region, devoted to preserving wilderness and wildlife; protecting West Virginia's and Highland County Virginia's forests, parks, rivers, wild lands, unique habitats and endangered species; and fostering a land preservation ethic. FOB has over 10,000 members and supporters. FOB also has a long-standing interest in the West Virginia northern flying squirrel, Glaucomys sabrinus fuscus. FOB has supported studies of the flying squirrel; staff of FOB has communicated with scientists from a number of states and Canada on the squirrel's natural history and status and collected a large library of information of this squirrel. We educate our 10,000 members and supporters about these issues through newsletters, our website and comments to the press.

Friends of Blackwater is very concerned by the George Washington National Forest's approach to protecting the West Virginia northern flying squirrel and its habitat. We particularly object to the management strategy for the Laurel Fork Area in Highland County which contains a population of this rare nocturnal mammal. We do not believe that the squirrel lives in pure red spruce forests. The leading scientists in this field have established that the squirrel requires

northern hardwoods as well as red spruce. By focusing purely on red spruce regeneration to the detriment of northern hardwoods the Forest Service is degrading flying squirrel habitat which could lead to its extinction. This seems to be the direction of plans for Laurel Fork. To quote the draft GW Plan revision: "The Spruce Forest system is limited to the Laurel Fork area. Strategies for restoring and maintaining the Spruce Forest system should emphasize restoringspruceto those siteswhereNorwayspruce and red pine have been planted and maintaining conditions favorable to continued growth of existing stands. The Laurel Fork area should continue to be managed to restore and maintain the Spruce Forest including active planting of red spruce seedlings and releasingredspruceseedlingsthataresuppressedbyhardwoods."

This logging plan is not good for the recovery of the signature species of the Allegheny Highlands and associated species such as the northern water shrew, the rock vole and the Cheat Mountain salamander.

In support of this analysis please note the following comments from Dr. John Pagels, Biology Professor at Virginia Commonwealth University and long time WV northern flying squirrel (WVNFS) researcher in Virginia. His 2007 write up on the squirrel (*G.s. fuscus)* and its habitat is excerpted from his peer review of the Fish and Wildlife Service's Five Year Review (5-YR) and proposal to delist the squirrel.

Assistant Chief, Division of Endangered and Threatened Species *March 27, 2007*
Northeast Regional Office
300 Westgate Center Drive
Hadley, Massachusetts 01035

Dear Sir/Madam

By way of introduction, I began studying Virginia mammals more than 35 years ago. Much of my work has involved Pleistocene relictual, boreal species. I am one of the relatively few people to have collected in Virginia the primary subject of this letter, the WVNFS. Since its inception, I have been an adjunct member of the northern flying squirrel recovery team (USFWS 1990), although I played no role in the proposed delisting evaluation.

THE MENZEL MODEL: I have the highest respect for the author of the model and her cohorts, the great amount of effort that went into development of the model, and the model"s usefulness to help determine direction in conservation of the squirrel (Menzel et al. 2006). Conversely, I have some concern about how information in the model was used in the April 2006 "Five year review: summary and evaluation" (5-YR) primarily as the information relates to two items, the actual requirements of the squirrel and various levels of acreage that are described in the 5-YR.

The habitat.—Without reviewing all the literature, and as described on page 6 of the 5-YR, "Overall, available information indicates that forests containing red spruce and old-growth characteristics provide optimal habitat conditions for G.s. fuscus in comparison to hardwood

forests that are younger and/or degraded, which provide fewer nest cavities and food resources. Despite the preference for mature spruce forests, G.s. fuscus has shown the ability to persist in and around remnant patches of red spruce." Based on nesting studies, presence or absence studies, and other information, the first part of the paragraph pretty much hits the nail on the head—forests containing red spruce with old growth characteristics. Additionally, in a study of nest tree use Menzel et al. (2004) found that the WVNFS nests in many tree species, including American beech, yellow birch, black birch, black cherry, red-maple, and sugar maple, among others, in addition to a few in red spruce and several in the exotic Norway spruce. These hardwood trees (most often along with red spruce where the WVNFS is found) are boreal species characteristic of habitat required by other Appalachian relict forms, including the northern water shrew and rock vole and selected other species that are at home in cool, moist, northern habitat-types. Again the key phrases, I feel, were "...forests containing red spruce and old- growth characteristics provide optimal habitat conditions." The next sentence, however, does not support evidence if taken literally. "Despite the preference for mature spruce forests" is not reflective of the earlier part of the paragraph—forests containing red spruce and old-growth characteristics; mature spruce forest is not the same as forest containing red spruce! Throughout the 5-YR and the delisting document, great amount of shrift is given to the importance of red spruce and not the associated hardwood species and selected features associated with stands of greater age. Indeed, in the same Menzel et al. (2004) study on nest tree use, they report that "elevation, tree height, den height, nest tree DBH, average overstory height and average snag height were significantly greater than randomly selected trees." This information implicating stand age/size and hardwood species support the earlier comment from the 5-YR, but not the portion of the paragraph quoted that states "...despite the preference for mature spruce forests." For example, relatively early on Payne et al. (1989) reported sites of captures of the WVNFS in the middle Appalachians were associated with red spruce, but often in ecotones between conifers and hardwoods, that squirrels were captured near patches of conifers, or that squirrels were found at the margin of a stand dominated by conifers. Indeed, tree species at high elevations (e.g. red spruce, eastern hemlock, sugar maple, red maple, yellow birch, American beech and black cherry) were similar at the study area (MeadWestvaco Ecosystem Research Forest) from whence the model was developed as based on telemetry studies (Menzel et al. 2006). My point here is that there are numerous studies that describe a significant northern hardwood species component of WVNFS habitat. In a recent study in Ontario of another subspecies of the NFS it was found that hardwood snags and decaying trees may be crucial nesting habitats for female squirrels (Holloway and Malcolm 2007). Hackett and Pagels (2003) found similar tree usage by an intergrade of the WVNFS and the Carolina northern flying squirrel (G. s. fuscus x G. s. coloratus) in southwestern Virginia.

Whether red spruce is present or not, the aforementioned northern hardwoods found in the cool, mesic boreal habitats are not only an apparently important component of the flying squirrel habitat, but also critical to many other species that call such areas home. Menzel et al. (2006) note the endangered Cheat Mountain salamander, is found within the montane boreal forest type. The late John Guilday (1972), a renowned vertebrate paleontologist described the Appalachian Mountains as "...a tongue of „more northerly" environment (that extends) into the Carolinean lowlands of the South." ***At high elevations the northern conditions allow boreal***

species such as the WVNFS, water shrew and rock vole, to exist much farther south than their centers of distribution. In other words, perhaps out of place here, this exercise is more than delisting the WVNFS, it is delisting an ecosystem; the WVNFS is now the gate to prevent entrance and further perturbation of that system and its many components*. I have been told by more than one biologist with the USFS, that if it were not for TE species—whether the species were state-listed or federally-listed, that there would be many fewer mature/old age forests than we now have. Although hidden in a symposium paper on the masked shrew, Sorex cinereus, the three sites where the WVNFS has been captured in Highland County, Virginia, also contained a significant hardwood component along with red spruce (Pagels et al. 1994). Sites examined in that study from which the WVNFS had been collected were Hi-12, Hi-14 and Hi-18. The five most abundant trees at those sites, ranging from most abundant, were (Hi-12) black birch, yellow birch, eastern hemlock, red maple and red spruce, (Hi-14) red spruce, red maple, American beech, n. red oak and black cherry, and (Hi-18—the site of most WVNFS captures) red maple, red spruce, black birch, eastern hemlock and black cherry. Additional information on the importance of mesic deciduous forests and their importance to mammals in the mid- Appalachians can be found in McShea et al. (2003) and Orrock and Pagels (2003). ……*

CURRENT/DEVELOPING THREATS: The pitfalls of lack of protection for a species that occurs in a special habitat type are represented by the presence of the squirrel in a small portion of Virginia. The Highland County sites in Virginia are recognized as part of the Spruce Knob/Laurel Fork area of relictual habitat. Most Virginia specimens of the WVNFS have been captured on private land that might become the first Virginia site for industrial wind turbines; such facilities have already made considerable headway on private land in West Virginia. At two different hearings in which I was involved, the most recent before the Virginia State Corporation Commission, the counselors for the wind developer questioned me to the effect, "Isn't it true Dr. Pagels that the plan is to remove the northern flying squirrel from the federal list of threatened and endangered species?" Regardless of any impact that a state endangered listing might have, it is easy to visualize the chipping away of suitable habitat when there is no protection.

I perceive, without any information to the contrary, that commercial wind turbine projects on ridge tops, whether on federal or non-Federal land, represent a threat to the WVNFS. With the great discussion of alternate energy sources, future construction of wind turbine facilities on public lands seems likely, or just as likely as many of the suggestions given in the F-YR that are likely or might occur. Indeed, in preliminary planning for the new Forest Plan for the GWJF, potential wind turbine sites in the GWJ are part of the discussion. Construction of wind turbines on the ridges of public lands would certainly negatively impact WVNFS habitat. Except for the horror stories regarding bats and migratory birds, I know of no studies that have been done to determine the impact of turbines on typical terrestrial mammals and other organisms in adjoining forests. Turbines are not inactive at selected times of the year, for example in winter when animals are otherwise be stressed by cold and snow, or in spring at the highly susceptible time of late pregnancy and during lactation.…

In summary, I feel that too much emphasis has been placed on the red spruce component of the squirrel"s habitat and not enough on the mature hardwood component. The 5-YR and the delisting document are replete with discussion of the regeneration, promotion and enhancement of red spruce forests. With no formal protection for the squirrel I foresee a great increase in logging activities in hardwood— for lumber, to clear for wind turbines, to obtain cellulose needed for production of ethanol, and for obtaining wood chips, in general. The latter two items would be served well by mature forests deemed too old for timber regeneration but forests that we know are otherwise important to numerous plant and animal species, including the WVNFS.

Further, despite that fact that available information indicates good red spruce regeneration, there can be no discounting of the threat of global warming. Rather than state as in the delisting document that we cannot project the impact of global warming or do anything about it, I feel that what we now have in mature high elevation, northern hardwood/red spruce forests should be jealously guarded. At the very least I would suggest that northerly facing slopes and selected other situations that contain boreal forest should be conserved wherever possible, and a high degree of connectivity should be maintained or encouraged, both for the WVNFS and other special fauna and flora. As based on my experience, I would expect that in many areas, elevations for such protection might be as low as 2500 feet. Such situations cannot be managed simply by short-term forest plans and highly scattered special designation areas, but must be parts of long-term agreements between the Service and other state and federal agencies.…

Cordially,

John F. Pagels, Ph.D
Professor of Biology

Please take into account this important statement from one of the leading researchers on the Glaucomys sabrinus fuscus in your forest planning on the George Washington National Forest.

Please do not hesitate to contact us for more information and research on this important topic. Thank you for your time and consideration.

Sincerely,

Judith Holyoke Schoyer Rodd
Director - Friends of Blackwater
501 Elizabeth St., Room 3
Charleston, WV 25311
(304) 345-7663

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: plan revision comments
Date: Monday, October 17, 2011 11:49:38 PM
Attachments: Plan comments oct 2011.doc

[THE BELOW COMMENTS ALSO SENT AS AN ATTACHMENT]

STEVEN KRICHBAUM
OCTOBER 17, 2011

GEORGE WASHINGTON NATIONAL FOREST
5162 VALLEYPOINTE PARKWAY
ROANOKE, VA 24019-3050
COMMENTS-SOUTHERN-GEORGEWASHINGTON-JEFFERSON@FS.FED.US

To: Forest Supervisor Maureen Hyzer, Kenneth Landgraf, Karen Overcash, and all whom this concerns
Re: Comments pertaining to the GWNF Plan Revision

Dear All,
I previously submitted comments and supporting material (copies of cited literature on CDs) regarding the Plan revision on Aug. 8, 2008, Sept. 14, 2008, Oct. 24, 2008, Jan. 8, 2009, June 23, 2009, Nov. 23, 2009, Jan. 30, 2010, and May 6, 2010. I have also submitted comments and material regarding the Wood Turtle (*Glyptemys insculpta*). I incorporate by reference all of my previously submitted Plan revision and Wood Turtle comments and material into this submission. This comment has to do chiefly with the Wood Turtle, special biological areas, and habitat fragmentation.

The **Wood Turtle** is now considered a G3 species ("Vulnerable" globally) (see NatureServe). It is a **species of** national, regional, and/or state significance (for instance, it is officially listed as "Threatened" in Virginia). Due to these reasons the Turtle must be officially listed and treated as a FS "Sensitive" species by the GWNF managers (regardless of whether the Regional Forester has gotten around to making this status change).

As a a species of national, regional, and/or state significance, sites on the Forest with known populations of Wood Turtles should be designated as "special biological areas" in the revised Plan. These sites include Paddy Run/Cove Run (Shenandoah and Frederick Cos.), Cove Run/Waites Run (Hardy Co.), Sine Run Hardy Co.), Harness Run (Hampshire Co.), and Riles Run (Shenandoah Co.). SBAs "serve as core areas for conservation of the most significant and rarer elements of biological diversity identified to date on the Forest." Management of SBAs seeks 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." Managing Wood Turtle sites/populations as "Mosaics of Habitat" or as an "Emphasis Area" does not serve to accomplish this perpetuation and increase. Nor do such prescriptions (which allow intense ground disturbance such as timber sales) serve to protect sites as "core areas for conservation". Implementation of draft Plan's management regime could result in significant harm to the sustainability, viability, and/or distribution of the Turtles.

The identification of a site as a Wood Turtle "Emphasis Area" in publicly promulgated documents is a bad idea. Drawing attention to such sites with known populations is particularly bad for a species vulnerable to collection/poaching, which the

Turtle is. Many if not most SBAs are designated without the precise identification in the Plan/EIS of all the rare species found there. Such designations can and should be accomplished for sites with Turtle populations. Naming sites as Turtle "emphasis areas" should be avoided.

My observations/research of Turtles in the Forest so far suggest that small canopy gaps (typically falls of individual trees) maintain and create openings for Turtle foraging and thermoregulation. In addition, Turtles certainly do not confine their activity to "riparian areas". "Core areas" of terrestrial habitat for Turtles extend out ca. 300 meters from occupied streams.

The Shenandoah Mountain Crest-Cow Knob Salamander special area is not accorded sufficient protection by the standards in the draft Plan. Mineral/gas leasing, wind turbines, road construction, and logging are all of concern. Standards need to be strengthened and revised to remove/neutralize these potential sources of significant harm. Additionally problematic is that all the known locations of the CKS are not being protected. The SMC special area boundaries need to be significantly expanded in latitude and to lower elevations. The same is also true for **Tiger Salamander** (*Ambystoma tigrinum*) management. **The entire Coal Road corridor should be designated an SBA (encompassing an expansion of the current Maple Flats, Loves Run, and Big Levels SBAs to connect these areas)**. This area represents a preglacial **Pleistocene refugium** containing historically unique populations or lineages vital to conservation and preservation efforts (Church, S.A. *et al*. 2003). "This refugium contains a disjunct population of the eastern tiger salamander, as well as a community of nearly 70 other disjunct plant and animal species. The tiger salamanders here have been isolated from other populations for 200,000–500,000 years." (*id*.) The Big Levels area is also the crucial refugium for the Virginia/GWNF/Augusta County endemic **Big Levels Salamander** (*Plethodon sherando*).

The agency's dealing with habitat fragmentation and edge effects is one of the greatest deficiencies in the draft Plan and EIS. Fragmentation is one of the more significant issues in contemporary conservation and land management. Habitat fragmentation and edge effects from multiple sources (e.g., roads, logging, utility corridors) has taken place and is taking place at multiple scales and extents across the Forest. The draft Plan exacerbates the ongoing harm through a multitude of prescriptions and standards that accommodate still more roads, logging, utility corridors and other stressors. This is an overarching issue that is correlated with virtually every element of the Plan's goals, objectives, guidelines, desired conditions, and standards. Yet the analyzer's dispose of this issue in a page-and-a-half in the DEIS. The site-specific analysis/disclosure is virtually nil. Instead we are presented with a generic write-up based on mid-western research pertaining to birds done in the 1990s. In my previous comments I alerted the agency to many concerns involving this issue and also presented many citations and scientific papers to the agency planners, so I will not reiterate all that here. Neither potential nor already realized significant impacts are being fully, fairly, and clearly disclosed to the public. The analysis is insufficient for the public or the agency to make well-reasoned decisions involving Forest aspects and public resources (such as choosing a preferred alternative, allocating prescriptions, or deciding how much logging and road building is appropriate). The scientific integrity demanded by NEPA is not being maintained by such superficial and omissive analysis and disclosure. The analysis is insufficient for determining if the on-the-ground protections demanded by the NFMA (such as population viability, productivity, and/or sustained yield) would be met when the Plan is implemented.

The rationale for choosing to continue to cut old growth, and even allow more to be cut than under the current Plan, is not clear or reasonable. Old growth is extremely rare in the landscape (estimated at less than 1% of forests), yet the FS allows (even promotes) its cutting.
Early successional forests are very common in the landscape (42% less than 40 years old in Virginia - Rose, A.K. 2009. Virginia's Forests, 2007. USDA FS Resource Bulletin SRS-159), yet somehow more must be fabricated on the Forest.
The agency's rationale as exemplified by the above two examples is unreasonable and capricious. The rare must be removed and the common expanded. ??

The rationale for building more roads on the Forest is unreasonable and the analysis of this issue is insufficient. Somehow a FS road maintenance backlog of billions of dollars is disregarded by the GWNF planners.

Aside from those mentioned above, many other issues and concerns raised in my "Conservation Alternative" comment (May 6, 2010) have not been fully and fairly addressed by the GW planners. These include acidic deposition, impacts to soils, sedimentation of streams, use of prescribed fire, invasive species, minerals/energy, wildlife, diversity, natural disturbances, ESH, MIS, monitoring & inventory, disposition of Mountain Treasures, rare species, provision for "primitive recreation", RNAs and SBAs, riparian areas, restoration opportunities such as road closures, roadless area identification and protection, special habitat conditions (e.g., rocky outcrops), sustained yield and productivity, timber suitability and the logging program, low site index lands, reference and drinking source watersheds, wild & scenic rivers, and Wilderness designations.
The analysis of Alt. C in the DEIS misrepresents and devalues it, particularly with regards to effects to wildlife and habitat and to present net value. For instance, the amounts of esh created through natural processes are ludicrously underestimated.

Thank you for your attention and response.

Sincerely,
Steven Krichbaum

From:
To: FS-comments-southern-georgewashington-jefferson
Date: Monday, October 17, 2011 11:59:47 PM

Submitted by: Marilyn Nash I applaud your plan to place a moratorium on hydrofracking in the GW National Forest. This would be terribly destructive and disruptive to the forest. Plus there is much that we do not know about its\' impact on water resources and environmental degradation. Please do not give in to political pressure to approve such a use of our forests.
Thank you,

Marilyn Nash<br

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments on the George Washington National Forest Plan Revision
Date: Monday, October 17, 2011 11:57:54 PM

October 16, 2011

George Washington National Forest
Forest Plan Revision
5162 Valleypointe Parkway
Roanoke, VA 24019

Re: Comments on the George Washington National Forest Plan Revision

I request that you include my comments on the Forest Plan revision in the planning record .

1. I am totally opposed to the preferred alternative for a number of reasons as it continues to build on past planning which has built a one-sided strategy of closure of recreational access to motorized recreation. It also continues to strangle the timber industry with unjustifiable limits to harvest and more acreage closed to harvest. Both strategies are heavily contrary to local population's interests and the majority of visitors who want to enjoy an accessible forest rather than a warmed over national park.
2. The preferred alternative is grossly inadequate in what is offered in open mileage of primitive roads suitable for 4WD licensed vehicles. The management strategy of requiring an open designation for legal use is also a failed management strategy intended to offer the least open opportunity for recreation. The forest management has failed to work with 4WD user groups and involve them in the designation process and the management process. The current pathetic offering of open roads is increasingly inadequate to address demand for recreational opportunity. The continued demand has been ignored and the management strategy has been to further concentrate use on less and less mileage. This creates the management-desired condition of deliberate intensification of impacts so further closures can be justified. The Lee District has been the best example of this failure where there is virtually nothing open concentrating all use on one or two highly overused roads. This produces the desired examples of overuse and creative justification of further closures.
3. For a generation, the most popular use of the forest has been driving for pleasure to enjoy the scenic assets as well as the overall peace and tranquil qualities of the forest. Enjoying the multitude of opportunities for recreation provided by the primitive road system has virtually been eliminated by the continual political closures over the last two planning periods. The continual closures have been relentless in the face of increased demand and increasing involvement by user groups, clubs, and individual volunteer efforts. The cooperation of management has also been disingenuous on the part of most district rangers, especially the Dry River District.
4. Most 4WD club and association members are so frustrated by the futility of working with the management of the GWNF that the interest in volunteer efforts has dwindled. You can't interest a club in adopting a primitive road when there is essentially nothing

left open and no management effort made to offer anything worthwhile in recreational opportunity. The record of GWNF has been one of continual failure to work with user groups in the motorized community and a “blank check” offered to the environmental groups who can afford to litigate every detail of management. The preferred alternative just builds on past failures with more of the same closure dominant policies.

5. It is a sad testimony when a record of failure begets yet another plan of closure and lost opportunities. This completely describes the preferred alternative. I am totally opposed to it and recommend that an alternative of multiple use and maximum access be offered instead of the illegal biodiversity approach.

With increasing disgust,

David L. Hook

=======
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http://www.pctools.com
=======

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: George Washington National Forest
Date: Monday, October 17, 2011 11:59:10 PM

I Debra Leigh Griner Turner support the proposed ban on natural gas horizontal drilling (which would limit high-volume hydrofracking) in the George Washington National Forest. I have family that I visit in these areas of Virginia: Covington, Iron Gate, Eagle Rock, Fulks Run, Lexington, Richmond, Charlottesville, Annex, Crimora, Waynesboro, Staunton, Danville, and Fishersville. The GWNF listened during last year's comment period when we asked them to restrict natural gas horizontal drilling to protect our drinking water resources, preserve fish and wildlife habitat, and retain the remote rural quality of our forest. The Weeks Act of 1911 led to the acquisition of land in the 26 eastern states creating 52 national forests to protect water and restore forests.

Request that the GWNF remain a forest, a quiet sanctuary for humans and wildlife, and not become an industrial forest at risk!

The Forest Service proposed horizontal drilling ban is necessary to protect the GWNF's diverse natural resources, including:

Water - water shortages problems (like drinking water shortages for human, wildlife, and farm animal consumption; and lower water levels in our streams affect aquatic life) can arise due to each well using 3 to 9 million gallons of fresh water for the hydrofracking process.

- contamination of our drinking water supplies, streams and rivers from spills, leaks and legal or illegal discharges of hydrofracking fluids (containing toxic chemicals which in humans, wildlife, and farm animals through drinking contaminated water or breathing contaminated water vapors can cause various diseases including cancer, asthma, birth defects, nervous and gastrointestinal disorders, premature death, etc.)

-accidental contamination of our drinking water supplies, streams and rivers from storage of produced wastewater (containing toxic chemicals, heavy metals, high salt levels, and radioactive material like radium which in humans, wildlife, and farm animals can cause various diseases including cancer, asthma, birth defects, nervous and gastrointestinal disorders, premature death, etc.) in open ponds with pond liners that may leak or overflow during small rain storms allowing the produced wastewater to leech and migrate into our ground and surface waters

-water purification problems arise because water treatment plants are not set up to deal with toxic waste containing high salt levels, radioactive materials, and known and unknown chemicals found in produced hydrofracking wastewater

-sedimentation contamination of streams and rivers (killing fish and other aquatic life or causing general stream and river health deterioration) caused throughout the drilling process from storm water runoff over clear cuts for well pads and equipment storage; access roads; pipelines; and compressor stations

Air - air pollution from large quantities of truck traffic and diesel equipment used in the drilling process

- air pollution from leaking or venting of large amounts of methane throughout the drilling process

-air pollution from uncaptured volatile organic compounds from gas wells can combine with nitrogen oxide to produce ground-level ozone (causing in humans, wildlife, and farm animals asthma or respiratory deaths)

- air pollution from aerated produced wastewater ponds (humans, wildlife, and farm animals breathing

contaminated water vapors can develop various diseases including cancer, asthma, birth defects, nervous and gastrointestinal disorders, premature death, etc.)

Land - poisoning and total destruction of the forest soil and vegetation (including plants and trees) can occur from produced natural gas drilling wastewater spills, leaks, and legal or illegal disposal; or can occur from trucks and equipment contaminated with chemicals and other toxic waste traveling from site to site.

Noise and Light Pollution - can occur 24/7 throughout the entire natural gas drilling process from increased truck traffic, heavy equipment usage, drilling and fracking of wells, compressor stations, etc. affecting your daily living activities (including sleeping and quiet outdoor activities like: sitting and relaxing, gardening, hiking, or horseback riding). Also what about all of the animals that come out at night to eat and live etc?

Forests and Wildlife Impacts - fragmentation of forests and remote wild areas result from construction of access roads, drill pads, storage areas, pipeline, compressor stations and other necessary operations during the gas drilling process

-break up of habitat during the entire drilling operation can affect wildlife migration routes and impact the health of species, especially those needing large home ranges

-throughout the drilling process, there is clear cutting of oak and beech trees along with clear cutting of various berry bushes reducing critical wildlife food sources

-due to the large number of heavy trucks and equipment needed in the drilling operation, various problems arise, like: increased number of wildlife deaths on roads; excessive noise and light driving away game or making game difficult to track; and soil compaction making it very difficult to re-plant and re-forest

- wildlife (squirrel, turkey, raccoon, deer, bear, or other game) becomes unfit for human consumption when they drink toxic salty wastewater or eat contaminated vegetation found around drilling sites

- wildlife and aquatic life will have a higher rate of offspring born dead or deformed when they drink toxic salty wastewater or eat contaminated vegetation found around drilling sites

-access to public land, that may have been traditionally hunted, trapped, fished, or used for other sporting activities (like horseback, mountain bike, ATV, or dirt bike riding and hiking) can become restricted and posted by gas companies where there are active drilling operations

Also, encourage the Forest Service to heighten scrutiny of vertical gas drilling, which is allowed in the GWNF. Ask them to consider a more thorough study of the impacts of vertical gas drilling before making a decision and consider making our drinking water supply watersheds and other priority watersheds unavailable for drilling.

Sincerely,

Debra Leigh Griner Turner

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Phone Comment
Date: Tuesday, October 18, 2011 11:39:23 AM

On Oct 13, 2011, I received a phone voice message from Bill Tasum of the Bergton Virginia area who would like to submit the following comments on the GWNF Plan revision:

As a taxpayer, landowner, voter, trout fisherman and hunter, he is against fracturing and gas exploitation on the national forest. He has heard too much stuff about the bad stuff. It will destroy the hunting and fishing in the area. He stated that it is best summed up as NIMBY - Not In My Backyard!.

Karen Overcash
Land Management Planning
USDA Forest Service, George Washington and Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019
Phone (540) 265-5175
Fax (540) 265-5109

From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments from Phone
Date: Tuesday, October 18, 2011 11:41:25 AM

On October 14, 2011, I received a phone call from Dave Copper who would like make the following comments on the GW Plan revision:

He would like to see no logging, no new roads for hunters, no clearcutting, no fracking. Let the forest remain as old growth. The forest can certainly manage itself.

Karen Overcash
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From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments by Phone
Date: Tuesday, October 18, 2011 11:45:38 AM

On October 14, 2011, I received a phone call from Florence Barrett of Harrisonburg VA who would like to make the following comment on the GW Plan revision:

She supports the ban on horizontal drilling.

Karen Overcash
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From:
To: FS-comments-southern-georgewashington-jefferson
Subject: Comments by Phone
Date: Tuesday, October 18, 2011 11:44:39 AM

On October 14, 2011, I received a phone call from Harold Bentz from Bridgewater VA who would like to make the following comments on the GW Plan revision:

He is opposed to fracking, especially in Rockbridge County, but in all of the eastern National Forests. It uses too much water resources, has a high risk of pollution of water resources, has little monitoring. If it's as safe as they say, why did they get an exemption from the Clean Water Act? He is also concerned about migratory birds. Any invasion that brings about open space will have a negative impact on migratory birds.

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October 17, 2011

Maureen Hyzer, Forest Supervisor
George Washington National Forest
5162 Valleypointe Parkway
Roanoke, VA 24019-3050

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

BY U.S. MAIL-CERTIFIED MAIL-RETURN RECEIPT REQUESTED AND BY E-MAIL

Dear Supervisor Hyzer,

Thank you very much for the opportunity to provide comments on the draft Land and Resource Management Plan (Plan) and Draft Environmental Impact Statement (DEIS) for the George Washington National Forest (GWNF) on behalf of Heartwood, Sherman Bamford and Steve Krichbaum.

Heartwood is a cooperative network of grassroots groups, individuals, and local businesses working to protect and sustain healthy forests and vital human communities in the nation's heartland. Heartwood, Heartwood members and member groups (including Wild Virginia and Virginia Forest Watch) regularly use the George Washington National Forest for hiking, research and recreation. Heartwood members have led hikes, done on the ground research in every ranger district and commented on projects in every ranger district. Our concerns for impacts to flora, fauna, water resources and recreation inform these comments.

I. Public Participation

1. The Draft Plan and DEIS documents limit and restrict Public Participation in management planning process and the ability to comment.

―The intent of public participation is to …provide the public with an understanding of Forest Service Programs and actions‖ (47 CFR 43037, Sec. 219.6(4)) In the Draft Plan, DEIS and related documents, the GWNF had the opportunity to significantly simplify the process, prescriptions, information and NEPA analysis. Not only did the GWNF fail to do this the massive volume of pages of words, charts and tables produced (the Need for

Change, Plan and DEIS total 1671 pages), numerous errors (44 pages of Errata), and numerous duplications, inconsistencies and subjective fabrications without narrative or justification, present a huge and unintelligible mess. This mess makes it virtually impossible for and intelligent and concerned public to make sense of it all and to make substantive comments on virtually any aspect of the documents provided.

This furthermore limits the ability for public to appeal any final decision on the plan or subsequent projects subject to 36 CFR part 211 Subpart B or 36CFR part 219. Particularly egregious are the flaws and inconsistencies included in Social and Economic Impact Analysis (DEIS, 3-278-297) and in the comparison of alternatives. Errors in the economic analysis, ASQ, Acreage Suitable for Timber, and Biomass (all included in later comments) provide incorrect information and generate incorrect data that makes it impossible to compare the various alternatives contained in the DEIS. It is not the responsibility of the public to correct inconsistencies and incorrect information, although this responsibility has fallen to them/us. The agency has clearly failed in its legal responsibility to ―provide the public with an understanding of Forest Service Programs and actions.‖ (47 CFR 43037, Sec. 219.6(4))

II. Economic Analysis

2. **The Draft Plan and DEIS documents consistently present faulty and inconsistent economic assumptions, figures and analysis over the range of alternatives.**

To fulfill requirements under NEPA, an EIS must provide a ―full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.‖ (40 C.F.R. § 1502.1) The agency must take a ―hard look‖ at the environmental consequences of its proposed action to make possible informed decision making and dissemination of relevant environmental information. (Robertsonv.MethowValleyCitizens Council, 490 U.S. 332, 350 (1989); Strycker‘sBayNeighborhoodCouncilv.Karlen, 444 U.S. 223, 23, 1980)

While the Social and Economic Impact Analysis in the DEIS contains a number of statistics and tables, it does not adequately consider and disclose the expected extent and significance of the effects of Forest Service actions and expenditures on local communities under the proposed plan. See 40 C.F.R. § 1502.16 (stating an EIS must discuss environmental consequences ―and their significance‖). A generic statement that a certain action might result in certain environmental impacts, without further discussion of the likelihood or significance of those impacts within the affected area under the proposed plan, does not provide the type of precise information necessary for informed decision making.

Furthermore, The DEIS uses outdated information in considering its economic impacts. The IMPLAN data used is egregiously out of date when considering economic impacts. The national economy has changed immensely since 2000, which is the latest year used in the IMPLAN runs. The Forest has already acknowledged that the IMPLAN runs need to be done again with data corrected in the errata. This should have been completed before the comment period closed or the comment period should have remained open until the new data was provided to the public. Since

this has not been done to date, once the new runs (with corrected and updated data) have been completed, the public should be allowed to provide input in a new comment period on the draft Plan and DEIS so the opportunity for meaningful public comment is afforded as required under NEPA.

Another critical element of the analysis is the obfuscation of connections between cause and effect. The DEIS discloses, ―Due to substitution effects from competing non-government sources (…), these jobs are characterized as beingassociatedwith local economic activity initiated by Forest Service programs and activities, ratherthancausedby these activities.‖ DEIS, page 3-293, emphasis added. This distinction is important as it would seem to indicate that the Forest Service has not or cannot determine with any measure of specificity the direct and indirect effects of its actions and their significance. As required under NEPA, the agency should do so or should more clearly explain why more precise information cannot be provided. The employment and labor income illustrate this point.

Employment and Labor Income information are similarly skewed and imprecise.There are a series of tables (DEIS, pages 3-293 – 3-295, Tables C12.14, C12.15, C12.16 and C12.17) which appear to provide data on employment (numbers of jobs) and labor income (employee compensation and sole proprietorship income) by program by Forest Plan alternative, and by major industry by Plan alternative. The reader is left to decipher the meaning of various categories, the connections between them, and the results overall.

An initial look at the employment tables shows that the choice of Alternative G, the preferred alternative, would result in a 23.3% drop in the number of jobs locally. Review of the labor income tables show a drop of over 32% in local labor income for Alternative G. This would appear to be a devastating effect, but for a few facts which put this purported drop in context and show it is highly confusing and misleading.

First, it appears (although nowhere is it stated or explained) that these percentage figures probably are in comparison to the estimated outcomes of Alternative A ifAhadbeenfullyimplemented, whichitwasnot,particularlyregardingmineraldevelopment. Much of the change shown in the employment and labor income categories occurs in the mining and minerals sectors. Employment and labor income values are high in Alternative A and are much less so in Alternative G, the preferred alternative. But this difference would appear to be fictional. Alternative A represents the level of development planned for in the previous plan, not the actual level of development that has occurred over the last plan period. Because the level of mining predicted in the last plan never came to pass, the alternatives are being compared to a world (Alternative A) that never occurred. Instead, they should be compared to the actual conditions existing in the GW region (Alternative A asactuallyimplemented).

Second, these results are not caused by Forest Service actions, but ―associated with‖ them. This provides little in the way of useful disclosure of impacts under NEPA. Third, Table C12.18 (DEIS, page 3-296) analyzes the current role of Forest Service-related contributions to the area‘s economy and reveals that ―the George Washington NF is associatedwith 0.12% of the total local economy‘s jobs, and 0.10% of the labor income‖ (emphasis added). This then is an almost negligible effect and the fact that it is merely associated with Forest Service activities makes it

even more difficult to understand the degree of impacts under NEPA. It also shows there is no possible way for any alternative forest plan to influence total local employment and income by double digit percentages.

III. Long Term Net Public Benefits

3. The DEIS fails to implement a methodology or present a comparative analysis of the long term Net Public Benefits of the alternatives considered.

4. The DEIS fails to offer an alternative that specifically contains those management directives, goals, objectives and prescriptions that maximize long term Net Public Benefits.

5. The Draft Plan fails to create a monitoring and evaluation plan for determining and evaluating the effects of the management plan, management practices and projects on long term Net Public Benefits.

6. The Planning team, Supervisor and Regional Supervisor have failed to choose as the preferred alternative that alternative (from the range of alternatives presented) which specifically maximizes long term Net Public Benefits.

7. The DEIS fails to account for Ecosystem Services, a significant component in analyzing the maximization of Net Public Benefits, in its economic analysis.

8. The Draft Plan and DEIS fail to consider these issues and requests as raised in the Conservation Alternative, submitted by Wild Virginia and Heartwood on May 06, 2010, as comments on the Notice of Intent.

The 1982 National Forest System Land and Resource Planning Rule in its opening paragraph that ―the resulting plans shall provide for multiple use and sustained yield of goods and services from the National Forest System in a way that *maximizes long term net public benefits in an environmentally sound manner."* (47 FR 43037, Sec 219.1)

The term ―net public benefits‖ is defined in the 1982 NFMA regulations as: ―An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than by a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.‖(Sec. 219.3)

In other words, Net Public Benefit comprises:
1) Revenues (benefits) and Expenditures (costs) that can be valued in Dollars, and
2) Non-Monetary Costs (inputs, negative effects) and Benefits (outputs, positive effects) expressed in quantitative or qualitative terms including Ecosystem Services valuations.

Long term Net Public Benefits of an alternative are maximized when, over the 10-15 duration of the implementation of that alternative:

1. The public benefits derived from the provision of goods and services—including Ecosystem Services—as outlined in the alternative are higher than the public costs incurred in providing them,
2. The stock, store, supply and value of the goods and services—including Ecosystem Services—available is maximized so that the potential yield of goods and services could be maximized over the term of the alternative, and
3. There is no conceivable other mix of goods and services—including Ecosystem Services—or use of resources that could provide any higher long term Net Public Benefit.

The value of long term Net Public Benefit is maximized when the ***amount and value of the stock of resources*** is largest. It equates to the value of a bank account which allows the greatest opportunity for the future. It is the epitome of the statement, ―A man is rich in proportion to the number of things he can afford to leave alone.‖ (Henry David Thoreau, *Walden*)

Long term Net Public Benefits not only maximize the stock value of future resources, it ***preserves options for the future*** that extraction or liquidation of those resources would preclude. Long term Net Public Benefit recognizes the fact that the dollar does not represent all value where organisms stand in relationship to one another as in a forest community, an ecosystem or in the human community.

Long term Net Public Benefit recognizes that ―so long as smaller systems are enclosed within larger, and so long as all are connected by complex patterns of interdependency, as we know they are, then whatever affects one system will affect others…if at any point the smaller begins to control the larger, then the destruction of the entire system begins. (Wendell Berry, *Standing By Words*, North Point Press, 1983, pg, 46) By preserving the integrity of small systems, by not removing resources or destroying the integrity of the natural system, the entire system is preserved and long term Net Public Benefits is maximized.

Within the constraints of its budget, the Forest Service maximizes long term Net Public Benefit by creating, considering and choosing the alternative that generates the greatest long term Net Public Benefit over those that create a lower long term Net Public Benefit or a net loss. Long term Net Public Benefit for an alternative is maximized when management directives, goals, objectives and prescriptions allow and encourage those management activities that increase the supply and value of goods and services and strictly limits or eliminates those management activities that decrease the value of goods and services so that the supply and value of available goods and services is maximized.

What does it mean when long term Net Public Benefit is not maximized? It means that when both monetary and non-monetary effects of the forest plan are considered and estimated, that a different use of funds, pursuing different activities, or refraining from particular activities could provide society with a higher long term Net Public Benefit than the one achieved by the GWNF Plan. Long term Net Public Benefit cannot be maximized when activities allowed under one alternative that have a lower long term Net Public Benefit are preferred over activities that are allowed by another alternative which have a higher long term Net Public Benefit.

The Unites States Forest Service, both in its forest planning, implementation and monitoring, has consistently failed to fulfill its legally required responsibilities with regard to long term Net Public Benefits. For example the January 1993 Final Revised Forest Plan and Final Environmental Impact Statement for the Revised Land and Resource Management Plan for the George Washington National Forest, contain no mention of long term Net Public Benefits in the *entire document*. The DEIS uses the term *twice*: the term net public benefit is defined in the glossary (Glossary-5) and is mentioned *once* in reference to 1982 regulatory requirements (The Analysis Process, Appendix B, B-90). Neither the Final Plan or the Final DEIS contains any long term Net Public Benefit analysis, comparative or otherwise.

The DEIS appears to use Present Net Value as a proxy for long term Net Public Benefit. This arbitrary and capricious abdication of responsibility results in comparative economic analysis which totally ignores the value of the stock of resources—increasing or decreasing—over the long term. It also fails to include any valuation of Ecosystem Services—a critical component of long term Net Public Benefits—over the term of the plan.

The April 2011 DEIS is no improvement. Its only references to net public benefit makes note of the NFMA regulations and states that ―for resources that have no values estimated by generally accepted methods, we will discuss them in a narrative fashion as part of the assessment of net public benefits that is made in the Record of Decision…‖ (DEIS, 3-297). The DEIS then presents Table C12.19: Cumulative Decadal Present Net Value of Benefits and Costs, which compares various components of cost and benefits by program among the 7 alternatives.

The absence of any economic analysis of ecosystem services and the failure of any analysis that values the stock of resources under these alternatives, demonstrates that net present value cannot substitute for long term Net Public Benefits.

Ecosystem services are only loosely defined in the Draft Plan as ―the suite of goods and services from the forest that are vital to human health and livelihood and are traditionally viewed as free benefits to society, or "public goods" - wildlife habitat and diversity, watershed services, carbon storage, and scenic landscapes, for example.‖ (Appendix E , E-19) For instance, there is no mention of public health benefits from recreation activities. (See J. D. Kline, R. S. Rosenberger, E. M. White. ―A National Assessment of Physical Activity in US National Forests”. *Journal of Forestry*, September 2011, and
Draggan, Sydney. "National Forests and Public Health Benefits". *Encyclopedia of Earth*. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). (First published in the Encyclopedia of Earth September 8, 2011)

Nowhere is there any specificity, methodology or analysis of ecosystem services on the range of alternatives. Government agencies regularly do this type of analysis and courts have to do this type of analysis when they try to determine natural resource damages, for instance when there is an oil spill for example and the courts try to assess how much the oil company has to pay to make it right again. (See Daily, G., Alexander, S., Ehrlich, P.,

Goulder, L., Lubchenco, J., Matson, P., Mooney, H., Postel, S., Schneider, S., Tilman, D., and Woodwell, G., *ECOSYSTEM SERVICES: Benefits Supplied to Human Societies by Natural Ecosystems*, Ecological Society of America. Number 2, Spring 1997.)

In the creation of its range of alternatives and in its subsequent economic analysis of long term Net Public Benefits of the 7 alternatives presented, the DEIS must account for the increased value/benefits over the next 10-15 years of Ecosystem Services which all forest users and non-users benefit from which include, but is not limited to:

1. visual quality,
2. recreational opportunities, value and health benefits
3. stored carbon and continued carbon sequestration capacity of forest flora and soils
4. climate change mitigation and prevention
5. air quality, including concentrations of Nitrogen Oxides, Sulfur Dioxide, Carbon Dioxide, heavy metals, ground-level ozone, and the the costs of degraded air particulate concentrations specifically from biomass incineration and prescribed burning programs
6. soil retention
7. water quality, including rising temperatures from lack of forest cover, siltation from management activities, accumulation of herbicides/pesticides from management activities, and
8. Prevention of NNIS intrusion and proliferation due to management activities.

The agency appears to assume that the GWNF ID Team has no responsibility to comply with NFMA regulations and no responsibility to analyze, assess or compare long term Net Public Benefits—or ecosystem services—under different management scenarios. ―While the concept of net public benefits is widely discussed in the economics literature and while various statutes and administrative directives *suggest* that this is indeed a goal of national forest management, the reality is that there is no objective way to determine when this goal is achieved—too many relevant factors cannot be quantified, let alone expressed in monetary terms. In a democratic society such as ours, the presumption is that net public benefits will be maximized as diverse stakeholders compete with one another through the political process (directive from Ann M. Bartuska, Director, USFS Forest and Rangeland Staff to Regional Directors, File Code: 2400, November 6, 2000).‖ To defer responsibility for clear economic analysis to a ―democratic political process,‖ is arbitrary, capricious, irresponsible and unacceptable.

The absence of any comparative long term Net Public Benefit analysis in the GWNF DEIS prevents the agency from making a determination of which alternative does maximize long term Net Public Benefit.

Moreover, the absence of any comparative long term Net Public Benefit analysis denies the public critical information from which to compare alternatives and/or determine which alternative, in fact, maximizes long term Net Public Benefit.

A most clear, specific and relevant analysis of net public benefit can be found in;

Economic Contributions and Expenditures in the National Forests, Prepared by Karyn Moskowitz, MBA, for the American Lands Alliance and the John Muir Project of Earth Island Institute, Washington, D.C. January 1999.

The Economic Case Against National Forest Logging, Karyn Moskowitz, National Forest Protection Alliance, December, 1999.

Economic Analysis of the 2006 Wayne National Forest Plan, Greenfire Consulting Group, LLC, Heartwood, May, 2008.

The DEIS clearly fails to include an alternative that expressly and **by design** maximizes long term Net Public Benefits. It also fails to choose that plan from the range of alternatives, Alternative C, which maximizes long term net public benefits, relative to the other alternative considered.

The Conservation Alternative, as submitted by Wild Virginia and Heartwood as comments on the NOI, dated May 06, 2010 (submitted by reference), was an alternative created with the sole goal and objective of fulfilling the NFMA mandate that the forest plan maximize long term net public benefits. The Conservation Alternative provided analysis of maximum long term net public benefits with respect to all major significant issues addressed by the NOI and more, including: Fire, Forest and Habitat Fragmentation, Edge Effects, Special Biological Areas, Core Conservation Areas, Buffer Areas, Migration Corridors, Roadless Areas, Wilderness, Wilderness Study Areas, Water Quality, Drinking Water Watersheds, Riparian Areas, Soils Sedimentation and Acidification, Old Growth and Climax Forests, Invasive Species, Climate Change, Carbon Sequestration, Resiliency, Roads, Primitive Recreation, Semi-primitive Non-motorized Recreation, Developed and Motorized Recreation, Timber Production, Early Successional Habitat, Rare and Special Species, Management Indicator Species, Wildlife Management, Forest Diversity, Ecological Restoration, Biomass Energy, Wind Energy, Oil and Gas Energy and Mineral Leasing, Air Quality, Scientific Research, Data and Monitoring, Wild and Scenic Rivers, and Scenic and Visual Quality.

The agency failed to create an alternative whose goals and objectives were to maximize long term Net Public Benefits. Had the ID Team followed the direction and lead of the Conservation Alternative it could have and would have. Of the alternatives considered, Alternative C is the alternative that comes closest to maximizing long term Net Public Benefits and should have been so identified as the preferred alternative.

IV. Wilderness and Roadless Areas

9. The management prescriptions under the Preferred Alternative fail to protect wilderness values and fail to manage all Potential Wilderness Area (PAW) acreage consistent with the 2001 Roadless Rule.

10. The preferred alternative is unrealistically biased against wilderness study areas, subjectively reducing the total acreage of those Potential Wilderness Areas considered and arbitrarily removing from consideration numerous qualified Potential Wilderness Areas.

11. The DEIS fails to implement a comparative analysis of the long term Net Public Benefits of wilderness opportunities for the full range of alternatives. Specifically,

wilderness recommendations under Alternative C have not been given adequate review and analysis.

The GW is one of the very few places in the eastern U.S. where large areas of relatively undisturbed, mature forest still exist. These forests and the remote settings they provide must be protected. In addition to the public benefits they provide (clean air, clean water, unique recreation opportunities, etc.), many wildlife species that need large geographic areas (e.g., black bears, bobcats, raptors) or habitat conditions found here (e.g., forest breeding birds, salamanders) depend upon these special habitat areas.

The draft plan identifies 372,000 acres of ―potential wilderness area‖, or PWA. Managing 242,000 acres of the PWA (the Inventoried Roadless Areas, or IRA) consistently with the 2001 Roadless Area Conservation Rule (Roadless Rule) is a very positive and important step that we fully support. That is the stated intention of the draft plan as explained by staff of the GW at several public planning meetings in 2011. However, some of the management prescription areas assigned to locations within IRA are not consistent with the Roadless Rule. Of the five management prescription areas occurring within IRAs (Remote Backcountry, Special Biological Area, Shenandoah Mountain Crest-Cow Knob Salamander, Eligible Scenic River Corridors, Eligible Recreational River Corridors), only the Remote Backcountry designation is fully consistent with the Roadless Rule. This needs to be corrected.

All of the PWA acreage meets the definition of ―roadless area‖ in the Roadless Rule (Guidance on How to Conduct the ―Potential Wilderness Area Inventory‖ for the Revision to the Revised George Washington Forest Plan). In order to protect the roadless character of these areas, the entirety of all PWAs should be managed consistently with the Roadless Rule. Approximately 144,500 acres of the PWA fall outside of IRAs (page 2-34, DEIS). Under the draft plan, roughly 80,000 of the 144,500 acres of newly identified roadless areas are to be managed consistently with the Roadless Rule (i.e., assigned to one of the five management prescription areas occurring within IRAs). As stated above though, only Remote Backcountry is fully consistent with the Roadless Rule. Roughly 64,500 acres of these newly identified roadless are subject to active management, with much of the acreage designated as Mosaics of Habitat. The possibility of active management in these areas, including new roads and timber harvesting, could potentially corrupt their roadless character. This should also be corrected.

Creating wilderness study areas (WSA) is an excellent means for protecting these large, remote forests. We are disappointed in the meager recommendation of 20,454 acres for WSA in the draft plan (page 3-238, DEIS). Each of the four areas recommended are important, but three need to be increased in size. The 9000 acre recommendation for Little River is a fraction of the 30,227 acres in its PWA. Designating the entire Little River PWA as Wilderness Study would not impact any other values of the area, noting specifically that standard 1B-007d for recommended Wilderness Study Areas states that ―use of bicycles on existing trails can continue.‖ (Plan, 4-33) Similarly, the 5000 acre recommendation for Rich Hole Addition should be increased to protect the 12,165 acre PWA, and the 6000 acre recommendation for Ramsey‘s Draft Addition should be increased to protect the 19,072 acre PWA.

Just as importantly, many other areas of the GW are very worthy of WSA designation. No wilderness exists in the Lee Ranger District, and part of the Big Schloss PWA should become WSA. Several other PWAs in the North River Ranger District should become WSA, including Beech Lick Knob, High Knob, Gum Run, Hone Quarry-Oak Knob, and Jerkemtight. Laurel Fork PWA in Warm Springs Ranger District is a truly unique and special place also deserving to be WSA.

Under Alternative C, almost all PWAs and 386,762 acres would become WSA (DEIS, page 3-238). We feel wilderness recommendations under Alternative C have not been given adequate review and analysis during the planning process. The wilderness recommendations of Alternative C should be adopted.

Virginia'sMountainTreasures:TheUnprotectedWildlandsoftheGeorgeWashingtonNational Forest (2008) is a publication focused on *mountain treasure areas*, the unprotected wildlands of the George Washington National Forest. Along with dozens of sponsoring groups and business, The Wilderness Society, the Sierra Club, and others have identified 63 areas with high quality fisheries, mature-forest wildlife habitat, backcountry recreation opportunities, intact watersheds, and beautiful scenery across the national forest. These areas, selected for their outstanding wild and natural values, total 602,432 acres.

While it is clearly not an expectation that all of these areas should become designated wilderness, all of them deserve a strong measure of protection from the pressures of development. They are an important reserve of biodiversity. All of them should be protected from logging, roadbuilding, federal gas leasing, and OHV use. They play a critical role in providing wildlife corridors, needed for climate change adaptation.

To the maximum extent possible, the Forest Service should protect all areas identified in the Virginia‘s Mountain Treasures publication by designating them as unsuitable for timber harvest, new road building, and surface-occupying oil and gas drilling.

These include important areas not yet fully protected as roadless areas such as Great North Mountain and Falls Ridge, part of the Great Eastern Trail route, Catback Mountain, in the Massanutten Mountain area, and the approx. 30,820 acre Jerkemtight-Benson Run area, one of the largest unroaded areas on the Forest.

Alternative G does not adequately protect many of these areas. For example, the Great North Mountain, Falls Ridge, portions of Catback Mountain, and the Benson Run portion of the Jerkemtight-Benson Run area are not protected in Alternative G. Nor are the Toms Knob (Potts Mountain), Signal Knob, Friar, Warm Springs Mountain, Scaffold Mountain (Galford Gap), and Paddy Lick (Paddy Knob) areas, to provide a few examples.

The final plan should be based on the strongest Alternative for VMT protection, Alternative C, and should provide all significant elements of this Alternative.

V. Primitive Recreation

12. The Need for Change fails to include the creation of primitive recreation as a concern, issue, goal or objective in the Draft Plan.

13. The DEIS fails to offer an alternative that specifically contains the existence of or creation of primitive recreation opportunities or areas where true primitive recreation is available.

14. The DEIS fails to implement a comparative analysis of the long term Net Public Benefits of primitive recreation opportunities in the GWNF.

15. The DEIS fails to consider the goals or objectives of Road Closures in its analysis and therefore fails to consider the creation of primitive recreation as a possible goal or objective of such road closures.

16. The Draft Plan fails to recommend the entire Little River PWA as a wilderness study area, thereby failing to provide the potential for the full range of recreational opportunities in the forest.

17. The Draft Plan and DEIS fail to consider these issues and requests as raised in the Conservation Alternative, submitted by Wild Virginia and Heartwood on May 06, 2010.

In the 1993 Forest Plan, the potential for primitive recreation opportunities was not adequately considered. The Forest and Rangeland Renewable Resources Planning Act of 1974 directed the Secretary of Agriculture to prepare a Renewable Resources Assessment in 1975 with updates in 1979 and each 10th year thereafter. These assessments are to include "an analysis of present and anticipated uses, demand for, and supply of the renewable resources, with consideration of the international resource situation, and an emphasis of pertinent supply, demand and price relationships trends".

―The sense of creativeness, refreshment and pleasure which the recreationist has while recreating or having a good time can be viewed as the recreationist realizing satisfactory experiences. The recreationist attains these satisfactory experiences by participating in preferred recreation activities in preferred surroundings or settings. Therefore although the recreation resource manager manages settings, he or she does so to provide opportunities for recreation experiences and the benefits those experiences produce for individuals and society. Those experiences are influenced by many factors: the settings, the activities, other resources present, activities by managers, and by the values, expectations and other characteristics of the recreationists. These factors interrelate to define outdoor recreationists' needs and the way these needs are met by management action.‖

―Managing for recreation requires different kinds of data and management concepts than does most other activities. While recreation must have a physical base of land or water, the product - recreation experience - is a personal or social phenomenon. Although the management is resource based, the actual recreational activities are a result of people, their perceptions, wants, and behavior. ―

―The word opportunity is defined as a combination of circumstances favorable for a purpose. The purpose or goal of the recreationist, as discussed above, is to realize satisfying experiences. This is done by participating in preferred activities in preferred environmental settings. Thus, recreation opportunity is the availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired.‖

The March 2010 Draft Evaluation of the Need for Change in its Analysis of the Management Situation notes that ―the most primitive class in the ROS system is Primitive (P). This class is characterized as being essentially unmodified; at least 5000 acres in size and at least 3 miles from all roads, railroads of utility corridors. There are no Primitive (P) ROS class areas inventoried on the forest and there is little or none of it known to exist anywhere in the East‖ (AMS-163)

The Plan notes that ―the demand for outdoor recreation opportunities…outweighs the forests supply.‖ (2-22)

―While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of ***providing the opportunities for obtaining these experiences"*** (emphasis ours)**.** By managing the natural resource, and the activities that occur within it, the manager is providing the opportunities for recreation experiences to take place. "(USFS ROS Users Guide -1982)

Eastern forests are so heavily roaded that there is not a single primitive recreation area available in any eastern National Forest. Given this, the opportunity to create a large, unfragmented area in the forest which meets the criteria for Primitive ROS class would be highly desired and highly valued. The GWNF has the most and best potential in the east to provide primitive recreational opportunities.

The Draft Plan defines road closure as ―a technique used by management to regulate and control the use of facilities to achieve transportation economy, user safety, protection of the public investment, and accomplishment of forest resource objectives. It may be intermittent or long term.‖

In its discussion of the Recreation Opportunity Spectrum, the DEIS notes that ―increasing remote settings may be associated with road closures in some areas, both seasonal and permanent. Closing roads increases the satisfaction of visitors that prefer solitude and fewer disturbances by motorized vehicles.‖ (DEIS, 3-209)

It is clear that the Draft Plan and its DEIS has the responsibility to consider using road closures as a tool to fulfill its requirement to at least consider and at most to implement actions necessary to create an area which meets the Primitive ROS designation in the GWNF.

The area which currently comes closest to fulfilling the criteria for primitive recreation and that has the most obvious ability to actually provide primitive recreation is Little River. The Draft EIS notes that the 30,227 Little River Potential Wilderness Area ―is the largest area in the inventory and possibly the largest block of land to meet potential Wilderness criteria in the east. It has a huge core of about 20,500 acres of semi-primitive ROS class that offers significant opportunities for isolation, primitive recreation and physical challenge. This is the largest PWA; and with its

proximity to existing Ramseys Draft Wilderness, offers a significant opportunity on the GWNF to provide adjacent Wildernesses that cumulatively are a substantial size.‖(Appendix C – Potential Wilderness Area Evaluations George Washington National Forest Draft EIS April 2011)

The Forest Plan should designate the entire Little River PWA as Wilderness Study Area. At least one of the alternatives considered in the DEIS should consider implementing strategic road closures to create an area of primitive ROS with additions to Little River as its management goal and objective. Long term Net Public Benefits analysis should be evaluated for the increased value of primitive recreation in the GWNF for all alternatives.

VI. Plant and Animal Communities

18. The Plan Revision documents do not appropriately weigh the effects of wildlife/rare plant and wildlife/rare plant habitat among Alternatives.

19. The DEIS fails to allow for minor adjustments in Alternatives that would improve the viability of species, and fails to consider an alternative that would maximize long term Net Public Benefits by maximizing the viability of species.

20. The DEIS incorrectly and arbitrarily fails to consider naturally occurring canopy gaps and disturbances and therefore claims that Alternative C does not address the viability needs of all species.

21. The DEIS incorrectly states that Alternative C bans prescribed burning when it merely restricts its use.

22. The DEIS uses inappropriate habitat component descriptions for many of the species it lists as having negative "Habitat Management Effects Compared to Current Condition" in Alternative C.

23. The DEIS does not analyze which alternatives have stronger or weaker protection and higher long term Net Public Benefit for the habitats where the northern flying squirrel, Indiana bat, Big Levels salamander, the shale barren rockcress, the sword leaved phlox and the rock skullcap are found.

24. DEIS selectively omits information about numerous species, distorting the meaningfulness of analysis on the range of alternatives.

25. The DEIS selectively omits aquatic/riparian species from the Outcome Groups even though these species could be adversely by upstream land management activities.

26. The DEIS has failed to consider the value of higher management priorities for species proposed for listed under the ESA as they would be provided throughout the range of alternatives.

27. The DEIS appears to fail to take into consideration the potential for climate change in its assessment of the "risks to viability of species" on the GWNF.

The Forest Service attempts to assess the ―risks to viability of species‖ on the GWNF. (DEIS 3-69 et seq., see Outcome Groups table B.2.5) The FS claims that ―almost all of the species benefit from each alternative, other than Alternative A, due to the additional species group protections that are common to all the other alternatives‖ and ―[t]he lack of [active vegetation management in the form of timber harvest and prescribed burning] in Alternative C makes it the only alternative that does not address the viability needs of all of the species on the Forest.‖ (DEIS 3-77).

This section refers to Alternative C. However the statements referring to Alternative C do not apply only to Alternative C, but also to other alternatives that contain sizeable recommended wilderness, recommended NSA, and other areas protected from roadbuilding and extractive development, and to elements of Alternative C thatshouldbeaddedtothealternativechosenin the finalForestPlan,regardlessofwhichalternativeischosen.

The Plan Revision documents are biased, inconsistent, or lacking in information and do not appropriately weigh the effects of wildlife/rare plant and wildlife/rare plant habitat among Alternatives.

There are several problems with the approach the FS uses.

First, the analysis assumes that ―additional species group protections‖ are adequate. These protections, for the most part, cover a small part of the forest. Levels of protection vary according to the particular prescriptions in the various alternatives. Myriad species are involved, many with differing habitat needs. The FS never discloses the degree to which these ―additional species group protections‖ are adequate, whether significant habitat needs are covered for multiple species, whether additional buffers around protected areas may be needed in some cases and are not provided, whether activities upstream from these areas may negatively affect species or habitat, and whether undiscovered, unprotected populations may exist outside areas.

Likewise, it is assumed that Alternative C does not address the viability needs of all species in part because it does not allow 1000-4200 acres of logging/year that the other alternatives offer across a 1.1 million acre NF. The FS does not explain how 1000 or 4200 acres of logging disturbance would maintain the viability of species while 0 acres of logging would not, especially when the Forest continually creates openings on its own.

Studies in the southern Appalachians show that small intensity disturbance creates about 1/2% a year in an unmanaged forest. (Lorimer, Age Structure and Disturbance History of a Southern Appalachian Virgin Forest). The Wilson Mtn EA (Glenwood RD), p.88, estimated a gap phase regeneration rate of 0.4 to 2.0% across the GW&JNFs. The annual natural mortality rate for this Forest is said to be "0.4 to 2.0% of the land area" (GW-J NF Indiana Bat EA-20). At such gap phase regeneration rates, a large percentage of ESH has undoubtedly cumulatively been created during the current plan period, and more ESH is constantly being created. The FS should use gap phase regeneration rates to predict future ESH levels in the GWNF. This is in addition to openings already existing on the GWNF or predicted on the GWNF, including utility corridors,

undecommissioned road corridors, game openings, and the nearly 400 acres of natural gas openings predicted under Alternative C (DEIS 3-322).

Also, the FS states that Alternative C lacks prescribed burning (DEIS 3-77) when it does not (DEIS 2-30); and the FS has the opportunity to carefully allow natural wildfires to create habitat in some areas, particularly remote areas where prescribed burning may be more difficult and where adjacent property is not at risk.

The FS states that ―additional species group protections‖ are part of all alternatives except the no-action alternative and that ―almost all of the species benefit.‖ By stating this the FS admits that only a very small number of species are not benefiting from the protections afforded in Alternative C and other alternatives. We believe that if the FS explored this matter further, we would find that many of the species allegedly not protected in Alternative C thrive in adjacent and nearby cutover lands throughout the landscape, and in and around existing utility corridors, undecommissioned road corridors, game openings, and other openings on the GWNF.

Second, the FS uses inappropriate habitat component descriptions for many of the species it lists as having negative ―Habitat Management Effects Compared to Current Condition‖ in Alternative C (DEIS H-18 to H-29). For example, the FS lists the Cow Knob Salamander, Swamp pink, Waterfan lichen, Va northern flying squirrel, Southern water shrew, NE bulrush, McGraw Gap xystodesmid, Rock skullcap, Roughhead shiner, Virginia sneezeweed, Bald eagle, Southern water shrew, and Southern rock vole as ―species that DO NOT need active management‖ (DEIS 3-243) but rock skullcap and northern flying squirrel are listed as having negative ―Habitat Management Effects Compared to Current Condition‖ in Alternative C, despite the fact that it has a greater percentage of land area where natural processes are allowed to operate freely.

The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where the northern flying squirrel is found. The northern flying squirrel is listed among species ―that DO NOT need active management‖ (DEIS 3-243. See also the Appalachian flying squirrel recovery plan, 1990, pp. 8-14.)

Similarly, the DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where the Indiana Bat is found. **"***Myotis sodalis* hibernates in caves; maternity sites generally are behind loose bark of dead or dying trees or in tree cavities (Menzel et al. 2001). Foraging habitats riparian areas, upland forests, ponds, and fields (Menzel et al. 2001), but forested landscapes are the most important habitat in agricultural landscapes (Menzel et al. 2005).‖‖ Garner and Gardner (1992) reported that 38 of 51 roost trees in Illinois occurred in uplands and 13 trees were in floodplains. Of the 47 trees in forested habitat, 27 were in areas having a closed (80-100%) canopy, and 15 were in areas having an intermediate (30-80%) canopy.‖ ―Roosts were not found in forests with open canopies (10-30%) or in old fields with less than or equal to 10% canopy cover. In eastern Tennessee and western North Carolina, several maternity colonies were in sun-exposed conifer snags (roost sites were above the surrounding canopy); some of these snags fell and were not used in subsequent years (Britzke et al. 2003).‖‖ Known roost tree species include elm, oak, beech, hickory, maple, ash, sassafras, birch, sycamore, locust, aspen, cottonwood, pine, and hemlock (Cope et al. 1974, Humphrey et al. 1977, Garner

and Gardner 1992, Britzke et al. 2003, Britzke et al. 2006), especially trees with exfoliating bark.‖ (www.natureserve.org, accessed Oct. 2011).

The Forest Service does not seem to recognize the precariousness of the species' population in Virginia. Here on the periphery of their range, the Bats' numbers have plummeted. **A net loss of 1300 Bats since counts were initiated in VA winter hibernacula** (IBat EA-11)**, a decline of approximately 75% in this state**. Bat populations in Starr Chapel Cave plummeted from 600 bats in the early 60s to 54 bats by 1996-97. . Bat populations in Mtn. Grove Cave have declined from 23 bats in 1992 to 2 bats by 1997-98 (IBAt EA-11).

The Brack and Brown (2002) study discloses that less than half of identified roost trees are shagbark hickory, but here the FS mainly only protects shagbark hickories in its inadequate mitigation measures with no assurance that adequate other potential roost trees are protected. Research in Indiana and Kentucky indicates that bats range up to 5 mi. from hibernacula during fall and spring swarming periods (ibid p. 25). Clawson (2002) reported an 80% decrease in bat populations over the last 40 years in the southern portion of the bats' range (Alabama, Arkansas, Kentucky, Missouri, Tennessee, and Virginia) (ibid, 13).

The FS has not performed the needed surveys and inventories of the area and its habitat (the proper site-specific good faith "hard look" by qualified personnel using valid methods) necessary for clearly establishing the status of the Bat here, it is clear the agency would not be placing the requisite highest priority on the Indiana Bat and other T&E bats and their habitat. Past dereliction as regards proper survey information was articulated at the appeal resolution meeting for the Chestnut Ridge #2 TS on the GWNF Deerfield RD where agency personnel declared that it "wouldn't do any good to determine if Indiana Bats are using this area."

Logging allowed in many of the Alternatives could adversely affect roosting (sheltering), maternity (breeding), foraging (feeding), and swarming habitat of the Indiana Bat and other T&E bats. Logging could remove the very trees (large mature with broken tops and cavities and snags and exfoliating bark) with the characteristics known to be used or favored by the Bats. Top priority should be given to the Bats.

This felling/removal also ignores the Bats' known loyalty to habitat. The must address the impact of removing a roost tree when the bats are not there. There is the need to consider, loyalty to the roost trees, stress of finding new roosts, and the impacts of removing trees next to roosts or potential roosts (i.e., making the tree more susceptible to windthrow and changing the thermal dynamics).

Ignored also is the fact that the Bats are known to especially use riparian and stream corridors for dispersal and feeding. All forested habitat is not "equal‖, yet the agency's EA/BE analysis traditionally acts as if it is. The agency is proposing to disturb and degrade areas of Forest that are particularly important to the Bats. Most, if not all, of the tracts proposed for logging are adjacent to streambeds.

Efficacy of proposed mitigation measures for the Bat must be explained, and they must completely compensate for potential adverse effects. For example, the increased susceptibility of

remnant leave trees to windthrow should be assessed. Efficacy of retaining only shagbark hickory trees is unsubstantiated; the Bats are known to use other tree species that are present here that the cuts will remove. See Table 4 at pg. 21 of GWJNF IBRS. White, chestnut, and northern red oaks, species which are prevalent here, are "Class 1 Tree Species" and are likely to be used for roosting and maternity sites. The effectiveness of retaining a certain number of snags per acre should be substantiated. If the Bats were receiving the required ―top priority‖ all snags and large potential den trees would be retained. See Bensman v. USFS (1997). The mitigation may not necessarily retain the large old or dead/damaged trees of greatest benefit to the Species. And concern over low snag amounts (and quality) are not merely conjectural. See the information found in USDA FS General Technical Report SE-94 "Biodiversity and Coarse Woody Debris in Southern Forests" (incorporated by reference).

Another mitigation often offered for Indiana Bat roost trees is in effect no mitigation. "If during implementation active roost trees are identified. . ." Loggers or timber officers can not be expected to be qualified at identifying or locating TESLR species or roost trees. And there is no assurance that they would notify proper authorities if they did find anything. Reliance upon such mitigation for a FONSI is unreasonable and/or arbitrary and capricious.

There is no mitigation requirement for examining cut trees to ascertain if "incidental take" or significant harm to Bats should occur. In a meeting attended by members of the appellants on July 26, 2002 at the GWNF Deerfield RD office, the agency timber sale administrators and contract inspectors present made it quite clear that they ―do not monitor or track wildlife killed‖ at logging sites.

Of particular concern are cumulative impacts to the Indiana Bat. The proposed action, in concert with other past, present and future actions, could result in CIs to the Bat. Past actions have already harmed Bat habitat in this analysis area. There is clear evidence that further habitat modification (e.g., cutting of trees for sale) is foreseeable here and elsewhere in the Bats' habitat in this Forest and ranger district. The agency's assertion that CIs will not result to the Bat's populations here or in Virginia must be explained & substantiated. The Bats' viability is particularly at risk here due to it being on the edge of its range and its small population in Virginia.

The agency is at present modifying and/or damaging and/or degrading and/or destroying Indiana Bat habitat (or contemplating such) throughout its range. These actions include, but are not limited to, the Dice Run, Open Trail, Johnson Mtn., Shady Mtn., Enterprise, Sugar Tree, Lip Trap, Hiner Hollow, Jehu Hollow, Apron, CMB, Bark Camp, Hagan Hall, Chestnut Ridge #2, Sandtrap, Nutters Mtn., Panhandle, Barn Hollow, Rogers Road, Peter's Ridge, Peters Mtn., Taylor Branch, Broad Run, Bear Trap, Hoover Creek, Canbe, Enterprise, Johnson Mtn., Uneven Steven, Open Trail, Slate, and Mulligan TSs on the J-GWNFs.

The planners often do not seem to recognize the precariousness of the species' population on this Forest. Here on the periphery of their range, the Bats' numbers have plummeted. A net loss of 1300 Bats since counts were initiated in Virginia winter hibernacula (GWJNF IBat EA-11), a decline of approximately 75% in this state.

The DEIS does not properly analyze which alternatives have stronger or weaker protection for the Big Levels salamander and for habitats where this species is found. The DEIS does not analyze the degree to which alternatives would promote (or not promote) greater interaction with the eastern red-backed salamander and the degree to which this could adversely affect the salamander: ―This recently described species from the Blue Ridge Mountains of the eastern USA is known only from 15 sites in a small area in the vicinity of Big Levels, Augusta County, Virginia, at elevations ranging from 579m asl (Lake Sherando) to 1,091m asl (at the top of Bald Mountain). It overlaps very narrowly with Eastern Red-backed Salamander *Plethodon cinereus* on the edge of its range.

Most of its range is within the George Washington National Forest, but the management of this is not necessarily compatible with the conservation of this species, perhaps especially when logging is permitted. There is a need for continued close monitoring of the population status of this species.‖ (IUCN Redbook species account for the Big Levels salamander http://www.iucnredlist.org/apps/redlist/details/61905/0, accessed Oct. 2011).

The DEIS does not properly analyze which alternatives have stronger or weaker protection for the shale barren rockcress and the habitats where this species is found. ―Management needs are primarily limited to exempting shale barren communities from pesticide application for gypsy moth control. Protecting plants from deer browse also is important. No active management of shale barrens appears necessary.‖‖ Management needs are primarily limited to exempting shale barren communities from pesticide application for gypsy moth control. Preventing application of Dimilin and BT is necessary in order to preserve the insect fauna that pollinates the species.‖‖ No active management of shale barrens appears necessary (Dix 1990). The influence of fire on barren formation and maintenance is likely negligible (Dix 1990). Fires do not typically carry through steep barrens where surfaces are bare and tree cover sparse (Platt 1951). These barrens remain open and do not require fire for opening maintenance. On barrens with shallower slopes, herbaceous cover may get relatively thick and fire may play a sole in limiting shrub succession (Thompson in litt.). Periods of severe drought may also act to eliminate shrub encroachment and reestablish the barren character (Bartgis in litt.).‖ [this latter comment should be applied to our discussion of all shale barren plants in this section.]((www.natureserve.org, accessed Oct. 2011).

The DEIS does not properly analyze which alternatives have stronger or weaker protection for the sword leaved phlox and for habitats where this species is found. ―Shaly slopes in open woods and shale barrens; often occurs along roads. Shales tend to be of Devonian age.‖ See also discussion re. shale barren rockcress, above:‖ No active management of shale barrens appears necessary (Dix 1990). The influence of fire on barren formation and maintenance is likely negligible (Dix 1990). Fires do not typically carry through steep barrens where surfaces are bare and tree cover sparse (Platt 1951). These barrens remain open and do not require fire for opening maintenance. On barrens with shallower slopes, herbaceous cover may get relatively thick and fire may play a sole in limiting shrub succession (Thompson in litt.). Periods of severe drought may also act to eliminate shrub encroachment and reestablish the barren character (Bartgis in litt.).‖ (www.natureserve.org, accessed Oct. 2011).

Rock skullcap is listed among ―species that DO NOT need active management‖ (DEIS 3-243). The DEIS does not properly analyze which alternatives have stronger or weaker protection for the

habitats where this species is found. ―Primarythreat(totherockskullcap)islossofforestcanopy (affects the moist microclimate of forest floor) and invasion of exotic species…preserves should be designed so that they are large enough to allow for population expansion and should include adequate buffer area surrounding occurrences. Invasive exotic plant species and encroachment by woody plants should be controlled. Grazing should be prevented.Forestcanopyneedstobe without largegapsandopeningswhichallowsunlighttodryplants;therefore,canopiesshouldbe protectedfrom loggingoreliminationbyothermeans. Populations need to be protected from trampling and other destructive threats. Monitoring needs to be carried out on a frequent basis to assess population size and vigor, reproductive success, habitat quality, and threats. Research is needed to investigate population dynamics, seed dispersal mechanisms, establishment regimes, and the natural history of this species…preserves should be of sufficient size to sustain viable populations over time. Preserves should be of large enough size so that population expansion can occur.Inaddition,adequatebuffershouldsurroundoccurrencestoprotectfromoutsideinfluences suchas exoticspeciesintroductions,erosion,etc….management (should) ensure that exotic invasive plant species (such as Lonicera japonica and Microstegium vimineum) are controlled or removed as part of management considerations (Homoya 1992, Rock 1992). See www.NatureServe.org (accessed Oct. 2011) [underlining for emphasis]

FS selectively omits information about numerous species in Table H.2 (Appendix H, H-18-29), distorting the meaningfulness of Table B.2.5 (DEIS 3-78 to 79). Key species with omitted information on Table H.2 could be treated favorably for Alternative C while treated unfavorably for some other alternatives Table H.2 states that ―Blank means no difference in habitat among the alternatives.‖ Another category on Table H.2 states ―=means habitat remains the same.‖ It is easy for the FS to inappropriately place species in these categories, even when a comparison of alternatives indicates that there is a clear difference in how habitat is managed forest-wide between alternatives.

For example, the FS places the eastern small-footed bat in the ―Blank‖ category. However, the 2001 VDCR Eastern Small Footed Bat Conservation Agreement states: " When timber harvesting activities occur near summer bat roosts, caves, and foraging areas, use of buffers and minimal disturbance zones is strongly recommended. Timber harvesting techniques that leave snags and trees with cavities and exfoliating bark are potentially beneficial, and are recommended in areas known to support eastern small-footed myotis. " The conservation agreement states that "Summer roosts are often in trees, buildings, behind loose bark, on rock outcrops, and on rocky ridges (Barbour and Davis 1969; Tuttle1964; Whitaker and Hamilton 1999)." NatureServe states: Warm-season roosts include buildings, towers, hollow trees, spaces beneath the loose bark of trees, cliff crevices, and bridges.‖ And ―The caves and mines that serve as significant hibernacula must be protected from disturbance November through March. If necessary, the entrance should be gated. Foraging areas (mostly streams and ponds) should be protected from pesticides and anything else that might adversely affect production of the bat's insect food. Forest should not be eliminated above or around hibernacula, nor around foraging areas. Public education about the value of bats is necessary in the long-term.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze which alternatives have stronger or weaker protection of rocky areas, bat roosts, snags, and other habitat components throughout the eastern small-footed bat‘s range.

The FS places the northeastern bulrush in the ―Blank‖ category. NatureServe recommends that ―All populations of *Scirpus ancistrochaetus* should be protected from human intrusions such as development, dredging, water level alterations and off-road vehicles use of the habitat.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze which alternatives have stronger or weaker protection from OHV incursions, or the degree to which the alternatives protect interior portions of the Forest from OHV incursions throughout the northeastern bulrush's range and nearby surrounding areas. The DEIS does not analyze the degree to which alternatives have stronger or weaker protection from activities that can change water quality or cause water level alterations.

The FS places the southern water shrew in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Along mountain streams, especially shaded sections in northern hardwood and subalpine conifer forests; also, peatlands with small streams. Generally closely associated with swift, rocky streams, often with moss-covered rocks and rhododendron on the banks, and yellow birch as one of the main canopy trees; other trees in the habitat may include hemlock, red spruce, red maple, sugar maple, beech, or tulip tree (Handley 1991).‖ (www.natureserve.org, accessed Oct. 2011). This could include habitat along ephemeral streams where there are clear differences in protection levels among alternatives.

The FS places the swamp pink in the ―Blank‖ category. NatureServe recommends the following: ―Conservation of this species requires maintenance of appropriate site hydrology (Laidig et al. 2009) Upland buffers are a key tool to minimize indirect habitat degradation, with evidence suggesting that 300-foot buffers are the minimum necessary (USFWS 2007). Of course, direct habitat degradation, such as site drainage, should also be avoided.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze the degree to which alternatives have stronger or weaker protection for such habitat components, including protection from illegal OHV access, upstream protection to avoid impacts to site hydrology, and a 300-ft minimum buffer.

The FS places the nodding pogonia in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Leaf-lined depressions on gentle slopes in old-age/maturing forests dominated by Tsuga canadensis and Fagus grandifolia.‖ (www.natureserve.org, accessed Oct. 2011).

The FS places the southern rock vole in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Cool, damp, coniferous and mixed forests at higher elevations in the Appalachians; mossy rocky areas throughout Canada. Optimal habitat: ferns/mossy debris near flowing water in coniferous forests. Also occupies deciduous forest/spruce clearcuts (mainly recent cuts), forest ecotones, grassy balds near forest, and sterile-looking rocky road fills. Occupies shallow burrows and runways. Nests probably are placed under logs or in similar protected sites. They are made of moss with a lining of grass and have multiple entrance tunnels. "Sphagnum moss is frequently pulled off in clumps where rock voles are found...," presumably for use in nest building (Martin 1971).‖ (www.natureserve.org, accessed Oct. 2011).

The FS places the Allegheny woodrat in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found. According to Terwiller (1991), "Populations of Neotoma floridana magister have declined precipitously in recent years in the northeastern and midwestern portions of the range of the subspecies…. In view of the speed of its decline in states to the north, Virginia should initiate a program to periodically monitor woodrat cliffs and ledges throughout the state to gain baseline data on the rat's population." (pp. 550 & 551). See also Mengak, 2002: "A recent study has examined woodrat population structure using microsatellite DNA analysis (Castleberrey et al, 2002c). This analysis suggests that across the woodrats range in Virginia and West Virginia, isolation by distance is occurring…Low population abundance (Tables 6,7 and 8) frequent loss of a colony at individual sites (Tables 4 and 6), declining abundance at monitoring sites (Table 8, Figures 3a and3b), absence of woodrats at 34% of historical sites, and loss of some historic sites to development (Appendix A.2) clearly suggest that the long term survival of the Allegheny woodrat in Virginia is in doubt…. Strategies such as habitat manipulation (eg creation of early successional habitat), nest box construction (as for songbirds, waterfowl, bats, and flying squirrels), and traditional habitat protection (such as bat gates on caves) may have no impact on woodrats." New strategies such as "maintaining sufficient old growth mast producing canopies (Beck 1977; McShea 2000), maintenance of continuously forested corridors," " public education, maintenance of course woody debris such as large snags and fallen logs, and more may be required to insure the long-term survival of the Allegheny woodrat" (See '01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 30-34, See also the entire'01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 1-38,already in your possession, incorporated by reference). E.g, While the extensive distribution of woodrats in Virginia is not in doubt, their long-term survival prospects are not certain. They occur in isolated locations with few individuals per location." (p. 30).

―Throughout its range, this species associated with extensive rocky areas such as outcrops, cliffs, talus slopes with boulders and crevices, and caves.‖ (www.natureserve.org, accessed Oct. 2011).

NatureServe recommends: ―Human intrusion in nesting areas must be discouraged. According to Kirkland (1986), "Although it would be difficult to document a direct cause and effect relationship between the decline of the woodrat and its intolerance of human contact, any management efforts to preserve the eastern woodrat should at least consider this possibility and incorporate into recovery plans safeguards to minimize contact between humans and woodrats."

―Pennsylvania Game Commission has formulated provisional protection guidelines, pending more specific guidance that should come out of current research (Hassinger and Dunn 1989). These guidelines are:

―1. All caves and limestone mines on public land having either NEOTOMA and/or bats in residence (seasonally or all year) should be designated as "no admittance: restricted areas." Caves with a history of public use or easy accessibility should be gated or fenced to reinforce the "restricted area" concept.

―2. Contiguous woodrat habitat, with NEOTOMA occupying any portion thereof, should be protected from any surface disturbance or other form of fragmentation.

–3. No surface disturbance should occur within 200 meters [660 ft] (the primary foraging zone) of active colonies.

–4. A diversity of mature, mast-producing trees (and all evergreens) should be reserved overtopping and within 50 meters [165 ft] of contiguous woodrat habitat with NEOTOMA occupying any portion thereof.

–5. No tree cutting should occur within 200 meters [660 ft] of the "center" of active colonies. Logging roads should be excluded from this zone.

–6. If a streambottom occurs within 400 meters [1320 ft] of an active colony, a minimum disturbance corridor (no surface mining, no clearcutting...) of 100 meters [330 ft] in width or wider should connect the colony site to the stream corridor.

–7. Blasting - attendant mining - should never be so close as to shift rocks within the colony site.‖ (www.natureserve.org, accessed Oct. 2011).

The FS places Kates mountain clover in the –Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection this species. NatureServe recommends: –Management needs are primarily limited to exempting shale barren communities from pesticide application for gypsy moth control.‖ (www.natureserve.org, accessed Oct. 2011).

The bald eagle, listed as among the –species that DO NOT need active management‖ (DEIS 3-243) is also placed in the –Blank‖ category in Table H.2. The DEIS does not analyze which alternatives have stronger or weaker protection this species or its habitat.

The FS places Cow Knob salamander in the –=‖ category. This salamander is listed as among the –species that DO NOT need active management‖ (DEIS 3-243). The DEIS does not analyze which alternatives have stronger or weaker protection this species or its habitat, including newly discovered areas where the Cow Knob salamander occurs or is likely to occur. NatureServe states: —Mixed hardwood stands, hardwoods mixed with eastern hemlock, and hemlock stands; most abundant in high-elevation old-growth forests with many downed logs and in areas with an abundance of surface rocks (Mitchell 1991), including talus. Tends to be most abundant on north-facing slopes. Occurs under rocks and logs or in burrows during the day. Terrestrial breeder.‖ (www.natureserve.org, accessed Oct. 2011).

Measures proposed by the draft Forest Plan for the benefit of the Cerulean Warbler will be ineffective and, potentially, counterproductive without clearer standards and guidelines for the management of Cerulean Warbler habitat.

The Cerulean Warbler is in need of robust conservation planning, especially by the Forest Service. Cerulean Warbler populations have declined dramatically since the 1960s. Data from the Breeding Bird Survey show that the Cerulean population has decreased approximately 80% since 1966, with an average rate of decline of -4.1% per year from 1966 to 2007.(J. R. Sauer et al., *The North American Breeding Bird Survey, Results and Analysis 1966-2007* (updated 15 May 2008), Version 5.15.2008 (USGS Patuxent Wildlife Research Center, Laurel, MD, 2009)[hereinafter

―BBS 1966-2007‖], *available at* www.mbr-pwrc.usgs.gov/bbs/bbs.html. *See also* P. Hamel, Cerulean Warbler Status Assessment at Table 11, U.S. Fish and Wildlife Service (April 2000) [hereinafter ―Hamel 2000‖].)

The U.S. Fish and Wildlife Service's Cerulean Warbler Status Assessment concluded that this ―precipitous‖ population loss represented the largest decline among any warbler species and one of the most significant declines among neotropical migratory birds. (ibid.) Much of this decline has occurred in the species' core breeding range. (ibid.) Dramatic habitat loss to mining, development, and logging throughout the Cerulean's breeding range, as well as loss of habitat in its winter range, are the primary causes of this decline. (ibid.)

National Forest lands like the George Washington National Forest are critical to the Cerulean Warbler's long-term survival, because of the Cerulean's habitat requirements. The Cerulean Warbler is an ―area sensitive,‖ forest-interior species, dependent on large tracts of mature forest to breed successfully. (C. Robbins., *A Warbler In Trouble: Dendroica Cerulea*, in Hagen, et al., *Ecology and Conservation of Neotropical Migrant Landbirds* at 555-56, 560. Smithsonian Inst. Pr. (1992); Nicholson, C.P. 2004. *Ecology of the Cerulean Warbler in the Cumberland Mountains of East Tennessee*, at 1. Dissertation, University of Tennessee, Knoxville, USA [hereinafter ―Nicholson 2004‖]. *See also* C. Oliarnyk & R. Robertson, ―Breeding Behavior and Reproductive Success of Cerulean Warblers in Southeastern Ontario,‖ *Wilson Bull* 108(4): 673 (1996); R. Askins, ―Relationship Between the Regional Abundance of Forest and the Composition of Forest Bird Communities,‖ *Biological Conservation* 39: 144 Table 5 (1987); R. Connor and J. Dickson, ―Relationships Between Bird Communities and Forest Age, Structure, Species Composition and Fragmentation in the West Gulf Coastal Plain,‖ *Texas J. Sci. suppl.* 49(3): 131 (1997) (―Cerulean Warblers, …are perhaps the most area-sensitive bird in this region and are likely the most vulnerable species to the forest fragmentation in this region‖); Cathy A. Weakland & Petra Bohall Wood, ―Cerulean Warbler (Dendroica Cerulea) Microhabitat and Landscape-Level Habitat Characteristics in Southern West Virginia,‖ *Auk* 122(2): 497, 498, 506 (2005)[hereinafter ―Weakland and Wood 2005‖].

Cerulean Warblers require a minimum forested area of 700 hectares to sustain a viable population. In a Tennessee study, Ceruleans were found only in forest tracts greater than 800 hectares (2,000 acres) .(Chandler S. Robbins et al., *A Warbler in Trouble: Dendroica cerulean*, at 555, Manomet Symposium (1989) [hereinafter ―Robbins et al. 1989‖) Another study found that the probability of encountering a Cerulean reached its maximum when the area consisted of 3,000 or more unfragmented hectares (7,500 acres) of forest. (Chandler S. Robbins et al., *Habitat area requirements of breeding forest birds in the middle Atlantic states*, 103 Wildl. Monogr. 25 (1992) [hereinafter ―Robbins et al. 1992‖)

Within the context of a fragmented landscape of private land, the unfragmented forest habitat provided by the GW is of critical importance to area-sensitive species like the Cerulean Warbler. The landscape surrounding the George Washington-Jefferson National Forests is projected to continue to fragment for new housing density at the fastest rate of any national forests. (U.S. Forest Service, Forests on the Edge at 9) Appropriately, the plan acknowledges that the Cerulean is ―Vulnerable on planning unit due to a restricted range, relatively few populations (often 80 or

fewer), recent and widespread declines, or other factors making it vulnerable to extirpation on the unit.‖ (DEIS, App. H, at H-17 and H-23.)

The plan suggests a vegetative management strategy, with the stated goal of benefiting the Cerulean Warbler, however, which could cause far more harm than good without clear plan standards and guidelines. The draft plan proposes the ―Creation of structural diversity in mature stands to enhance conditions desirable for species such as the cerulean warbler. . . .‖ (DEIS at 3-126). Specifically, the plan directs that ―stands can be evaluated for addition of canopy gaps and vertical structure through group selection and commercial thinning harvest programs.‖ Id. Vegetative manipulation for the benefit of the Cerulean Warbler is an extremely challenging and sensitive proposition requiring careful planning and tight restrictions that are likely unachievable through the mechanism of a commercially viable timber sale (as we usually see such sales), because of the need to retain a relatively high basal area, at least 70% of canopy trees, and mature oaks and other specific tree species which Ceruleans prefer for nesting.

A team of ornithologists coordinated out of the University of Tennessee have for several years been tracking Cerulean response to a variety of experimental silvicultural treatments in test plots. (Than J. Boves and Dr. David Buehler, University of Tennesee Dept. of Forestry, Wildlife and Fisheries, *Cerulean Warbler Forest Management Experiment – Cumberland Mountains* (powerpoint presentation) The treatments ranged from light thinning to heavy logging. Results in the first several years showed a promising response by breeding adults with increased densities in all the treated stands, as compared to untreated control stands. Monitoring in subsequent years revealed a more complex story, however. While Cerulean Warbler adults favored the treated stands, they had significantly lower reproductive success in all the treated stands as compared to the untreated control stands. The treated stands may have operated as an ecological trap, attracting Ceruleans to nest in an area that undermined their reproductive success. (Id.; J. Battin, *When Good Animals Love Bad Habitats: Ecological traps and the Conservation of Animal Populations*, 18-6 Conservation Biology 1482 (Dec. 2004) (attached); M. A. Schaepfer, M. Runge and P. Sherman, *Ecological and Evolutionary Traps*, 17 Trends in Ecology 474 (Oct. 2002)) The researchers also documented strong nesting preference for specific tree species (white oak was strongly favored over red oak, for example) suggesting that leave trees from any logging activity should preferentially include those species.

This was true despite tight restrictions on logging in the experimental plots. For example, each 10 ha treatment plot was buffered by 5 ha of mature forest.(Id.) Furthermore, logging in the ―intermediate treatment‖ was limited to a thinning with a residual basal area of 50-60 sq. ft./ac and retention of 70% of canopy trees. The researchers recommended no logging in areas with relatively high Cerulean density.

As a result, any plan direction to apply silvicultural treatment for the purported benefit of the Cerulean Warbler should be abandoned until such time as there is a completed scientific study addressing the substantial questions about the potential adverse impacts of such treatment. Instead, prime Cerulean habitat should generally be protected from fragmentation, especially large unfragmented forest blocks of 7,500 acres or more that contain existing old growth forest. To the extent logging must be undertaken in prime Cerulean habitat because of other management objectives, it should be limited to low density Cerulean areas and should be only intermediate

treatment leaving a basal area of 50-60 sq. ft./ac, retaining at least 70% of canopy trees, and retaining key species of nest trees. Field surveys for Ceruleans should be required when planning projects in Cerulean habitat.

The National Forest Management Act (NFMA) regulations require that *―Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area."* The DEIS does not adequately consider the effects of each plan alternative on species viability, or adequately describe how forest management under each alternative would promote species viability.

The viability of many aquatic species is already at risk, and the viability evaluation results indicate that many of these species will remain at risk (Table 5, Appendix H, DEIS). A large number of aquatic species in the forest, including all fish and mussel species of viability concern, are sensitive to sediment (Table 4, Appendix H, DEIS). The preferred alternative is expected to produce the second-highest amount of sediment of all seven plan alternatives. This means there is potential for significant negative impacts on the viability of these species. The analysis of aquatic species viability in the draft plan and DEIS is inadequate under both NFMA and the National Environmental Policy Act.

Aquatic/riparian species are omitted from the Outcome Groups table B.2.5, even though these species could be adversely by upstream land management activities. Species including the James spinymussel, Virginia sneezeweed, swamp pink, northeastern bulrush, orangefin madtom, roughhead shiner, Maureens shale stream beetle, Appalachian tiger beetle, southern water shrew, brook floater, yellow lance, Atlantic pigtoe, green floater, notched rainbow, waterfan, eastern tiger salamander, *Cambarus monongalensis*, American eel, brook trout, spotted turtle, wood turtle, and several other species are listed as having ―increased protection‖ under Alternative C compared to the existing plan and other alternatives for most watersheds. (Table H.5 DEIS H-46 et seq). Unroaded watersheds are important for maintaining populations of aquatic and riparian species. According to the FS, ―waters in inventoried roadless areas have been shown to function as biological strongholds and refuges for many fish species. The size of an area, kinds and intensity of management-induced and natural disturbances that have occurred, and the landscape context in which it is found, all affect the quality, distribution, and extent of these habitats. Some of these waters may now play a relatively much greater role in supporting aquatic species viability and diversity than in the past due to cumulative degradation and loss of other, potentially more biologically rich habitat within associated drainages. The Nature Conservancy and the Association for Biological Information identified the United States as a global center of freshwater biodiversity. (Chaplin and others, 2000). In examining the distribution of 307 fish species and 158 mussel species that are imperiled or vulnerable, they identified 87 watersheds as aquatic biodiversity hotspots, supporting 10 or more vulnerable or imperiled species. The majority of these watersheds are in the Southeastern United States.‖ (Roadless Area Conservation FEIS 3-160 to 161). The FS should have included aquatic/riparian species, esp. those sensitive to land disturbing activities, in its assessment of the ―risks to viability of species‖ on B.2.5 on DEIS 3-78. There is no comparable table for aquatic/riparian species. In addition, because ―the size of an area, kinds and intensity of management-induced and natural disturbances that have occurred, and the landscape context in which it is found, all affect the quality, distribution, and extent of these habitats,‖ the FS should have analyzed the extent to which roadless, remote, and other lands

are protected from extractive development in each of the Alternatives and the degree to which aquatic/riparian species would be affected. There are discernable differences among the Alternatives.

The FS should have examined whether any minor adjustments in Alternatives would improve the viability of species without significantly changing the nature of alternatives. For example, the FS states that ―t[]he lack of [active vegetation management in the form of timber harvest and prescribed burning] in Alternative C makes it the only alternative that does not address the viability needs of all of the species on the Forest.‖ (DEIS 3-77). However, the DEIC actually states that prescribed burning would be allowed. It would be ―limited to managing threatened, endangered, and sensitive species habitats‖ (DEIS 2-30). We believe that if the exceptions to this limitation were expanded to include threatened, endangered, sensitive, and locally rare species habitats (or species equivalent to locally rare species) that require disturbance by fire, many of the problems would be solved. We are aware that prescribed burning using light-on-the-land techniques has been successfully used in inventoried roadless areas on the GWJNFs, including one area that was included in the most recent wilderness bill on the Jefferson NF at the time it was burned. Large portions of the GWNF could still be open to prescribed burning for the indefinite future, even if Alternative C (or a variation of Alternative C) were chosen. In addition, the FS can make careful use of natural wildfires to a greater degree in remote areas as suggested above.

Other minor adjustments could be made, including allowing greater use of liming via helicopters as is done in St. Marys Wilderness.

Some open areas that contain TESLR species requiring openings or early successional habitat could be periodically maintained, as well.

The possibility of making adjustments such as these should be fully explored – provided that that they do not compromise the Alternatives and do not depart from the intents of the aforementioned Alternatives.

At least eleven species on the GWNF are undergoing studies to determine whether they will be listed as threatened or endangered species under the Endangered Species Act under a July 12, '11 settlement agreement between the Center for Biological Diversity and the US Fish and Wildlife Service, approved Sept. 9, '11. See http://www.biologicaldiversity.org/programs/biodiversity/species_agreement/index.html . These species include the roughhead shiner, brook floater, orangefin madtom, yellow lance, Atlantic pigtoe, green floater, Avernus cave beetle, crossroads cave beetle, South Branch Valley millipede, and Tennessee pondweed. These species have been proposed for listed under the ESA and may warrant, or may soon warrant, higher priority than current priorities.

It is not apparent how the analysis takes the potential for climate change into consideration when it assesses the ―risks to viability of species‖ on the GWNF in table B.2.5. The ―additional species group protections‖ (DEIS 3-77) may not be adequate unless they incorporate large core areas, corridors, and connectivity, and take into account the potential for shifts in ranges or distribution of species as a response to climate change. Alternative C (and other alternatives) that incorporate

more large core areas, corridors and opportunity for connectivity so might be superior to other alternatives in this respect.

Omission and misinterpretation of the Alternative‘s effects on these species as we have shown above improperly skews the analysis against Alternative C and other alternatives that have a high component of recommended wilderness study areas, lands off limits to gas and oil exploration, restricted wind energy, stronger Special Biological Area protection and limiting biomass extraction for incineration.

VII. Special Biological Areas

28. The Preferred Alternative fails to sufficiently protect the habitat values of Special Biological Areas and Key Natural Heritage Community Areas with respect to surface occupancy, oil and gas leasing, roadbuilding, timber management, and vegetation management.

29. The Preferred Alternative fails to incorporate the recommendations of the Virginia and West Virginia Natural Heritage programs with respect to size, location and management of Special Biological Areas.

30. The DEIS fails to utilize the most current information available relative to rare, threatened and endangered species in analyzing the range of alternatives. The Preferred Alternative, therefore, fails to incorporate additions to the list of Special Biological Areas to protect these species.

31. The Preferred Alternative fails to create special biological areas to adequately protect habitat of the wood turtle.

Properly identifying, designating, and managing Special Biological Areas (SBAs) is critical to protecting and conserving biodiversity in the George Washington National Forest (GW). As the draft forest plan states (p. 4-54), SBAs ―serve as core areas for conservation of the most significant and rarer elements of biological diversity identified to date on the Forest.‖ Management of SBAs seeks 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.‖

In most states across the country, Natural Heritage programs are in place to identify and monitor sites statewide that are biologically significant and necessary for conserving biodiversity. The Natural Heritage programs in West Virginia and Virginia include the GW in their surveys and research and have communicated with the GW staff historically on SBAs, related management areas, and management issues. The forest plan should incorporate all recommendations for SBA designations that are made by the Natural Heritage programs.

There are a number of ways the draft forest plan needs to be improved. A management document should be developed for each SBA in the forest. At a minimum, the documents should describe the critical resources of the SBA and guiding principles for managing them. Specific management

goals should be developed for some SBAs, including those with the most sensitive and vulnerable resources. The current plan does not require such documents, and no such documents have been created since the plan was adopted in 1993.

As new information is developed about Threatened, Endangered, Sensitive (TES) and locally rare species, management of SBAs should be adjusted to incorporate the new knowledge. In particular, if new biologically significant sites are identified in the forest, either by GW staff or the Natural Heritage programs, they should be managed as SBAs until such time as the forest plan is amended to designate them as such. The forest plan should require this. Forest Service staff should work very closely with Natural Heritage programs as new sites and information become known.

Several other management prescription areas are similar in nature and function to SBAs, and are critical in conserving biodiversity in the GW. These include Designated Wilderness (prescription 1A), Recommended Wilderness Study Area (1B), Research Natural Area (4B), Geologic Area (4C1), Key Natural Heritage Community Area (4D1), Indiana Bat Primary Protection (8E4a), and Shenandoah Mountain Crest-Cow Knob Salamander (8E7). Designation of conservation sites recognized by Natural Heritage programs to these management prescription areas (rather than SBA) is appropriate in some circumstances, if revisions to some management standards are made (as discussed below). Assigning conservation sites recognized by Natural Heritage programs to management prescription areas other than these is not appropriate without compelling reasons and full explanation and justification.

Some of the management standards for SBAs and Key Natural Heritage Community Areas, which have the same management standards as SBAs should be revised. Most troubling is standard 4D-014, which makes SBAs available for federal oil and gas leasing with controlled surface use (CSU). The special, critically important areas designated as SBAs should not be available to oil and gas leasing in any form. Oil and gas leasing with CSU is also allowed in Geologic Areas under the draft plan. As with SBAs, this is not appropriate.

Similarly, the standards for roads (4D-019a, 4D-019b) allow construction of new permanent roads. The potential chronic disturbance of oil and gas leasing activities and permanent roads is counter to the purpose of SBAs, and should not be allowed. For the many SBAs and similar management areas that occur within Inventoried Roadless Areas (e.g., Salus Springs, Dry Run, Big Levels, etc.), allowing new permanent roads is counter to the 2001 Roadless Area Conservation Rule. At numerous public meetings, GW staff stated the draft forest plan would manage Inventoried Roadless Areas consistently with the 2001 rule.

The standard for timber management, 4D-007, is also inappropriate as worded. Commercial timber sales are described as ―*an appropriate method of reducing costs*‖ associated with vegetation management activities. Commercial timber sales and any potential timber harvest should be allowed only when it is beneficial to or compatible with the biological resources for which the SBA was established. Standards for vegetation management (4D-006) and salvage logging (4D-007a) are explicit in stating that activities must be compatible with biological resources, and standard 4D-007 should be explicit on this point also.

Some management standards for the Shenandoah Mountain Crest-Cow Knob Salamander also need to be revised. Standards 8E7-020 and 8E7-021 allow federal oil and gas leasing with CSU to occur. Even though some leases currently exist, and private mineral rights occur in parts of Shenandoah Mountain Crest, no new leases should be permitted where mineral rights are federally owned. Two of the standards for roads (8E7-024, 8E7-026) are also troubling. These allow some flexibility in road construction, reconstruction, and construction of parking facilities. As with SBA road standards, this is not consistent the 2001 Roadless Area Conservation Rule, as the vast majority of Shenandoah Mountain Crest occurs within Inventoried Roadless Areas. These disturbances should not be allowed in the Shenandoah Mountain Crest.

There are some positive developments in the draft plan relative to SBAs. The expansion of the Big Levels SBA is welcome, as is the creation of some new SBAs. The newly designated Cast Steel Pond wetland area is a sensitive site that merits the SBA designation. However, the draft plan should incorporate <u>all</u> the recommendations of the Virginia and West Virginia Natural Heritage programs in designating and managing SBAs. The locations <u>and</u> sizes of areas recommended by the Natural Heritage programs should be followed.

Unfortunately, the draft plan does not meet all the recommendations of the Virginia Division of Natural Heritage (VDNH). Many of the SBAs in the draft plan are smaller in size than recommendations made by VDNH. In fact, of the approximately 122,500 acres recommended for SBA by VDNH, only about 109,000 acres are designated as SBA or one of the seven related management prescription areas described above (VDNH, Sept. 2011). This means that many biologically significant sites recognized by VDNH are in inappropriate management prescription areas. At least 43 sites in the GW that VDNH has identified as biologically significant and recommended for SBA designation include areas assigned to Mosaics of Habitat (VDNH, Sept. 2011). More than 3200 acres of the VDNH sites are assigned to Mosaics of Habitat.

Mosaics of Habitat is clearly an inappropriate management prescription area for sites that VDNH recommends for SBA designation. Other management prescriptions, such as Scenic Corridor and Viewshed, Indiana Bat Secondary Protection and others, are assigned to portions of VDNH recognized sites that were not included in SBAs. These management prescription areas pose potential problems for the proper management of these biologically sensitive sites that should be designated as SBAs.

The Shenandoah Mountain Crest-Cow Knob Salamander management prescription area illustrates the problem. The Virginia portion of this area is smaller in size than the VDNH recommendation. Portions of the site that are outside the prescription area but within the area recommended by VDNH fall into several management prescription areas, including Mosaics of Habitat.

Frozen Knob and Peters Mountain North also illustrate the problem. Both were assigned to a new management prescription area, Key Natural Heritage Community Area, in order to protect the very high quality old growth forest habitat occurring there. The new designation and identification of these two areas is very positive. However, only 3307 acres are designated as Key Natural Heritage Community Areas in the draft plan. This is approximately 1868 acres less than the VDNH recommendation. The 1868 acres not included in the site are assigned to Mosaics of

Habitat, as is all the area of the national forest surrounding the two sites. Again, Mosaics of Habitat is very clearly an inappropriate management prescription for these two sites.

An example of incorporating the most current information in managing the forest is the TES list. The list is currently developed and maintained by the US Forest Service Regional Office in Atlanta, and has not been formally updated in many years. In recent months, a locally rare species inhabiting the GW, the wood turtle (*Glyptemys insculpta*), was reclassified by NatureServe from a G4 species (described as ―Apparently Secure‖ globally) to a G3 species (―Vulnerable‖ globally). The classification of ―Vulnerable‖ is defined as ―*At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.*‖ The draft plan does not incorporate this recent classification change. GW staff must use information of this sort immediately in making management decisions, and not be reliant upon receiving an officially updated list.

The reclassification of the wood turtle highlights two things: 1) the need to designate an SBA specifically to conserve the existing population in the GW, and 2) the need for the Forest Service to classify the wood turtle as a ―sensitive species.‖ The 2009 Wood Turtle Species Conservation Strategy for the GW, which is largely incorporated in the draft forest plan (beginning at page G-55 of Appendix G, DEIS), is inadequate for long term protection of the species. Though a wood turtle ―Emphasis Area‖ is identified, and several ―Goals and Conservation Measures‖ are given, there are no mechanisms to ensure the Emphasis Area is sufficiently protected and that Conservation Measures are enacted.

Further, the Goals and Conservation Measures lack information specific enough to guide forest management. For example, Conservation Measure 1.01 (page G-55) states ―*Maintain or create openings in riparian areas for turtle foraging and thermoregulation.*‖ There is no information provided about the desired number, size, or spacing of openings, the desired physical or vegetative characteristics of the openings, or how they relate to overall physical and vegetative qualities of the riparian areas as a whole. In fact, Section 4 of the Species Diversity Report of the draft plan (Appendix F of DEIS) lists five distinct ecological systems that the wood turtle is associated with: late successional hardwood dominated forest, grassland, shrubland, open woodland, and riparian areas. Without more specific information and guidance, the Goals and Conservation Measures are open to widely different interpretation and are not useful in making management decisions. To help ensure long term viability of the wood turtle population in the GW, the ―Emphasis Area‖ should be expanded in size and designated as a Special Biological Area.

Heartwood and Steven Krichbaum previously submitted comments and supporting material (copies of cited literature on CDs) regarding the Plan revision on Aug. 8, 2008, Sept. 14, 2008, Oct. 24, 2008, Jan. 8, 2009, June 23, 2009, Nov. 23, 2009, Jan. 30, 2010, and May 6, 2010. I have also submitted comments and material regarding the Wood Turtle (*Glyptemys insculpta*). I incorporate by reference all of my previously submitted Plan revision and Wood Turtle comments and material into this submission. This comment has to do chiefly with the Wood Turtle, special biological areas, and habitat fragmentation.

The **Wood Turtle** is now considered a G3 species (―Vulnerable‖ globally) (see NatureServe). It is a **species of national, regional, and/or state significance** (for instance, it is officially listed as

―Threatened‖ in Virginia). Due to these reasons the Turtle must be officially listed and treated as a FS ―Sensitive‖ species by the GWNF managers (regardless of whether the Regional Forester has gotten around to making this status change).

As a species of national, regional, and/or state significance sites on the Forest with known populations of Wood Turtles should be designated as ―special biological areas‖ in the revised Plan. These sites include Paddy Run/Cove Run (Shenandoah and Frederick Cos.), Cove Run/Waites Run (Hardy Co.), Sine Run Hardy Co.), Harness Run (Hampshire Co.), and Riles Run (Shenandoah Co.). SBAs ―serve as **core areas for conservation** of the most significant and rarer elements of biological diversity identified to date on the Forest.‖ **Management of SBAs** seeks 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.‖ Managing Wood Turtle sites/populations as ―Mosaics of Habitat‖ or as an ―Emphasis Area‖ does not serve to accomplish this perpetuation and increase. Nor do such prescriptions (which allow intense ground disturbance such as timber sales) serve to protect sites as ―core areas for conservation‖. Implementation of draft Plan‘s management regime could result in significant harm to the sustainability, viability, and/or distribution of the Turtles.

The identification of a site as a Wood Turtle ―Emphasis Area‖ in publicly promulgated documents is a bad idea. Drawing attention to such sites with known populations is particularly bad for a species vulnerable to collection/poaching, which the Turtle is. Many if not most SBAs are designated without the precise identification in the Plan/EIS of all the rare species found there. Such designations can and should be accomplished for sites with Turtle populations. Naming sites as Turtle ―emphasis areas‖ should be avoided.

My (Stephen Krichbaum‘s) observations/research of Turtles in the Forest so far suggest that small canopy gaps (typically falls of individual trees) maintain and create openings for Turtle foraging and thermoregulation. In addition, Turtles certainly do not confine their activity to ―riparian areas‖. ―Core areas‖ of terrestrial habitat for Turtles extend out *ca*. 300 meters from occupied streams.

The **Shenandoah Mountain Crest-Cow Knob Salamander special area** is not accorded sufficient protection by the standards in the draft Plan. Mineral/gas leasing, wind turbines, road construction, and logging are all of concern. Standards need to be strengthened and revised to remove/neutralize these potential sources of significant harm. Additionally problematic is that all the known locations of the CKS are not being protected. The SMC special area boundaries need to be significantly expanded in latitude and to lower elevations.

The same is also true for **Tiger Salamander** (*Ambystoma tigrinum*) management. **<u>The entire Coal Road corridor should be designated an SBA</u> (encompassing an expansion of the current Maple Flats, Loves Run, and Big Levels SBAs to connect these areas)**. This area represents a preglacial **Pleistocene refugium** containing historically unique populations or lineages vital to conservation and preservation efforts (Church, S.A. *et al*. 2003). ―This refugium contains a disjunct population of the eastern tiger salamander, as well as a community of nearly 70 other disjunct plant and animal species. The tiger salamanders here have been isolated from other

populations for 200,000–500,000 years.‖ (*id.*) The Big Levels area is also the crucial refugium for the Virginia/GWNF/Augusta County endemic **Big Levels Salamander** (*Plethodon sherando*).

VIII. Management Indicator Species

32. The Preferred Alternative and the DEIS fail to consider additions to the list of Management Indicator species, including the eastern red-backed salamander and the honey mushroom.

There are currently 23 MIS identified in the GWNF. The present MIS, except for some TES species, are all large mobile vertebrates. The use of these species does not accurately gauge the impacts to small site-sensitive species of limited mobility such as salamanders. Management plans must insure research on and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land (NFMA). Expanding and diversifying the focal species and ecosystems receiving attention is necessary in order to accomplish the necessary multiple-scale conservation on the Forest (Poiani, K.A. *et al*. 2000).

MIS that can be used to assess the effects of ground disturbing activities are particularly absent from the list. The large, mobile, and/or generalist indicator species (*i.e.* Black Bears, White-tailed Deer, bats, Wild Turkeys, Pileated Woodpeckers, Ovenbirds, and Worm-eating Warblers) currently used by the FS are of limited, even misleading, use for gauging impacts of management activities.

We believe the 14 Management Indicator Species (MIS) listed in Table 2.5 of the draft plan (page 2-15) are of limited value as overall indicators of the effects of forest management. Page 3-342 of the DEIS states MIS are ―selected during forest planning ‗because their population changes are believed to indicate the effects of management activities‘ (36 CFR 219.19(a)(1)) on important elements of plant and animal diversity.‖

The MIS list includes one fish (the only aquatic species), one salamander, three mammals, and nine birds. No reptiles, invertebrates, plants, or fungi are on the list. We believe species that are more sensitive to active forest management should be used as MIS. Though the Cow Knob salamander (*Plethodon punctatus*) is sensitive to disturbance and activities, its very restricted range diminishes its value as a forest-wide MIS.

Fungi, herbaceous flora, and invertebrates, such as snails, slugs, millipedes, worms, and arthropods, that live in the forest floor litter or topsoil or are associated with the presence of large woody debris are a significant component of forest diversity (McMinn, J.W. and D.A. Crossley, Jr. 1996). These organisms are also important food for species such as Wood Turtles. Yet these species are significantly absent from the list of MIS.

The eastern red-backed salamander (*Plethodon cinereus*) would be a very appropriate MIS, as an indicator of activities harmful to amphibians and, conversely, an indicator of healthy, resilient forest ecosystems. It is known to occupy the entire range of the GW. The Virginia Fish and

Wildlife Information Service, BOVA Booklet notes it is "*absent from highly acidic soils with pH <3.7*".

The DEIS notes that The MIS list should be revised to include greater diversity of taxa and species that more directly reflect the effects of forest management activities. Other comments submitted on the draft plan advocate that fungal species in general, and the honey mushroom (*Armillaria mellea*) in particular, be used as a MIS in the final plan. We encourage full consideration of this.

XIX. Wildlife Management

33. The DEIS fails to consider the full cumulative range of natural and intensively managed areas of the forest in its analysis of early successional habitat.

34. The DEIS fails to consider existing deer population and deer kill statistics in its analysis and continues to pursue goals and objectives to increase deer populations.

35. The DEIS fails to consider the costs of deer population of damage to human and ecological communities, human mortality, medical and damage costs due to management of large deer populations.

36. The DEIS fails to analyze the effects of management on deer populations through long term Net Public Benefit analysis over the range of alternatives.

The Draft Alternative acknowledges that ―natural disturbances such as fire, wind, insects and diseases, ice storms and floods modify the landscape, providing habitat for disturbance dependent species. (Plan, 2-17). The plan fails to recognize the roles that nondecommissioned roads and roadways, grasslands, maintained management areas (including Mount Pleasant National Scenic Area, Hidden Valley Recreation Area) and maintained recreation and parking areas play in providing habitat for disturbance dependent species. The plan also fails to consider the cumulative effects of past natural and management disturbances over the past decade in providing an ongoing supply of early successional habitat.

Logging, creation of ―early successional habitat‖ and other ―vegetative manipulation‖ done on the forest inflate White-tailed Deer populations by fabricating more browse. There is already a very high density of Deer on the Forest, recently estimated at 31 per square mile (DCER - 45). In Virginia, the White-tailed Deer population has increased 400% over the last decade (Donaldson, B.M. 2005). In 2010, 219,797 deer were killed in Virginia, 30,291 of which were killed in counties containing land in the GWNF. The number killed have been relatively constant over the last 10 years, despite efforts to increase the hunting of female deer in hopes of stabilizing or reducing deep populations curb populations.
http://www.dgif.virginia.gov/wildlife/deer/harvest/index.asp.

Deer are the most dangerous wild animal to human safety in the country (*id.*), causing large rates of vehicular damage and human injury and death. High Deer populations harm flora and fauna, including rare species (*e.g.*, sensitive plants and ground-nesting birds) (see JNF FEIS 3 – 137,

references). —Each year, an estimated 1.5 million deer-vehicle collisions kill several hundred people, injure tens of thousands more and cause more than $1 billion in vehicle damage…and the totals may be even higher: Informal surveys suggest that nearly as many collisions go unreported, either because the owner isn't required to by law or because he doesn't have insurance. http://articles.moneycentral.msn.com/Insurance/InsureYourCar/DeerPuttingYouAtRisk.aspx.

According to claim statistics from State Farm, the country's biggest auto insurer, Virginia ranks sixth nation-wide in reported deer/automobile collisions. Virginia specifically has seen an increase in the number of deer-vehicle crashes over the past five years, with 6,918 total crashes in 2008 alone. The average cost per insurance claim for collision damage is about $2,600, the Insurance Institute for Highway Safety (IIHS) says. With injury claims, the total reaches $11,000 per collision, the Insurance Information Institute says.(ibid.) In 2008 there were 1.5 million deer-vehicle crashes in the United States. It is estimated that deer cause over $1 billion annually in automobile damages. http://www.vapersonalinjuryaccidentattorney.com/library/virginia-auto-accident-attorney-deer-and-car-crash-info-and-tips.cfm.

The number of fatalities nationally has risen 50% since 2000. In 1993, 101 people died in crashes involving animals. By 2000, the number was 150, and in 2007 it was 223. (ibid.)

High Deer densities also reduce the number of tree seedlings and are a prime contributor to declining oak populations (Rooney, T.P. *et al*. 2004). When the vegetation management or timber management are justified as —management‖ for Bear or Turkey or Grouse or Golden-winged Warbler, the effects on deer populations are not regularly considered.

The American Lyme Disease Foundation estimates that from 2004-2008 the incidence of *detected* lyme disease occurrence in Virginia increased 4x from 230 cases to 920. (http://www.aldf.com/Lyme_Disease_Reported_Cases_byState_2004_2008.pdf)

The DEIS fails to take these costs into consideration for the entire range of alternatives and specifically the DEIS has failed to provide any long term net public benefits analysis on the effects of each of the alternatives on the costs of managing deer populations and its ESH management objectives.

The Forest Plan should be taking the position of controlling deer population instead of increasing it. White tailed deer populations should be managed through the increased interior and unfragmented forest habitat. The GWNF should work proactively with the VDGIF to ensure smaller, healthier deer herds by encouraging the evolution of forest stands into old growth and the restoration of interior forest habitat conditions wherever possible through the adoption of Alternative C which decreases forest fragmentation and increases intact forest acreage with designation of the maximum number of Wilderness Study Areas, special biological areas and protection of all potential wilderness and roadless areas.

Note that the Conservation Alternative (ibid.) most closely approximates Alternative #3 as analyzed in the 1993 GWNF FEIS. This alternative was clearly estimated to supply viable and sufficient game populations. In the case of bears it was said to support the greatest numbers, for

turkeys the second greatest, for deer, the lowest of any alternative. This positive analysis confirms the effectiveness of the Conservation Alternative in creating smaller, healthier deer populations.

XX. Old Growth

37. The Draft Plan fails to adequately protect old growth by allow harvest in old growth communities.

38. The Plan and DEIS overestimates existing old growth and fails to include areas that old growth that will soon be high quality old growth.

39. The Preferred Alternative fails to consider patches of Old Growth less than 2500 acres as old growth, instead incorporating them into larger potential old growth patches, devaluing true old growth and overestimating potential old growth.

40. The DEIS fails to analyze the long tern Net Public Benefit resulting from management for increased old growth on the forest, across the range of alternatives.

There is little true old growth forest remaining in the GWNF. As a result of past and ongoing depredations, old growth forest habitat is now considered ―critically endangered‖ in the Southeast, with old growth surveyors and analysts estimating that little more than one-half of one percent of the forest cover in the southeastern US is in old growth condition (USDA FS 2002 at p. 20; see also, Noss, R. *et al.* 1995 at p. 50). Gradually maturing forests are just beginning to fill in the gaps between these sparse, tiny old growth patches.

Old growth forests are a tremendously valuable resource that contribute mightily to conserving biodiversity and mitigating the effects of climate change through carbon sequestration.

Despite this, the draft plan would allow harvest of two types of old growth communities – Dry-Mesic Oak Forest (type 21) and Dry & Dry-Mesic Oak Pine Forest (type 25). The current (1993) plan does not allow harvest of type 25. We also believe that mesic sites containing old growth forest are less common in the GW than dry sites, and are deserving of increased attention and protection.

It is unacceptable that there has not been a thorough old growth analysis in the forest which would make particular management prescriptions clear and able to be accurately evaluated. ―There has been no formal inventory of old growth done for the George Washington National Forest. A preliminary inventory of possible old growth and future old growth for the George Washington Forest Plan Revision is based upon the report of the Region 8 Old Growth Team entitled Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region (Old Growth Guidance).‖ (Plan B-1)

We are left to the notorious unreliability of both stand age and stand type within FSVeg data. Clearly the age of trees is only one component of old growth ecosystems.

It is also unscientific to use age class or age of trees to assess potential old growth. Since many ecological factors overlap in old growth ecosystems, the analysis of existing and potential old growth in Table B2 in Plan Appendix B is highly subjective and in error.

The Preferred Alternative and the DEIS fail to consider the value of old growth patches smaller than 2500 acres. The Plan states that: ―Large patches are greater than 2,500 acres and are always made up of Future Old Growth with medium and small patches of Possible Old Growth imbedded. (Plan, Appendix B-1)

Many possible old growth stands likely will not qualify as existing old growth. It will likely be long periods before some stands within future old growth sites qualify as existing old growth. Some stands within possible and future old growth may be so altered as to require very long periods (centuries) to regain natural species composition and structure as well as qualify under old growth criteria, and some ―future old growth‖ stands are likely to have conditions such as non-native invasive infestations that will preclude them returning on their own to a native forest with a natural range of variation. On the other hand there are likely recovering stands that almost qualify as old growth or would qualify after a short period of additional recovery. The Plan makes no allowance for these conditions. As a result the reliance on possible and future old growth will significantly overestimate the old growth network. In addition opportunities to build old growth from some of the most promising sites that technically don‘t meet all of the criteria will be missed. There have been numerous examples of areas have been demonstrated to correlate with the FS definition which your own personnel and analysis has failed to identify, such as at Hematite, Hoover Creek, Signal Corp Knob, the Hamilton Draft area, or Marshall Run.

The Plan should provide for flexibility in the old growth network to incorporate areas that address distribution and representation gaps in the old growth network. Possible old growth that was found not to qualify and future old growth that was far from old growth conditions could be replaced by existing old growth or forest that was nearing old growth conditions.

There currently exists no analysis or plan for allowing climax forest conditions to return to ecologically significant areas of the forest, distributed geographically. Climax conditions include, but are not limited to, old growth. Climax conditions present a true ―no manage‖ alternative to create desired future conditions. They present a natural mosaic of stable and resilient forest. The GW has no areas that can be so defined but only old growth areas have the potential of creating eventual climax communities. Currently wilderness areas have the only possibility of creating this forest type and are of insufficient size and are insufficiently distributed throughout the forest.

All acreage that meets GWNF FEIS age criteria or the Region 8 Old Growth Guidance criteria, whether it consists of a complete ―stand‖ or not, should be designated as unsuitable for timber harvest or other intensive ground disturbance. The conscientious identification of small, medium, and large tracts of old growth as Natural Heritage Sites and their potential for forest wade distribution and connectivity through the use of linkages and corridors needs to be evaluated and implemented. Areas with climax forest potential should be identified and their respective surrounding buffer areas.

XXI. Ecosystem Restoration

41. The Plan and DEIS fail to provide a framework for true ecological restoration of forest composition and structure.

42. The Preferred Alternative and DEIS incorrectly equates the creation of early successional habitat with ecological restoration.

Ecosystem Restoration is vital to meeting the National Forest Management Act and MUSYA requirements to conserve and sustain soils, watersheds, wildlife, ecosystems, and biodiversity. Restoration in the Preferred Alternative appears to be related to silvicultural activities and the timber program and not based on the best ecological science. Instead, it is based on a simplistic model of rotational forestry. Restoration in the Preferred Alternative often refers to maintaining or fabricating cultural landscapes that are dependent on anthropogenic inputs for their structure, composition, and/or function. This is not ecological restoration in the valid sense of the concept. See DellaSala, D.A. *et al*. 2003. 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). Ecological Restoration is more than saving the pieces; it protects the integrity of the natural processes that maintain and successionally alter the existing forest which, to a significant extent, is the result of artificial and poorly managed landscapes.

The proposed Plan and DEIS reflects a reliance on the assumption that a mosaic of successional forest is desirable and the natural condition of Southern Appalachian forests. This vision of desired conditions consists of a shifting mosaic of forest in different successional stages from early successional to late successional. Under this totally unscientific model, the forest should consist of a mosaic of early, mid, and late succession forest and its goal is to create an ongoing supply of early succession habitat (ESH). The assumption that this is natural or desirable is not supported by science, runs counter to what is known about the ecology and the history of our forests, and fundamentally distorts what is known about natural forest conditions and gap dynamics.

Ecological restoration allows natural processes to restore as much as possible. Ecological 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)

The current state of the forest with even-aged and successional forest conditions predominating are the result of past logging. These conditions are not natural and should not be identified as the goal of restoration. The mosaic of even-aged forest stands is the relic of widespread clearcutting at the turn of the 20th century and ongoing use of even-aged silvicultural techniques. The ecological literature Runkle (1982, 1984, 1985, 1998), Whitmore (1989), Lorimer and Frelich (1994), Runkle and Yetter (1987), Martin, (1992), Schafale and Weakley (1990), Tyrell et. Al (1998) among many others clearly indicates that most forest types in the Southern Appalachians are all-age or

uneven-age forest types that naturally function under gap phase disturbance and occasional larger disturbances rather than successional forests that are primarily even-aged. Indeed Forest Service records reported in the early works of W.W. Ashe and others as well as more recently by Quentin Bass (2002) reflect a clear record that these forests are currently even-aged only because of massive cutting at the turn of the twentieth century as well as ongoing reliance on even-aged forestry that creates and maintains mosaic stands of successional forest. This condition is not a natural condition for most Southern Appalachian forests except for some specific forest types or under specific conditions following major disturbances. This depiction of the GW in the Plan and DEIS as a mosaic of successional stands distorts ecological restoration goals and models, and creates an incorrect model of a healthy and dynamic forest.

The forest is slowly recovering and is regaining uneven age structure and species diversity. Artificial early successional habitat creates a ―management for eternity‖ which is in no way to be confused with restoration. Natural successional dynamics and natural disturbance regimes are not considered under restoration scenarios in the Preferred Alternative and the lack of any discussion and analysis of the role that natural disturbances play in ecosystem restoration is unscientific and unacceptable.

The Preferred Alternative and the DEIS fail to recognize and analyze the role of down woody debris as a vehicle for ecological restoration. Due to this state of the forest, many streams on the GWNF are deficient as regards loadings of large woody debris. Leaf litter and woody debris such as branches and boles falling into streams is ecologically important for in-stream health, habitat niches, and productivity. Large woody debris (―LWD‖) creates pools, provides critical cover, and serves as a basis for food webs. Invertebrate groups generally known as shredders and collectors feed on and break down this organic matter. Species such as Wood Turtles and Brook Trout can greatly benefit from the cover and pools provided by LWD and the prey that is associated with this material (Wallace, J.B. *et al*. 1996). The structural integrity provided by woody debris helps stabilize the stream environment by absorbing the energy of flowing water and reducing the severity of erosion (Austin, S. undated).

Around 37% of 223 miles of streams surveyed 2001-2004 on the GWNF did not meet LWD desired conditions (Table 18 at G-24 in M & E Report 2005). Fifty percent of the 392 miles of streams surveyed in our George Washington National Forests from 1995 to 2005 did not meet desired levels of large woody debris necessary for healthy stream systems (GWNF DCER 2007 at pg. 26). In the most recent year of stream surveys, taken solely in the North River RD, 78% of all streams were deficient in large woody debris. As regards this impoverishment, the past is prologue.

Large woody debris plays an important role in structuring stream habitats (Welsh, H.M. *et al*. 1998). For example, at Wood Turtle stream sites in VA and WV many pools are either directly formed or significantly influenced by LWD (Krichbaum, S. pers. obs.). The pools formed by debris dams are small-scale nutrient catchment basins that strongly influence community structure (Pringle, C.M. *et al*. 1988) (*e.g*., the provision of potential Wood Turtle prey organisms).

Past cutting on the GWNF removed many of the trees that would have served as sources of LWD (Doloff, C.A. 1996). The LWD that potentially falls into small streams generally found on the

Forest comes from the trees that are growing there on site around the streams; it is not transported to a site from miles away as happens on larger rivers. Protection of the riparian forest around streams is critical for this reason. However, the direct zone of influence as regards trees falling into or shading streams may include much more than just what is technically identified as the ―riparian area‖. Unfortunately, portions of ―riparian areas‖ as well as streamside zones of influence continue to be logged on the GWNF (see FEIS 3 – 149).

Studies have found that streams flowing through older forests receive the greatest variety of food for detritus-processing organisms (Austin, S.). Streams draining late-succesional and old-growth riparian forests display a gradual, but significant increase in LWD loadings (Hedman, C.W. *et al.* 1996; Keeton, W.S. *et al*. 2007). Trout were found to always use segments that had the most LWD. ―In the absence of high fishing pressure, streams with large amounts of LWD appear to support higher trout density and biomass than streams with little or no LWD." (Flebbe, P. and C.A. Dolloff 1995)

LWD is also important in terrestrial ecosystems (McMinn, J.W. and D.A. Crossley 1996). Because of the past and ongoing intensive logging and other human-caused disturbance that has taken place, there is actually an impoverishment of dead wood (―large woody debris‖ or what are sometimes referred to as ―fuels‖) on the great majority of forest sites in the GWNF and elsewhere in the East (Dolloff, C.A. 1996, and DCER).

Alternative C would come closest of all alternatives considered to implementing active ecological restoration through its emphasis on minimal forest management, recognizing the role of natural disturbances and of actual and potential old growth to restore ecosystems damaged from past logging regimes. The DEIS fails to consider this as part of any long term Net Public Benefits analysis.

XII. Biomass Extraction for Incineration and Energy Production

43. Biomass harvest levels used in the draft plan's economic analysis (DEIS, C12, -12, 3-99) are grossly unachievable and unrealistic.

44. Unrealistic and unachievable biomass harvest levels invalidate and render meaningless all economic analysis based on these estimates for the entire range of alternatives.

45. The Allowable Sale Quantity (ASQ) of the Preferred Alternative based on unachievable biomass harvest levels is unrealistic and hugely inflated.

46. The DEIS fails to analyze the effects of potential biomass harvest on carbon sequestration, wildlife habitat, air quality, water quality, soil productivity and stability and other ecosystem services in the range of alternatives.

47. The DEIS fails to consider the effects of potential biomass harvest on net public benefits.

48. The DEIS fails to consider the direct role that the forest plan, in allowing potential biomass extraction as a substitute for fossil fuels, plays in the creation of direct environmental consequences to surrounding communities including significant increases to air pollution, water usage, water pollution, infrastructure costs, and health costs.

The current (1993) forest plan makes no mention of use of woody biomass as a resource, fuel source or as a consideration under timber management.

―Currently, the demand for biomass fuels on the GWNF, other than traditional firewood, is negligible. (DEIS, 3-264) All this changes with the Draft Plan.

―The timber program may also provide supplies of those wood products where the Forest Service is in a unique position to make an impact on meeting the demand for those products, especially as regards emerging markets such as biomass fuels . . . Biomass for fuel will likely become an emerging market. There is a concern that increasing demand for biomass fuel could result in increased harvest levels using whole tree harvest logging methods, especially on formerly low productivity or less commercially valuable sites‖ (Plan, pages 3-22, 23)

―Biomass fuels for the generation of energy are gaining interest and support in many parts of the south. The potential to supply biomass fuels from the GW is included in the… (timber supply) estimates. Of the .51 billion cubic feet (bcf, or 510,000,000 cubic feet in this instance) available as supply, anywhere from 0 to .25 bcf (250,000,000 cubic feet) could potentially be utilized as biomass fuel, or a maximum of 8.75 million tons forest wide. (Plan, Appendix E, E-9; DEIS, 3-260)

Using the standard conversion factor of 1cubic foot (CF) = 12 board feet (BF), (http://www.unitconversion.org/volume-lumber/board-feets-to-cubic-foots-conversion.html) this amounts to a 3 billion board foot maximum allowable biomass over the 10 year plan. To put this in perspective this amounts to a more than 3.6X increase per year over total timber volume sold in 2009 and a more than 2.2X increase per year in total timber cut in 2009. That level of biomass harvest is clearly unrealistic. And if this level is included in the ―aforementioned estimates‖ of timber supply, it would artificially inflate all economic analysis based on these numbers.

These figures are totally inconsistent with the statement in the draft plan that ―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.‖ (Plan, 3-23)

The draft plan then states that ―the upper bound of this estimate is the small roundwood component usually utilized in paper production plus the traditionally non-merchantable material in branches and tops; we presume that no sawtimber would be utilized as biomass fuels. However, it is important to note that under current management (1993 Plan) the entire Forest only produces about 70,000 tons of wood, including sawtimber. This puts the almost 9 million ton figure

identified as a maximum into perspective; it is probably not realistic.‖ (Plan, Appendix E-9; DEIS, 3-260)

The Plan then uses these ―not realistic‖ biomass harvest estimates to conclude that ―there should be an increase in suitable acres and Allowable Sale Quantity.‖ (Plan, Appendix E, 18) Any rise in the ASQ based on such inflated and unachievable estimates is clearly unrealistic.

The DEIS notes in its Demand analysis that ―currently, the demand for biomass fuels on the GWNF, other than traditional firewood, is negligible. There are 2 electrical cogeneration plants of any size within the market area; one located in Pittsylvania County and the other in Campbell County. Combined, these plants have the capacity to utilize approximately 1.25 million tons per year. There is an indication that one of these plants will soon be taken off-line, reducing the potential capacity to about 1 million tons per year. There no plants that produce fuel pellets from raw wood products. We do not have the technology at this time to economically produce bio-fuels (e.g. ethanol) from wood,
although those processes are being researched and perfected. While we foresee an increase in demand for biomass fuels over the life of this analysis, it appears that there may actually be a decrease in such demand in the near future.‖ (DEIS, Demand, 3-264)

The Dominion Power 80MW Pittsylvania County incinerator is located in Hurt and biomass there is used as a supplemental fuel (cogeneration) with coal. Although this incinerator burns 750,000 tons of woodchips yearly (40-50,000 acres of forest), Hurt is 56 miles from its nearest point at the southeastern terminus of the GWNF, putting it outside of its 50 mile sourcing area of the GW and just barely within the 60 miles considered ―market area‖ in the Draft Evaluation of the Need for Change (A-2). There is no incinerator currently in Campbell County burning biomass for electrical energy.

In April of this year, the Virginia State Corporation Commission (SCC) approved application to construct and operate a 50MW biomass electric generating facility in Halifax County outside of South Boston, 70 miles from the GW.

There are three coal-biomass conversion applications currently pending to the SCC. Although these three incinerators have a total generating capacity of 150MW, with a supply need of 1,400,000 tons of wood yearly (70-90,000 acres of forest), their location places the GW way beyond its sourcing area.

The George Washington National Forest does not lie within the sourcing area of any current or approved biomass electricity incinerators.

The Mead-Wesvaco Pulp and Paper Plant in Covington, VA is proposing to build a 75MW biomass incinerator which will burn ―black liquor‖ and residuals from its pulping and timber operations. This incinerator does not plan to source any additional biomass fuel. This, of course, remains to be seen although it will likely take many years to pass from proposal to reality, in the event that it is ever brought online.

Given all of this information, biomass estimates for the duration of the draft plan are close to zero and, at most insignificant. Considering the GW a source of fuel for biomass incineration is highly unlikely for the duration of the plan and for the plan to contain such large estimates of providing fuel for energy use in the draft plan and DEIS is unrealistic.

The environmental, economic and social costs of woody biomass incineration are much more significant than use of either coal or natural gas (*Biomass Electricity in the United States:The case for ending taxpayer and ratepayer subsidies for this form of "renewable" energy,* Sheehan, M., Chirillo, S., Schlossberg, J., Sammons, W., Leonard, M., Biomass Accountability Project, June, 2011, attached, *Conservation Alternative, Comments on the NOI, GWNF Land and Resource Management Plan,* Heartwood and Wild Virginia, submitted May 6, 2010).

Biomass incineration also affects the communities adversely. Since municipal solid waste is regularly used as a biofuel, biomass combustion directly undermines recycling efforts. In addition, since biomass incineration is considered a ―renewable‖ energy source, it competes directly with solar, wind and geothermal for renewal financial incentives.

Most importantly ecologically, the Plan notes that ―if the Forest responds to needs for biomass energy production, whole tree harvesting may affect nutrient cycling, wildlife habitat, and soil productivity and stability….(and) may have effects on other resources. (Plan, Appendix E-18)

Burning biomass for electricity would be an unrealistic proposition if it were not for two factors: it turns waste stream products and the cost of neutralizing them into fuel (and pollution) and there exist large subsidies, for conversion, fuel producers, and new incinerators which provide huge incentives for plant, capital and fuel costs, including

1. Direct expenditures to producers, capital investment or consumers
2. Reduced tax liability to firms or individuals-meeting renewable portfolio standards:
3. Research and Development grants for increasing supplies, technologies, production
4. Loans and loan guarantees for energy producing techniques
5. State Electricity rate increases (green pricing)

Direct federal financial interventions doubled from 2007-2010 to $37.2 billion for biofuels (cellulostic ethanol and biodiesel). (Sheehan, ibid., pg. 3)

The American Recovery and Reinvestment Act of 2009 provides cash grants for up to 30% of the construction costs of new biomass facilities. There are 234 proposed new plants nationwide at a cost of $7.5 billion. (Sheehan, ibid., pg. 3)

The Renewable Electricity Production Credit provides $10 per megawatt hour for biomass electricity. There is actually a market for these and a 50mw biomass electricity project can earn about $10/year by selling renewable energy credits. (Sheehan, ibid, pg. 3)

USDA Biomass Crop Assistance Program allocates $461 to biomass projects, providing matching payments for the collection, harvest, storage and transportation of biomass fuels and up to 75% of the investment to establish crops. 15 years of payments towards production of woody biomass are

available from the Commodity Credit Corporation in BCAP ―project areas.‖ (Sheehan, ibid., pg. 3)

The pulp and paper industry already uses ―black liquor‖ byproduct as a combustible source of energy. The production of this waste product is now awarded federal producer tax credits.

Virginia has a Voluntary Renewable Energy Portfolio Goal of 15% of base year (2007) sales by 2025. As part of legislation to re-regulate the state's electricity industry, Virginia enacted a voluntary renewable energy portfolio goal in 2007. Legislation passed in 2009 (HB 1994) expanded the goal, encouraging investor-owned utilities to procure a percentage of the power sold in Virginia from eligible renewable energy sources. In addition to allowing participating utilities to recover costs for Renewable Portfolio Standard (RPS) programs, the SCC also offers a performance incentive to participating utilities in the form of an increased rate of return (profit) for each for each RPS goal attained.

All of this data point to the drastic and economic and environmental effects of the GW providing fuel for biomass incineration. We believe the GW bears the responsibility and burden if and when the GW becomes a source of fuel for biomass incineration.

Because biomass incineration has the potential to create a level of forest extraction and destruction not seen since the first decades of 1900 and because it is a totally new use of the forest never considered by any legislation overseeing forest management by the USDA/USFS and in the George Washington National Forest, the GWNF should be required to do a full NEPA analysis on all of the cumulative environmental impacts on use of biomass extraction for incineration and energy production in the GWNF..

We also believe that it is appropriate, for all of the above reasons, and because sourcing of biomass for electrical generation would conflict with all other existing resource values of the forest, that sourcing of biomass for electrical generation should be considered an incompatible use of the forest and not allowed in the GWNF. The cost of this analysis needs to be added to the economic analysis of each alternative and corresponding long term net public benefits analysis.

XIII. Oil and Gas Leasing

49. The Preferred Alternative and DEIS has failed to analyze the incompatibility of oil and gas leasing and surface occupancy on rare biological communities, water resources, visual quality other management prescriptions and how these effect the long term Net Public Benefits over the range of alternatives considered.

50. The DEIS fails to adequately analyze the specific likelihood and significance of impacts from vertical drilling.

51. The DEIS fails to include complete, additional and new information on impacts of high-volume hydraulic fracturing.

52. The DEIS analysis of Environmental Impacts of allowing oil and gas Leasing for vertical drilling and analysis of cumulative impacts is inadequate under NEPA.

―The federal government owns 100% mineral rights on about 84% of the Forest. Private parties own mineral rights on the remaining 16% of the Forest. As of September 2010, federal oil and gas leases were in effect on about 1% of the Forest (12,412 acres) but there are no active oil and gas wells. Exploration on GWNF lands has been sparse and activity on surrounding lands has been minimal. Thus far, only five wells have been drilled on Forest lands. All were designed to test a specific horizon and all were dry holes. Two small natural gas fields have been developed adjacent to GWNF lands, but, with the exception of one well, there has been no drilling activity since the 1990"s.‖ (Plan, E-10)

The oil and gas leasing decisions made in the 1993 plan fail to protect public benefits and ecological values in the GWNF. Private lands in Virginia and West Virginia provide ample opportunities for oil and gas leasing and extraction activities. On the other hand, only public lands can guarantee the provision of wild forests, pristine waters, at-risk species habitat, and opportunities for quiet, backcountry recreation. Surface occupancy for oil and gas leasing and extraction activities would degrade these and other public benefits.

The Plan notes that ―given the questionable nature of the development potential on the Forest, along with the high level of concern for water quality, the Plan does not allow horizontal drilling.‖ (Plan, 3-15) Despite the fact that the GWNF does not appear to have great oil and gas potential production opportunities, the Preferred Alternative proposes to make approximately 990,000 acres of the GW available for leasing for vertical drilling operations (DEIS, Table 2-10, 2-77). This includes virtually every square inch of the forest that is not currently under Wilderness designation with the exception of Laurel Fork.

Under the Preferred Alternative oil and gas leasing would be promoted in watersheds that supply local drinking water and other priority watersheds identified by the Forest Service, Special Biological Areas, Key Natural Heritage Community Sites, Indiana Bat Secondary Cave Protection Areas, Research Natural Areas, cave and karst geological formations, wilderness study areas, potential wilderness areas, Roadless areas, Remote Backcountry, Eligible Scenic and Recreational Rivers, geologic areas of high scenic integrity, Highlands Scenic Byway and Scenic Corridors, Concentrated Recreation Zones and Dispersed Recreation Areas, the Blue Ridge Parkway Visual Corridor, Shenandoah Mountain Crest, Pastoral Landscapes, Riparian Corridors , Semi-Primitive Areas and other large, unfragmented forest blocks , the Appalachian Trail corridor, and steep mountain slopes. Oil and Gas exploration and any surface occupancy are incompatible with all of these areas and their respective management prescriptions.

The risks to water and aquatic resources of high-volume hydrofracking are especially grave. To further build on the analysis in the DEIS, there is additional information, including findings that were released after the DEIS, that should be included in any revised or final EIS to present a more complete picture of the environmental impacts of high-volume hydrofracking.

The Forest claims to place a very high priority on water quality. Horizontal drilling and the associated hydrofracturing of the Marcellus shale formation may impact water quality. Further,

there has been no development of the Marcellus or Utica shale formations in Virginia, so the Forest Service and state agencies lack experience with this type of gas development in Virginia. ―The Marcellus formation in the Forest is folded and fractured, unlike the flat beds of shale in other regions that are more conducive to horizontal drilling, so ―the ability to develop it using horizontal drilling is questionable.‖ (Draft Plan FAQ, 10–11) Little is known about the Utica formation, though it does seem to cover even more of the Forest than the Marcellus.

The DEIS describes numerous ways in which high-volume hydrofracking may adversely affect water resources. Additional information on these risks should be incorporated into the EIS. For example, regarding water quantity issues, the DEIS mentions the vast amounts of water needed for high-volume hydrofracking and describes some of the potential impacts from withdrawal generally, but more information and detail can and should be included. The EIS should emphasize that much of the water used for hydrofracking is not recycled for future use, and further explain (DEIS, 3-335) how such consumptive high-volume withdrawals can seriously stress local drinking water supplies and existing and future downstream agricultural or other industrial uses.

The reduction of water levels in aquifers may also necessitate lowering pumps or deepening or replacing wells. Depletion of aquifers may also affect water quality by exposing naturally occurring minerals to an oxygen-rich environment, causing chemical changes to the minerals that can affect solubility and mobility and lead to salinization of the water and other forms of contamination. Lowered water levels may also stimulate bacterial growth. High-volume withdrawals can also lead to subsidence and destabilization of the geology.

The heightened risks of water contamination associated with hydrofracking are even more substantial than indicated in the DEIS. One significant risk that the DEIS does not discuss is natural gas migration into drinking water supplies. Natural gas migration is dangerous due to the combustible and asphyxiant nature of the gas, especially if it accumulates in an enclosed space such as a well shed, house or garage. Gas migration can result from improper casing, e.g., (1) inadequate depth and integrity of surface casing to form a barrier between potable water resources and gas-bearing shale formations; (2) inadequate cement in the annular space around the surface casing, which may be caused by gas channeling or insufficient time for cement setting; and (3) excessive pressure in the annulus between the surface casing and intermediate or production casing leading to the creation of subsurface pathways outside the surface casing.

However, gas may also migrate up through fractures in the shale formation and overlying rock layers into groundwater. (Stephen G. Osborn et al., Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing, 108 PNAS 8172, 8175, 2011). This study, released after the DEIS was completed, found that methane concentrations were on average 17 times higher in drinking water wells located near natural gas drilling and hydrofracking sites in PA and NY than in drinking water wells not located within 1km of a gas well. The average concentration in gas extraction areas was high enough to be a potential explosion hazard. State environmental agencies have reported incidents of drinking water contamination resulting from methane leaks from fracked gas wells.

In addition to concerns about gas contamination, there are concerns about contamination of groundwater supplies and drinking water wells with fracking fluid and the multiple chemicals it contains. Many of these chemicals are known to be toxics, human carcinogens, or otherwise hazardous to human health (Chemicals Used in Hydraulic Fracturing: Hearing Before the House Committee on Energy and Commerce, 112th Congress 1–2, Apr. 18, 2011). The DEIS states that as much as 60 to 80 percent of fracking fluid can return to the surface, leaving 20 to 40 percent underground. (DEIS, 3-336) These fluids may ultimately migrate into aquifers.

The existing evidence and pending scientific studies of fracking fluid contamination should be fully acknowledged in the EIS. Many citizens have reported that their drinking water appeared to be contaminated with fracking fluid. (Randy Woock, EPA Gathers Input on Hydraulic Fracturing, The Trinidad Times, July 16, 2010, http://trinidad-times.com/epagathers-input-on-hydraulic-fracturing-p617-1.htm; Tom Wilber, ActivistchallengesDECClaimofFewGasDrilling Problems, pressconnects.com, Apr. 4, 2010, http://www.pressconnects.com/article/20100404/NEWS01/4040356/Activist-challenges-DEC-claim-of-few-gas-drilling-problems; Jon Hurdle, Pennsylvania Lawsuit Says Drilling Polluted Water, Reuters, Nov. 9, 2009, http://www.reuters.com/article/2009/11/09/us-fracking-suit-idUSTRE5A80PP20091109; Josh McDaniel, Boom in Gas Drilling Fuels Contamination Concerns in Colorado, Christian Science Monitor Feb. 5, 2009, http://www.csmonitor.com/Environment/2009/0205/boom-in-gas-drilling-fuels-contamination-concerns-in-colorado). In fact, EPA has investigated at least one documented case of fracking fluid contamination, as reported in the New York Times. Ian Urbina, *A Tainted Water Well, and Concern There May Be More*, New York Times, available at http://www.nytimes.com/2011/08/04/us/04natgas.html?_r=1 (Aug. 3, 2011). This is a risk which should be acknowledged.

The DEIS briefly addresses some of the benefits and risks of using centralized surface impoundments for disposal of massive amounts of flowback water, stating that any proposal for their use requires the recognition and mitigation of potential impacts. (DEIS-3-337) However, the New York DEC draft SGEIS from which this information was gathered also concludes that controlling leakage from impoundments is a ―difficult task‖ and ―even the smallest defect [in the impoundment liner] can release significant volumes of contaminated liquid over short periods of time.‖ (NYDEC DSGEIS at 6-38 to 6-39).

Because of the massive amount of water and flowback waste that must be transported to and from the drilling site, the high level of truck traffic associated with high-volume hydrofracking is also a major concern. The DEIS estimates that between 2,920 and 4,445 truck trips are necessary for a three well multi-well pad. (DEIS, 3-338) The EIS should add more information on the gravity of the impacts from such intense trucking activity. Narrow dirt roads may need to be widened or even paved to accommodate the high volume of traffic, increasing stormwater runoff. (NYDEC PRDSGEIS at 6-49) The risk of accidents and spills may also be significantly higher, and the consequences can be dire. (Id. at 6-50)

The DEIS also should address the potential impacts of solids disposal. The total volume of drill cuttings from drilling a horizontal well may be one-third greater than for a conventional vertical well. (NYDEC PRDSGEIS at 6-63) The greater volume of drill cuttings from development of

multiple horizontal wells may necessitate a larger reserve pit that may be present for a longer period of time. Id. These hundreds of tons of drill cuttings can contain heavy metals and naturally occurring radioactive materials. (Presentation by Daniel J. Soeder, National Energy Technology Laboratory (NETL), at 35, available at http://www.mde.state.md.us/programs/Land/mining/marcellus/Documents/Marcellus_GeoEnv_Soeder.pdf.)

High-volume hydrofracking would also have a greater impact on ecosystems and wildlife than is described in the DEIS. Surface water withdrawals have much greater potential to transfer invasive aquatic species because of the massive amounts of water used. In addition, the increased amount of truck traffic associated with high-volume fracturing, as well as increasing the risk of accidents and spills, presents a greater risk of transfer of terrestrial invasive species. (NYDEC PRDSGEIS at 6-84). The DEIS also does not discuss the potential impacts of using centralized surface impoundments on wildlife, and waterfowl in particular. Migrating birds may use the impoundments, filled with contaminated flowback water, during migration or during winter if the water remains unfrozen and the impoundment is near feeding areas. (NYDEC DSGEIS at 6-48.)

The DEIS analysis of Environmental Impacts of allowing oil and gas Leasing for vertical drilling is inadequate under NEPA. To be adequate under NEPA, an EIS must provide a ―full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.‖ 40 C.F.R. § 1502.1. The agency must take a ―hard look‖ at the environmental consequences of its proposed action to make possible informed decision making and dissemination of relevant environmental information. (Robertsonv.MethowValleyCitizens Council, 490 U.S. 332, 350 (1989); Strycker‘sBayNeighborhoodCouncilv.Karlen, 444 U.S. 223, 231, 1980).

While the DEIS acknowledges many of the potential impacts from gas drilling generally, it does not adequately consider and disclose the expected extent and significance of the vertical drilling that would be allowed under the proposed plan. See 40 C.F.R. § 1502.16 (stating an EIS must discuss environmental consequences ―and their significance‖). A generic statement that a certain action might result in certain environmental impacts, without further discussion of the likelihood or significance of those impacts within the affected area under the proposed plan, does not provide the type of precise information necessary for informed decision making.

By proposing a prohibition on horizontal drilling, the FS clearly recognizes the significance of the risks involved. However, it is important to understand that vertical drilling and hydrofracking pose many of the same risks as the high-volume fracking typically used in horizontal drilling (water quality and quantity concerns, land disturbance from well pads and access roads, solid and liquid waste disposal, etc.). While the impacts of conventional vertical wells may usually have been on a smaller scale than horizontal wells, it is questionable whether fracking vertical wells in unconventional plays, such as the Marcellus shale, would be substantially smaller scale, and in any event their impacts likely would be cumulatively significant. Therefore, the EIS should provide a more thorough analysis of the specific likelihood and significance of impacts from the amount and location of vertical drilling and hydrofracking expected to occur under the proposed plan.

The DEIS does provide some comparison of impacts between leasing alternatives, indicating that certain alternatives will have greater impacts than others, but it should provide more discussion of the likelihood and significance of those impacts. For example, it is conceivable that, compared to all alternatives, the amount of vertical drilling under the proposed plan would have the least impact on a particular forest resource, but this impact could still be severe.

The agency also must discuss ways of mitigating adverse environmental impacts caused by gas drilling. (40 C.F.R. § 1502.16(h)). This discussion must be sufficiently detailed and complete to enable the public to properly evaluate the severity of the environmental consequences. Robertson, 490 U.S. at 351–52. "A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by the NEPA.‖ (IdahoSportingCong.v.Thomas, 137 F.3d 1146, 1151 (9th Cir. 1998) (quoting NorthwestIndianProtectiveAss'nv.Peterson, 795 F.2d 688, 697 (9th Cir. 1986)). The proposed mitigation measures must be supported by analytical data. (Idaho Sporting, 137 F.3d at 1151.) The DEIS frequently invokes plan standards and lease stipulations as means of mitigation without discussing specific constraints that would be put in place, how such constraints would be effective at mitigation, how they will be monitored and enforced, and to what extent they will offset adverse environmental impacts.

The DEIS acknowledges many of the potential impacts of oil and gas leasing on water resources and aquatic species. For example, the DEIS explains that water withdrawals from streams ―could adversely impact fish and wildlife health due to exposure to unsuitable water temperature and dissolved oxygen concentrations.‖ (DEIS, 3-334) Downstream wetlands also could be impacted, depending on the amount of water within the wetland, the amount of water withdrawn from the catchment area of the wetland, and water flow dynamics. Id. Moreover, aquifer depletion is the ―primary concern‖ of groundwater withdrawal. (DEIS, 3-335) However, there is no GW- or local area- specific analysis of how likely and significant these effects will be under the current proposal for gas leasing availability. The FS should provide that analysis.

The DEIS estimates that each vertical well would require, on average, about 425,200 gallons of water for drilling and fracking. (DEIS, Table D5, 3-320) While Table D5 shows the projected water use for hydraulic fracturing for each alternative, the EIS should further include estimates of how much of this water will be obtained from forest water supplies, which forest water resources are most likely to be tapped (e.g., small streams that act as headwaters for drinking water supplies), and what levels of withdrawal would trigger the potential impacts mentioned.

The DEIS fails to disclose how many acres would be available for leasing and how much drilling and hydrofracking would be expected to occur in each of the watersheds that supply local drinking water and other priority watersheds, which the FS defines to include watersheds that support sensitive aquatic species or have impaired streams. (Draft Plan, 2-2) How would the proposed leasing availability affect the conditions and resources in these areas that led to them being designated as priority watersheds? Many threatened, endangered, and sensitive aquatic species are located in watersheds overlying Marcellus shale and thus will be potentially affected by gas development, including the James spinymussel, Roughhead shiner, Orangefin madtom, Cow Knob salamander, Brook floater, Yellow lance, and Green floater. (DEIS, 3-347-352)

The DEIS fails to analyze the impacts of drilling in the forest's most important, most sensitive watersheds for all alternatives considered. GIS analysis of Alternative G shows that, in the Forest Service-identified priority watersheds and in the Wild Virginia-identified watersheds supplying local drinking water, about 87% of the national forest land in those watersheds would be available for oil and gas leasing. (SELC, Comments, by reference)

As documented in Wild Virginia's report *The State of Our Water*, the GW is a direct source of drinking water for more than 260,000 local residents. Wild Virginia, The State of Our Water (2008), 1, available at http://www.wildvirginia.org/?p=190. This further highlights the need to conduct a careful and thorough analysis of impacts on drinking water supplies

The revised EIS should also expand on the risks and planned methods of flowback disposal. For instance, will open pits be used to hold flowback or only storage tanks? We understand from a conversation with FS staff that the FS intends for flowback to be placed in storage tanks, rather than in open pits, but this does not seem to be documented and committed to in the DEIS and leasing stipulations—it should be. Will these storage sites be located adjacent to stream channels or in drinking water watersheds? What are the plans for monitoring and oversight? It is also unclear whether applicants proposing to drill and frack vertical wells must disclose the quantity and composition of chemical that will be used, or whether land application of flowback waste would be allowed for vertical wells. The FS should attach to any future leases stipulations requiring disclosure of chemicals and prohibiting land application, regardless of the type of drilling to be used. The planning documents should also explicitly state whether flowback can be discharged into surface waters—would an NPDES permit be required?

The DEIS recognizes that ground disturbing activities associated with oil and gas development can increase runoff and sedimentation rates, but it should go further by discussing the expected change in these rates and the extent of the resultant impacts under Alt. G. Steep access roads, well pads on hill slopes, and well pads constructed by cut-and-fill operations make containment of runoff (which may be contaminated by spills) especially difficult. (DEIS, 3-337) The planning documents should be clear on the expected extent of these riskier construction activities as well as any relevant constraints.

In any areas available for leasing and drilling, the Forest Service should consider prohibiting surface occupancy on steep slopes, to avoid ground disturbance on steep slopes and the erosion and sedimentation likely to result. For example, the forest plan for the National Forests in Alabama recently was amended to add a forest-wide standard providing that ―Surface occupancy during minerals leasing operations is limited to slopes ≤ 40 percent.‖ National Forests in Alabama, Decision Notice for Forest Plan Amendment #2 – Minerals Operation Standard, available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5274553.pdf (Dec. 27, 2010).

The discussion of cumulative impacts on water quality and quantity is also lacking. Under NEPA, the cumulative impacts analysis must assess ―past, present, and reasonably foreseeable future actions‖ and the incremental impact of the proposed activities when added to that baseline. (40 C.F.R. § 1508.7) In order to properly consider cumulative impacts, ―some quantified or detailed information is required.‖ (NeighborsofCuddyMountainv.U.S.ForestServ., 137 F.3d 1372, 1379 (9th Cir. 1998)) It is not enough to make general statements about ―possible effects‖ and

―some risk.‖ Id. at 1380; see also (NaturalRes.Def.Councilv.Hodel, 865 F.2d 288, 299 (D.C. Cir. 1988)) (stating that, in considering cumulative impacts, ―perfunctory references do not constitute analysis useful to a decisionmaker‖).

First, the DEIS should consider the cumulative impacts from concentration of vertical wells in particular watersheds. Second, it should provide a more thorough analysis of potential regional cumulative impacts. The section on regional cumulative impacts is prefaced with an observation about the difficulty in accurately estimating the level of such impacts, dependent as they are on the amount and rate of oil and gas development. There is no explanation as to why the FS does not rely on BLM projections of gas activity, as it does elsewhere in the DEIS, in analyzing regional cumulative impacts. Instead, the entire analysis is limited to examples of cumulative effects of multiple water withdrawals in *other* regions. The DEIS must address potential cumulative impacts in detail in the context of the GW and proposed plan. And this analysis must go further than an observation that the preferred alternative would prohibit horizontal drilling and therefore would result in less water use and potential for contamination than alternatives that would allow it.

With respect to the cumulative impacts of water withdrawals, there is an acknowledgement that a proper analysis must include a consideration of existing water usage, the non-continuous nature of withdrawals, and the natural replenishment of water resources. (DEIS at 3-339) These considerations are important, and they should be factored into the cumulative impacts analysis. The DEIS also should make clear that gas leases do not confer the right to withdraw water from streams or groundwater supplies.

Moreover, the DEIS must consider the cumulative impacts of water contamination and sedimentation from gas activities expected to occur under the proposed plan in light of other past, present, and reasonably foreseeable future activities in the region, both public and private. The FS acknowledges that many other activities may have similar negative effects on water resources, such as road and trail construction, timber management, and fire management (DEIS, 3-48), but no detailed cumulative impacts analysis is presented. For example, the cumulative impacts of sedimentation from the existing road system plus from new oil and gas development and logging access roads should be disclosed and considered.

The aquatic viability determinations should factor in impacts from vertical drilling. We agree that for a given species, separate viability determinations should be made for each watershed it occurs in under each plan alternative. The DEIS states that in order to account for the effects from oil and gas leasing, the stressor of horizontal drilling was considered for species that occur over Marcellus shale. (DEIS, 3-340) It appears, however, that a stressor for vertical drilling was not included. This assumes that the oil and gas drilling that would be allowed under preferred Alt. G would have no impact whatsoever on aquatic species. The effects of vertical drilling must be included in any aquatic species viability calculations—it is highly doubtful that vertical drilling and hydrofracking would not have any impact on the viability of any aquatic species.

The FEIS also fails to contain a thorough analysis of mitigation of adverse environmental effects on water resources resulting from vertical drilling and hydrofracking. Despite discussion of various effects from water withdrawals, only one mitigation measure is mentioned (screening

intake pipes to avoid entrainment of aquatic organisms). (DEIS, 3-334) On the threat of surface spills and releases near drilling wells, the DEIS states that the odds of an accident are heightened ―if mitigation measures are not sufficiently durable,‖ but gives no hint at what these mitigation measures might be. (DEIS, 3-335) No means of mitigating effects from non-point source pollution resulting from ground-disturbing activities associated with vertical drilling are mentioned either.

Vertical gas drilling allowed under the preferred alternative will disturb soils by way of displacement, compaction, and erosion resulting from vegetation removal. (DEIS, 3-327) Fluid leaks or spills could sterilize soil or reduce soil productivity. Without explanation, the DEIS uses a 15% reduction in soil productivity across the entire leasing availability area as a threshold for significance. Id. This ignores potentially significant localized impacts in sections of the forest from concentrated gas activities. Further, while the DEIS lists the number of acres affected by each alternative, it does not discuss the expected significance of the impacts in these areas, even if, as the DEIS states, 98% of the forest will retain its soil productivity. (DEIS, 3-329)

While acknowledging that ground disturbance from oil and gas activities may adversely affect geologic resources, the FS should provide more detail about the nature, likelihood, and significance of these effects that would result from vertical drilling allowed by Alt. G. The DEIS notes that karst areas ―generally do not overlap‖ with Marcellus shale in the forest, but there is barely any discussion of the probable impacts in areas where there is such overlap. (DEIS, 3-325) Moreover, karst is widely distributed across the entire forest. (DEIS, 3-51) Its precise boundaries are not clearly defined and the ways that water percolates through these karst systems is not well understood. Therefore, the relatively small overlap suggested by GIS data should not be relied upon to conclude that karst is unlikely to be affected by vertical drilling. The analysis of cumulative impacts from other management activities merely declares the cumulative impact to be the combination of impacts discussed in this section with those discussed in the Physical Environment section. (DEIS, 3-327) There should be an evaluation of the gravity of the combined impacts. As previously mentioned, the DEIS should provide maps, tables, or data showing the prospective overlap of expected oil and gas development and other management activities

The light discussion of impacts seems to be due to the assertion that various environmental laws and regulations, in conjunction with Forest Plan standards, would ―avoid or reduce potential effects on the Forest‘s geologic resources . . . .‖ such as caves and karst. (DEIS, 3-325) Specific laws and regulations are not cited. Some of the Forest Plan standards do impose substantive requirements that are protective of geologic resources. For example, FW-63 prohibits soil-disturbing activities within 200 feet of cave entrances and sinkholes. (Plan, 4-7) Underground cave systems and/or their drainage catchments, however, could extend beyond this 200-foot buffer around the entrance and be affected by drilling. Other standards are substantive in nature, but general or soft (e.g., FW-214 gives direction to locate and design facilities and management activities to minimize impacts on geologic resources; FW-215a gives direction to locate and design projects to minimize potential adverse effects on groundwater; FW-216 mandates that activities be conducted so as to avoid or minimize geologic hazards and potential impact on infrastructure and public safety; FW-65 states management activities within any area draining into a cave should be ―limited‖ if they may affect the cave‘s ecosystem). Other relevant standards are

merely procedural (e.g., FW-216 gives direction to ―consider‖ a geologic hazard and risk assessment for ground-disturbing projects on slopes of 50% or greater near the Forest external boundary). The general or non-binding nature of these standards casts some doubt on the conclusion that they will be effective in mitigating impacts on geologic resources and the risk of hazardous events from any kind of drilling. Cave and karst geology is complex, and an understanding of fluid movement and connectivity within karst systems is essential to protecting groundwater and other geologic resources. Sedimentation and hydrofracking fluid releases or spills could have particularly serious consequences in karst areas. Further, in light of its reliance on plan standards, the FS should also discuss how rigorously these standards are enforced, or whether the FS has adequate resources for oversight and enforcement.

There is very little mention of the potential effects of oil and gas development on rare communities, caves, and Special Biological Areas (SBAs). (DEIS, 3-34). The DEIS should consider in more detail the expected impacts of vertical drilling under Alt. G on rare communities, caves, and SBAs. The DEIS relies on plan standards and project and site-specific analysis to prevent or mitigate damage to the integrity of these areas and the species of concern that depend on them. (DEIS, 3-342) Again, the DEIS does not sufficiently demonstrate how these standards and project-level analyses will be effective in avoiding or mitigating adverse environmental impacts. If impacts will only be mitigated and not completely prevented, what will be the extent of those lesser impacts?

Standard FW-62 calls for surveying of areas for rare communities prior to implementing projects with potential to negatively affect them, but there is no indication that a determination that a rare community will be adversely affected imposes any further substantive requirements to protect it. The draft plan provides that SBAs are available for federal oil and gas leasing with controlled surface use to protect threatened, endangered, sensitive, and locally rare species, but there is no elaboration in the plan or DEIS on what the CSU restrictions are and how they will protect these species. Therefore, the conclusion that SBAs and the species in them will be protected under any of the alternatives is unsupported. Surface occupancy for any kind of oil or gas drilling in SBAs seems incompatible with the Plan‘s goal of protecting these areas from ―human-caused detrimental habitat change.‖ (Plan, 4-53)

Vertical drilling activities may impact wildlife by killing animals that cannot leave habitats affected by construction of access roads, clearing and leveling of drill pad sites, or construction of pipelines and facilities. (DEIS, 3-357) The DEIS asserts that adverse impacts from the creation of forest edge from construction activities are not expected to be significant because the areas where most leasing is expected to occur are in generally forested landscapes. Id. This conclusion is unsupported by data about the projected amount of forest clearing and edge effects that would occur under the alternative proposals. Would on-the-ground surveys for threatened, endangered, and sensitive species be required for each individual leasing decision? The DEIS downplays possible edge effects, but research has shown that measurable impacts often extend at least 330 feet into the forest area adjacent to the edge. [TNC] at 11.

The preferred alternative is expected to result in construction of 38 wells on federal leases, disturbing 380 acres of land, plus edge effects and other disruption of surrounding areas. (DEIS, 3-320)

The DEIS is not clear on the significance of habitat loss, stating, for instance, that habitat for the ovenbird, a management indicator species, will be reduced for all alternatives. (DEIS, 3-357) The extent of this loss is not quantified or otherwise evaluated, and negative impacts on other specific species are not mentioned. While Table D17 lists numerous sensitive species that ―could potentially be affected‖ by gas leasing, the expected impacts on these species specifically from gas leasing under the proposed plan should be described in detail. (DEIS, Table D17, 3-347) The endangered Indiana bat and Virginia big-eared bat are among the species potentially affected by oil and gas leasing. Id. The DEIS also states that creation of edge and early seral habitat will actually benefit some species. Id. It is difficult to imagine how these openings will benefit any species considering they will be occupied by industrial gas facilities and equipment. There is no mention of mitigation measures in the wildlife analysis either.

The DEIS enumerates potential environmental impacts from invasive plants, and severity of impact is correlated with the amount of ground-disturbing activity associated with each alternative. No explanation is given other than a general statement that ground disturbance creates habitat suitable for invasive plant infestations. (DEIS, 3-358) The fact that some alternatives are more conducive to infestations than others does not say anything about the overall significance of the potential impact of the preferred alternative or any other alternative. Cumulative impacts from development around the forest, creation of forest edge, and other forest management activities must be addressed as well.

The DEIS asserts that those Potential Wilderness Areas and Inventoried Wilderness Areas allocated to the Remote Backcountry Management Prescription would be leased with a no surface occupancy (NSO) stipulation and thus suffer no impacts under any alternative. (DEIS, 3-358) But there is no discussion whatsoever of potential impacts to portions of these areas *not* categorized as Remote Backcountry. The EIS must consider and disclose the impacts of vertical drilling on these areas and the final plan should make these areas entirely unavailable for leasing.

The DEIS states that the negative impacts of oil and gas leasing on roaded natural areas, such as short-term use pattern changes by recreationists, can be mitigated through lease stipulations or conditions on surface use, and long-term site restoration. (DEIS, 3-361) But again, there is no elaboration on how probable or effective these mitigation strategies would be under the preferred alternative. Oil and gas development is said to be incompatible with the desired experience in semi-primitive recreation settings, but substantial parts of these settings would be open to leasing, even in some cases on standard lease terms. In fact, under the proposed plan, about 140,400 acres of semi-primitive land would be available for leasing, almost all of it with standard terms. (DEIS, 3-361) The EIS should discuss the expected extent of potential impacts on trails and trail users from road and pipeline construction and the sights and sounds of round-the-clock gas development activities. The discussion of mitigation strategies for impacts on trails is limited to a reference to lease stipulations and conditions on surface use approval, and a general statement that effects ―may be mitigated, to varying degrees, through rehabilitation, management controls, and/or trail relocation.‖ (DEIS, 3-362) Would these measures actually be implemented? How would they operate and how effective would they be? This assessment again falls short of the ―reasoned discussion‖ that NEPA requires.

The DEIS describes short-term impacts on scenery from oil and gas development in areas where visitors expect to enjoy natural settings, and the amount of road, pipeline, and well pad construction is provided for each alternative. (DEIS, 362-363) This description of impacts should present a more complete picture of how physically and visually invasive the process of gas extraction is in a national forest, whether it involves vertical or horizontal drilling—it is a major industrial activity involving large drilling equipment, brine and flowback pits, compressions tanks, and potentially heavy truck traffic. More analysis is needed of the potential long-term cumulative impacts on scenery from gas drilling under the proposed plan and alternatives, which, as the DEIS acknowledges, ―could, over time, result in the degradation of scenery,‖ perhaps in ways that are irreversible or resistant to restoration. Mitigation measures should be discussed too.

The EIS fails to discuss in detail the potential effects on cultural resources. Because analysis of the effects must be performed programmatically in compliance with existing laws and regulations, the effects would purportedly not vary by alternative. (DEIS, 3-364) This does not excuse the Forest Service‘s obligation to delineate those impacts. Existing laws and regulations would not necessarily prevent *any* significant impacts on cultural resources. For example, the FS cites to federal regulations for the protection of archaeological resources, but these regulations do not require any permit for activities that are exclusively for purposes other than excavation or removal or archaeological resources, but ―might incidentally result in the disturbance of archaeological resources.‖ (36 C.F.R. § 296.5(b)) The DEIS should flesh out the expected impacts on cultural resources under the proposed plan.

The DEIS should fully disclose the anticipated indirect impacts of gas development, including the drilling proposed to be allowed by Alt. G, on farms and rural communities neighboring the forest. (40 C.F.R. § 1502.16(b), stating an EIS must consider ―[i]ndirect effects and their significance‖). ―Indirect effects‖ are defined as effects ―which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable‖ and may include ―effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.‖ (40 C.F.R. § 1508.8)

The DEIS fails to acknowledge that gas development can lead to a significant strain on local communities‘ public resources, infrastructure and services. For example, an increase in heavy truck traffic on small, rural, often gravel roads quickly deteriorates those roads and increases congestion, raises the risk of accidents and spills and requires more maintenance and repair funds. (Susan Christopherson and Ned Rightor, Cornell University, *Working Paper Series: How Should We Think About the Economic Consequences of Shale Gas Drilling?*, at 12–13, available at http://www.greenchoices.cornell.edu/downloads/development/marcellus/Marcellus_SC_NR.pdf (May 2011); seealso Susan Christopherson, Cornell University, *Marcellus Shale Gas Drilling: What Does it Mean for Economic Development? Preliminary Findings on the Economic Consequences of Natural Gas Extraction in the Marcellus Shale*, at 8 (Dec. 13, 2010 update)) Citizens in other areas where shale gas drilling has taken place have complained about the dust, noise, and road damage caused by truck traffic. Many rural roads in the Marcellus region are not built to withstand such heavy use. Local governments may attempt to regulate trucking routes to minimize damage, but this could require planning, engineering studies, and legal consultation that proves too much for these governments‘ budgets. Additionally, gas development generally leads

to increases in demand for fire, rescue, police, health, education, and other public administrative services. (Christopherson and Rightor at 13-14; Christopherson at 8)

The DEIS fails to discuss the broader regional industrialization that accompanies any kind of gas development, including vertical drilling. Various facilities, including depots for equipment, staging areas, gravel quarries, water extraction sites, wastewater treatment plants capable of treating drilling waste, and gas storage facilities, are needed to carry out gas extraction operations. These industrial facilities not only negatively affect the environment, but can threaten competing industries relied on by local communities, such as tourism and agriculture—the backbone of existing local economies in the region around the GW. These impacts could be particularly severe in the area around the GW because this area has no history of gas development, therefore, it has no infrastructure, local workforce, etc. in place to support this industry (for further discussion of this issue, see the comments of the Shenandoah Valley Network; the Catskills Citizens for Safe Energy website, at http://catskillcitizens.org/learn_one.cfm?t=2&c=22, also has useful resources on social and economic impacts).

The Forest Service should consider separating the oil and gas leasing availability and the consent to leasing decisions. Oil and gas leasing is a two-step process of deciding, first, which lands are available for leasing and, second, whether to give BLM consent to sell leases. (36 C.F.R. § 228.102) The revised plan may make lands available for leasing without also giving consent to leasing. For example, the 1993 GW plan apparently made the second, consent decision only for lands in the so-called ―Alleghany Front Lease Area.‖ (1993 FEIS, 2-76-77)

NFMA regulations require forest planning to provide for ―general estimates of current water uses, both consumptive and non-consumptive, including in-stream flow requirements within the area of land covered by the forest plan‖ as well as an ―estimation of the probable occurrence of various levels of water volumes, including extreme events which would have a major impact on the planning area.‖ (36 C.F.R. § 219.23) These estimates are not found in the draft plan or DEIS. As discussed in Section II, supra, hydraulic fracturing can require an immense amount of water, even for vertical wells. Even under the Forest Service's preferred alternative, which would not allow issuance of new leases for horizontal drilling, over 16 million gallons of water would be used for drilling and hydraulic fracturing on federal leases. (DEIS, 3-320, Table D5) Much of this water may be withdrawn from streams or aquifers in the forest. DEIS at 3-334. More analysis is needed of how the expected level of withdrawal will affect the environment in light of the hydrological needs of the Forest.

Extensive drilling and hydrofracking on the GW, whether it involves horizontal or vertical wells, seems likely to conflict with the Forest Service's ability to meet its obligations under the NFMA to conserve water and soil resources and provide for diverse plant and animal communities, viable populations of fish and wildlife species, and recreational opportunities and scenic quality. (16 U.S.C. § 1604(g)(3)(A); 36 C.F.R. § 219.19 (fish and wildlife); § 219.21 (recreation); § 219.23 (water and soil); § 219.26 (diversity of plant and animal communities); § 219.27(a)(1) (all management prescriptions shall conserve soil and water resources)) Section 219.27 sets forth management requirements to guide the development, analysis, and approval of forest plans. It calls for all management prescriptions to, among other things, conserve soil and water resources and avoid significant impairment of land productivity, provide for and maintain diversity of plant

and animal communities, prevent adverse modification of critical habitat for threatened and endangered species, and protect the integrity of streams and riparian areas. The availability of oil and gas leasing in certain management prescription areas conflicts with these requirements, and is often inconsistent with the Forest Plan‘s own stated desired condition for the area.

The proposed draft revised forest plan would make several sensitive and important management prescriptions and other areas available for vertical drilling on federal leases, despite the conflict between the effects of drilling and the desired condition of these areas. While some of these areas would only permit leasing with controlled surface use (CSU) stipulations, neither the plan nor DEIS disclose the nature of these stipulations or how they would ensure harmony with the desired condition of particular prescription areas. While the DEIS discusses the effects of oil and gas leasing on specific forest resources, it does not specifically analyze and disclose impacts to management prescription areas and the particular resources (e.g., rare species, scenic views, recreation, etc.) that are the basis for these prescriptions. In fact, the DEIS does not explicitly disclose how many acres would be available for oil and gas leasing in each prescription area under the proposed plan, nor does it display the current distribution of existing federal and private leases by prescription area. More information is needed on the overlap of areas with high conservation priorities and areas where gas development is likely to occur to fully understand the environmental ramifications, ensure the forest plan is internally consistent, and comply with NEPA, the NFMA, and federal oil and gas leasing regulations.

These sensitive and important areas should be unavailable for leasing. The Forest Service should consider avoiding leasing when mineral development would ―(1) seriously interfere with other resource values, (2) be incompatible with the purposes for which the area is being used or administered, or (3) permanently destroy or render useless the land for the purpose for which used or dedicated,‖ as well as when the value of the land for its current use outweighs the benefits of mineral extraction and the existing use cannot be adequately protected by stipulation. (FSM 2822.45, FSM 2761.03) In fact the Plan should withdraw all areas where management direction is not compatible with mineral development, for example, ―research natural areas, interpretive or cultural sites, scenic areas, geologic areas, critical habitat of endangered species having a very limited range and specific habitat requirements not found elsewhere, and botanical areas.‖ All Inventoried Roadless Areas (IRAs), Potential Wilderness Areas (PWAs), priority watersheds, watersheds that supply local drinking water, newly identified roadless areas, and the following management prescription areas should be completely unavailable for leasing.

Inventoried Roadless Areas and several Inventoried Roadless Areas (IRAs) are allocated to prescriptions that would be available for federal oil and gas leasing with surface occupancy, including Special Biological Areas, Shenandoah Mtn. Crest/Cow Knob Salamander Areas, and Eligible Scenic and Recreational River Corridors. This would not be consistent with the 2001 Roadless Rule. Many of the newly identified roadless areas (the PWAs which are not IRAs) are allocated to prescriptions which would be available for leasing with surface occupancy. This would be contrary to the FS stated intent for the preferred alternative. ―Alternative G includes an objective to assure that management activities in Potential Wilderness Areas (including areas allocated to these ―Other Resource‘ management prescription areas) will only be done if they will not affect the Potential Wilderness Area to the point that it would no longer meet the definition of a Potential Wilderness Area.‖ (DEIS, 3-247)

Oil and gas drilling with surface occupancy certainly would affect these areas to the extent that they would no longer meet the road density and naturalness aspects of the PWA definition. Therefore, these areas should be allocated to other prescriptions which are not available for leasing or the prescriptions should be changed so they are not so available.

Water quality, especially water quality in important watersheds supplying drinking water to local communities and supporting at-risk aquatic species, is one of the significant issues identified in the plan revision process and studied in the DEIS. (DEIS, 1-9) The DEIS and draft plan emphasize the importance of water resources, especially sensitive/at-risk aquatic species habitat and drinking water supplies. Despite the recognized importance of the priority watersheds and these goals to maintain and improve water quality there, the draft plan would make most of these watersheds available for oil and gas leasing for vertical drilling. Many threatened, endangered, and sensitive aquatic species are located in watersheds overlying Marcellus shale and thus will be potentially affected by gas development. (DEIS, 3-347 to 352) In these priority watersheds, about 87% of the national forest land is proposed to be available for oil and gas leasing.

Combining these priority watersheds with the Wild Virginia-identified local drinking watersheds yields the same result. As noted above, in total about 87% of the national forest land in both types of watersheds is proposed to be available for oil and gas leasing. Making these areas available for oil and gas leasing would adversely affect water quality here, rather than improve it, and therefore would run counter to the goals and objectives identified for these watersheds. Instead, all priority watersheds and other watersheds which supply local drinking water, as identified in Wild Virginia‘s report, should be unavailable for federal oil and gas leasing to protect drinking water sources, sensitive species, and impaired streams.

The goal of the management prescription for Eligible Scenic Rivers is to protect and enhance their ―outstandingly remarkable scenic and geologic values‖ and ―perpetuate the undeveloped setting and non-motorized access that led to the ‗scenic‘ classification.‖ (Draft Plan, 4-35) The characteristics of the river are not to be reduced below the standards for Scenic River classification and the corridor should exist in a ―natural to near-natural setting and possess outstanding scenic quality.‖ Id. Modification of the river or its channel is prohibited except for fisheries habitat improvements. (Id. at 4-36) Visitors should ―have the opportunity to experience some solitude and enjoy the primitive character of the surrounding landscape.‖ Id. Timber harvest and road construction are prohibited in this area (Id. at 4-37 to 4-38), but oil and gas development with surface occupancy would entail forest clearing and access road construction. Oil and gas leasing with CSU stipulations would conflict with the scenic objectives of this management area, despite a vague plan standard that calls for consistency between management activities and the ―outstandingly remarkable‖ values of the river. (Id. at 4-36)

For eligible recreational rivers, the FS asserts that the sight of mineral development is acceptable and the goal is to ―blend these uses into the background so that they remain visually subordinate to the natural landscape.‖ (Id. at 4-39) Quite to the contrary, the sight of gas development is unacceptable in these areas. While the Wild & Scenic Rivers Act states generally that recreational river areas ―may have some development along their shorelines‖ (16 U.S.C. 1273(b)(3)), the Act withdraws all land within one-quarter mile of the bank of any designated river from federal

mineral leasing. (16 U.S.C. § 1280(a)(iii)) The Act calls for regulations to ―provide safeguards against pollution of the river involved and unnecessary impairment of the scenery.‖ (16 U.S.C. § 1280) A river's recreational value is in large part derived from its scenic beauty, and the sight of major industrial gas development activities would surely make a river less attractive for recreation and jeopardize its eligibility for recreational river designation under the Act. The eligible scenic and recreational river corridors should not be available for leasing and drilling, because those activities would impermissibly degrade and potentially destroy the outstanding values that make them eligible for designation, and there is no evidence that the proposed CSU stipulations can protect those values. (FSH 1909.12, Ch. 82.51)

Management focus in geologic areas is on the protection and showcasing of unique and scenic geologic resources. (Draft Plan, 4-50) Management activities are designed to meet or exceed a High Scenic Integrity Objective. (Id. at 4-51) Timber harvest and new road construction are not allowed, but as in the eligible scenic and recreational river areas, this rule would necessarily be broken if gas leasing were permitted. Id. Oil and gas development in these areas would be especially threatening to sensitive geologic conditions associated with karst, including groundwater sources. Plan standards call for the protection of karst areas from detrimental human-caused hydrologic and habitat modification. Id. at 4-50. It is unclear how this would be accomplished if oil and gas leasing were permitted.

Special Biological Areas (SBAs) ―serve as core areas for conservation of the most significant and rarer elements of biological diversity identified to date on the Forest.‖ (Draft Plan, 4-53) The goal is to protect and increase the number of species and communities that are threatened, endangered, sensitive, or locally rare. Id. Yet plan standards would still allow for oil and gas leasing in SBAs, including construction of roads, wells, and other infrastructure necessary for leasing activities. (Id. at 4-56) The disturbance and even elimination of habitat caused by leasing activities would be inconsistent with the desired condition of SBAs, and the plan and DEIS do not explain how lease stipulations would prevent or mitigate adverse impacts on species and communities.

Further, the DEIS asserts that the needs of many rare species/communities will be addressed by protecting them in SBAs. (DEIS, 377; Appendix H, Table H-1) The DEIS also relies on the Maple Flats SBA to protect the Eastern Tiger Salamander and on the Paddy Run ―emphasis area‖ to protect the Wood Turtle. (DEIS, Appendix G, G-54-57) Yet these areas are proposed to be available for gas leasing for vertical drilling, which would adversely affect the species these areas ostensibly were created to protect. In order to justifiably rely on the SBAs and emphasis areas to meet legal requirements to maintain species viability and diversity, these areas must be unavailable for leasing and drilling.

The emphasis in Key Natural Heritage Community Areas is on ―[h]igh quality examples of vegetation communities that . . . have distinctive characteristics needing management direction to maintain their character . . . .‖ (Id. at 4-58) These existing old growth areas are managed to maintain the unusual character of the vegetation and protect against human-caused detrimental habitat change. The draft plan standards are identical to those issued for SBAs. Surface occupancy for drilling activities and associated forest clearing and access road construction obviously would destroy the old growth that is the very basis for the Key Natural Heritage

Community designation and clearly would be totally incompatible with the goal of preserving that rare old growth habitat.

The Highlands Scenic Byway is a 19.6-mile loop that ―showcases the natural scenery, forest vegetation, cultural and geologic resources, and FS management of these resources that were the basis for the scenic byway designation.‖ (Draft Plan, 4-69) Management activities are intended to maintain or improve biological communities and the scenic qualities of the area to make it attractive to visitors. Id. Scenic corridors are characterized by ―high quality scenery in an environment conducive to a variety of recreational experiences.‖ (Id. at 4-72) Any human alterations to the environment should ―fit well with the character of the surrounding landscape. Other management activities are not evident to the average visitor.‖ (Id. at 4-73) The presence of gas development activities in these areas would plainly conflict with the desired scenic conditions.

Concentrated Recreation Zones and Scenic Corridors are intended to provide a variety of recreational opportunities. In Concentrated Recreation Zones, facilities are visually subordinate to the land and plan standards call for a landscape that is ―natural appearing, pastoral, or historic with variations created by the recreational facilities.‖ (Draft Plan, 4-84) As with the Scenic Corridors, oil and gas development would conflict with the preservation of scenic values in these areas. Dispersed Recreation Areas should also ―showcase high quality scenery,‖ though the sights and sounds of cars and other visitors are to be expected. (Id. at 4-86) The priority in these areas are to protect against compromising the recreational value of these areas and, therefore, oil and gas exploration and leasing should not be allowed.

Views from the Blue Ridge Parkway should ―appear natural and retain a High to Very High scenic integrity.‖ (Draft Plan, 4-89) Road corridor improvements and interpretive facilities are allowed, but must blend in with the natural environment. Id. Forest management activities should not be evident to the average visitor. Id. It seems likely that access roads, well pads, and other infrastructure associated with natural gas extraction would inevitably be visible from the parkway, ruining the scenic value of the corridor.

The draft plan calls for habitats in this prescription area to be managed to maintain, restore, and enhance Indiana Bat populations. (Draft Plan, 4-98) There will be a 1.5-mile buffer around each primary cave protection area with ―limited disturbance,‖ the definition of which is unclear. (Id. at 4-99) Oil and gas leasing is allowed with a timing stipulation to protect bat habitat from September 15 to November 15. (Id. at 4-104) Yet gas development that occurs outside of this window could still adversely modify bat habitat and the areas surrounding such habitat due to forest clearing and access road construction. Also, as the DEIS acknowledges, ―[a]utumn swarming and spring staging typically occur in woodlands near the hibernacula,‖ when the timing stipulation would be inoperative. (DEIS, 3-83) Clearly the preferred alternative is deficient to protect Indiana Bat populations and oil and gas leasing should not be allowed in these areas.

Shenandoah Mountain Crest is managed to ―protect and/or enhance habitat for the Cow Knob salamander and for other outstanding natural biological values.‖ (Draft Plan, 4-105) The desired condition includes minimizing areas without vegetation except where desired to benefit certain species or ecological systems. Id. The standards also call for all management activities to meet a High Scenic Integrity Objective. Id. at 4-108. Given the threat of adverse habitat modification

posed by forest clearing and construction activities associated with gas development, CSU stipulations are inadequate to protect this area and the at-risk species it supports, and all oil and gas leasing should be an incompatible use of this area.

Several of the Pastoral Landscape prescription areas are located along important rivers which should not be available for oil and gas leasing. For example, the pastoral areas alongside the South Fork of the Shenandoah River (on the east side of Massanutten Mountain), are proposed to be available for leasing. Gas development would likely be very damaging to this area, particularly to water quality, the multiple Forest Service recreation sites, and the high recreation use here, and would be totally inappropriate for this important riverside land. The pastoral areas along the Cowpasture River (the highest quality river of its size in the state of Virginia) and in the headwaters of the North Fork of the Shenandoah River (which supplies the town of Broadway with drinking water) should also be unavailable for leasing.

Riparian corridors should be managed to ―retain, restore, and/or enhance the inherent ecological processes and functions of the associated aquatic, riparian, and upland components within the corridor.‖ (Draft Plan, 4-109) While evidence of human activity may be present, human-caused modifications that cause environmental degradation are promptly rehabilitated or mitigated. Id. The corridor should be maintained as a travelway for aquatic and terrestrial organisms that maintains gene flow, keeping populations genetically viable. (Id. at 4-110) In-stream connectivity is preserved, as is habitat suitable for riparian animal species and vegetative communities that are diverse and productive. Id. The landscape appearance is mostly natural, with limited exceptions for pastoral settings and recreation development. Id. The maintenance of high water quality, physical integrity of aquatic systems, and biological integrity are of utmost importance in these areas, and would all be threatened by gas leasing. The standards mandate that human-caused disturbances that cause erosion or sedimentation be rehabilitated or mitigated to reduce or eliminate impacts. (Id. at 4-112) But this directive to offset impacts after the area is disturbed hardly ensures the corridor‘s ecological integrity. All riparian corridors should be unavailable for oil and gas leasing.

The semi-primitive areas inventoried by the GW should be unavailable for oil and gas leasing. These unfragmented, core, interior forest areas are important for wildlife habitat, as well as remote recreation, and the lack of disturbance in these areas generally results in high-quality streams. The absence or infrequency of fragmentation, edge effects, ground disturbance, roads, and motorized use in these areas often results in low incidence and spread of non-native invasive species (NNIS) there. All these values would be degraded by oil and gas development in these areas.

XIV. Wind Energy

53. The DEIS fails to consider all of the cumulative environmental impacts of the preferred alternative relative to wind energy generation.

54. The DEIS fails to consider the long term Net Public Benefits associated with wind energy on the full range of alternatives considered.

We are very concerned about the potential for industrial scale wind energy projects that the draft plan allows. We recognize the need to shift to renewable energy sources for producing electricity in the United States. The environmental benefits of moving away from fossil fuels, nuclear power, and other common sources of generating electricity are numerous and significant. However, the preferred alternative should not allow siting large wind turbines on the ridgelines of the GW.

The draft plan identifies 11 management prescription areas, totaling approximately 456,000 acres, as unsuitable for utility scale wind energy development. This leaves roughly 610,000 acres of the GW available for consideration of wind energy projects. Of this, 39,236 acres of ridge crest, is judged ―suitable for consideration of wind energy development‖ (based on areas classified in wind power classes 3 through 7). Due to the inevitable impact on wildlife and habitat, all areas of the GW are inappropriate for large scale wind energy projects. The benefits of this type of development in GW have not been demonstrated, but the direct impacts to wildlife, habitat fragmentation, ground disturbance, water resource degradation, and industrial intrusion on forested mountain landscape that would result are clear.

Any consideration of wind energy development on the GW should involve National Environmental Policy Act review, including objective assessment of both costs and benefits. The final plan should include an explicit standard requiring that any permit application for any project related to wind energy development shall include reviewable data and analysis that quantifies any purported benefits associated with the particular proposed project.

Although large-scale wind energy development has been promoted as part of the solution to some of our most pressing energy and environmental challenges, the limited available analysis indicates that wind energy is, at best, only a small part of the solution. Wind energy is highly diffuse and intermittent, and wind energy development requires a large footprint to generate relatively small amounts of electricity. A 2007 National Research Council report, *Environmental Impacts of Wind Energy Projects*, incorporated herein by reference, found that the most ambitious level of onshore wind development could satisfy only 3.5 to 19% of the projected increase in U.S. electricity demand through 2020 and offset U.S. carbon emissions by only 1.2 to 4.5%. Given that 95% of the U.S. onshore wind resource is located in the western part of the country, the potential contribution of wind energy development on central Appalachian ridges is substantially less (National Research Council, 2007. Environmental Impacts of Wind Energy Projects. Washington, DC: National Academy Press, http://www.nap.edu/catalog/11935.html.)

In addition to other environmental damage associated with wind energy development, impact with wind turbines is a significant cause of bird mortality. In 2009, the U.S. Fish and Wildlife Service estimated that 440,000 birds are killed at wind farms each year (A. Manville. 2009. Towers, Turbines, Power Lines and Buildings – Steps Being Taken by the US Fish & Wildlife Service to Avoid or Minimize Take of Migratory Birds at These Structures. Proceedings of the Fourth International Partners In Flight Conference). Sadly, the direct mortality of birds by wind turbines has not been adequately studied to this point in time. This lack of data is true of the ridgelines of the Appalachian and Alleghany Mountains, where migrating songbirds and raptors often occur in great numbers.

It is widely known that many raptors, and golden eagles (*Aquila chrysaetos*) in particular, are susceptible to collisions with turbine blades. Recent research has shown that the population of golden eagles in eastern North America is small, and that a large proportion of these birds both travel through and overwinter in the Appalachian Mountains. Although the golden eagle is rare in the eastern U.S., recent research has shown that wintering golden eagles often concentrate on forested ridges in the central Appalachian region. These are the same areas that show the most potential for wind energy development in the GW. Given the significant risk to these birds posed by wind development, areas of coincident golden eagle use and potential wind energy development should be carefully determined before any decisions are made to allow wind development in the GW. We also recommend adherence to the requirements of the Bald and Golden Eagle Protection Act a prerequisite for wind project consideration.

The potential impacts of wind turbines to bat populations are even less studied and known than potential impacts to birds. The federally endangered Indiana bat (*Myotis sodalis*) occurs in the GW. The federally endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*) occurs on private lands near the GW, though no known hibernacula or summer roosts have been documented in the GW. The bats likely fly over and forage in the GW though (DEIS, Appendix F)

Of tremendous concern is the white-nose syndrome (WNS) that is decimating bat populations in the northeastern U.S. and beyond. Since first observed in 2006 in New York, it has been blamed for the death of more than 1 million bats and has spread to many states, including Virginia and West Virginia. It is a threat to many species of bats, and is known to occur in Indiana bats. Scientists fear WNS is a threat to Virginia big-eared bats as well, as the fungus that causes the syndrome, *Geomyces destructans*, has been found in caves where the bat hibernates (Smithsonian Conservation Biology Institute website, 09 Oct. 2011, http://nationalzoo.si.edu/scbi/SpeciesSurvival/VirgianiaBigEaredBats/default.cfm). Given existing threats to bat species, particularly these two endangered species, the additional threat posed by industrial scale wind energy development should not be allowed in the GW.

It is important to note that birds and bats are threatened not only by mortality from collisions with wind turbine blades, but from degradation, fragmentation, and loss of habitat as well. Development of industrial wind facilities (generally requiring 2-5 acres of cleared land for each industrial sized wind turbine), transmission-line corridors, and corresponding access roads will negatively impact populations of many wildlife species through habitat loss and damage.

One of the perceived benefits of wind energy production is a reduction in greenhouse gas emissions when generating electricity, thus reducing a primary cause of global warming. It is highly ironic then, that some of the most critical natural areas required by flora and fauna in adapting to climate change – the ridgeline and high elevation areas of the eastern mountains – will be removed if wind energy facilities are developed. The need for animal and plant populations to move along both elevation and latitudinal gradients in response to changing climate conditions will be severely impacted by eliminating or degrading these very habitat areas.

XV. Water Resources

55. The desired conditions in the Preferred Alternative for watersheds insufficient to be of practical use in managing the GW.

56. The Preferred Alternative fails to set clear criterion and standards for Priority Watersheds, making their delineations unclear meaningless.

57. The DEIS fails to consider the value of preserving water quality, protecting all drinking water watersheds and riparian areas and the costs of sedimentation in any long term Net Public Benefits analysis across the range of alternatives considered.

We are glad to see the increased attention the draft plan places on watersheds and water resources compared to the current (1993) plan. We believe more protective measures for water resources are needed though. Specific management objectives for the two watershed types identified in the draft plan – Drinking Watersheds and Priority Watersheds - should be part of the final forest plan. The desired conditions for watersheds (Plan, page 2-3) are too general to be of practical use in managing the GW. Similarly, the five objectives for Watershed Resources (Plan, 3-4) lack sufficient definition of terms (e.g., ―restored, sustained or enhanced‖, ―appropriate instream habitat‖, ―healthy biological communities‖, etc.) or detail to be quantifiable and are too general to be useful in managing the GW.

As a practical matter, quantifiable objectives in forest plans often lead to targets and specific projects to implement them, while more general goals fall by the wayside. Without clear restoration objectives and management standards for these watersheds, it is difficult to have confidence that specific restoration projects will move forward in these watersheds or even that these watersheds will receive enhanced consideration and protection during project planning.

We are troubled by the large area of the GW that is open to road building in the draft plan. Roughly 92% of the GW would be open to either permanent or temporary road construction. According to Table 3.5 (page 3-27, draft plan), only seven prescription management areas totaling 83,000 acres completely prohibit both permanent and temporary road construction. This has serious implications for sedimentation and water quality.

Forest Service roads in the GW, both permanent and temporary, negatively affect water quality by funneling or conveying sediment-laden runoff to nearby streams. Comments submitted by Southern Environmental Law Center, Southern Appalachian Forest Coalition, and The Wilderness Society on October 17, 2011, point out agency responsibilities relative to roads and the forest-wide road system under the Clean Water Act and other federal or agency mandates. We incorporate the referenced comments herein.

Unfortunately, much of the land in important watersheds of the GW is open to road building. Again based on prescription management areas, our GIS analysis indicates that 94% of the Drinking Watersheds land, 88% of the Priority Watersheds land, and 92% of ―local drinking watersheds‖ land (from the 2008 report from Wild Virginia, *The State of Our Water*) are available to either permanent or temporary road construction.

Similarly, much of the land in the three watershed areas is considered Suitable for Timber Production. The 438,000 acres of the GW that are suitable in the draft plan represents roughly 41% of the total land base. Approximately one third, or 33%, of the Drinking Watershed lands are considered suitable. Priority Watersheds contain approximately 36% of lands in the suitable category, and ―local drinking watersheds‖ contain approximately 39%. These percentages are only slightly below the forest-wide average, and fail to adequately address water quality issues in these watersheds. In watersheds already identified as priorities for restoration, road construction and other ground-disturbing activities that adversely affect water quality, rather than improving it, should be more limited.

The nine watersheds and approximately 73,000 acres in Drinking Watersheds are based on the definition of Public Water Supplies (PWS) described in the Virginia Water Quality Standards (found at www.deq.state.va.us/wqs/documents/WQS_eff_6JAN2011.pdf). We believe this is a very limited perspective on lands in the GW that supply drinking water to local communities. As one example, headwater areas are often excluded from the PWS watersheds (see discussion in following paragraph). We believe the ―local drinking watersheds‖ identified in *The State of Our Water*, composed of approximately 426,000 acres in Virginia, are much more accurate and realistic data for indicating sources of public drinking water.

State defined Public Water Supplies often, but not always, limit the geographic extent of watersheds to 5 miles upstream of a water intake point. In the GW, Pedlar River and Dry River watersheds are examples of this. The entirety of the watersheds are not included as PWS (and thus Drinking Watersheds in the draft plan). The North River watershed upstream of the Staunton Reservoir is an exception to the normal PWS definition, and rightly includes the headwaters area in the watershed.

Staff members of the GW, in developing the draft plan, wisely added the Skidmore Fork watershed (upstream of Switzer Lake) to the Dry River watershed (R. Patton, personal communication with David Hannah, Aug. 2011), thus including more (but not all) of the Dry River watershed in Drinking Watersheds. We strongly believe the full geographic extent of both the Dry River and Pedlar River watersheds, including all headwaters areas, should be included in Drinking Watersheds.

Identifying priority watersheds is a good concept, but the draft plan does not adequately describe how or why the watersheds were selected. The draft plan (Plan, 2-2) states only the intent to ―highlight those watersheds with sensitive aquatic species, currently identified water quality concerns due to private land or natural causes (impaired streams), and watersheds providing drinking water.‖ This explanation does not allow anyone to review the process or results in a meaningful way. The complete methodology for identifying and designating 36 priority watersheds and approximately 440,000 acres must be part of the forest plan.

Less than half, approximately 46%, of the acreage in Priory Watersheds occurs within ―local drinking watersheds.‖ This seems to lessen the importance in the draft plan of protecting all drinking water resources in the GW.

Priority Watersheds include almost all of the nine Drinking Watersheds. There are two exceptions though. The areas described below are not within Priority Watersheds, but should be included in them in the final plan. A very rough size estimation is 2300 acres in the two areas combined.

> The ―North Fork Shenandoah‖ Drinking Watershed. A small part of this watershed is in the GW but not included in a Priority Watershed. The area is on the northwestern edge of Massanutten Mountain, upstream of the Strasburg water intake point.
>
> The ―NF Shenandoah-Cedar Creek‖ Drinking Watershed. There is considerable overlap of this watershed and the GW. Most of the GW lands are in a Priority Watershed (Paddy Run-Cedar Creek). But two areas of the forest inside the Drinking Watershed are outside a Priority Watershed. One area is at the very northern tip of Massanutten Mountain. The second area is at the very northeastern end of the Lee RD (west of Massanutten Mountain and north of Big Schloss).

Riparian areas in the GW deserve special attention. Riparian corridors should be wider than 100 feet along perennial streams and 50 feet along intermittent streams specified forest-wide (in areas where the slope of the ground is 10% or less), as the draft plan calls for. These are the minimum widths required so as not to negatively impact aquatic species. The widths should be significantly expanded to improve water quality and aquatic habitat and provide riparian habitat for many species (e.g., salamanders, turtles) that use these special areas. The Draft Evaluation of the Need for Change (Forest Service document dated March 2010) has a good discussion of Riparian Resources and related topics. Viewpoint 1 (page 33, and additional discussion on page 39) provides good information on the need to adequately protect intermittent (and ephemeral) streams and the large variety of wildlife species that benefit from wide riparian buffers along all streams.

A variety of disturbances are allowed inside riparian corridors under the draft plan. Permissible activities and facilities, under some conditions, include oil and gas leasing, timber harvest, grazing, roads, motorized trails, and recreation facilities (pages 4-114 to 116). These or other disturbances that concentrate runoff, cause erosion, or transport sediment into stream channels only need to be rehabilitated or mitigated to reduce or eliminate impacts (page 4-112). That is, the disturbance does not necessarily have to be eliminated. These conditions can be harmful to forest resources. Wider riparian corridors are one means to minimize and help mitigate the potential negative impacts.

Appendix A of the draft plan (page A-3) states ―*This Forest Plan meets or exceeds State Best Management Practices*‖, but this is not entirely accurate. On sloping lands (slope class of 11% and higher), the draft plan requirements are less stringent than the Virginia Best Management Practices (BMPs). State BMPs call for streamside management zones along Municipal Water Supplies (including both perennial and intermittent streams) to be 150 feet wide where the slope of the ground is 11-45%, and 200 feet wide where the slope exceeds 45% (Virginia‘s Forestry Best Management Practices for Water Quality, 5th edition, March 2011, page 37). These exceed the draft plan riparian corridor widths for both permanent and intermittent streams. At a minimum, the riparian corridor widths in ―local drinking watersheds‖, Priority, and Drinking Watersheds of the GW should meet these state BMPs.

Sedimentation is a large threat to water quality everywhere, including the GW. A number of Forest Service documents state ―*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.‖ (e.g., 2007 Environmental Assessment, Cubville Project, Warm Springs Ranger District) The DEIS (page 3-40) also describes sedimentation as the largest potential impact on water quality stemming from forest management activities.

Despite its threat, sedimentation is not directly measured or monitored under the draft plan. Instead, quantifying the number of acres of soil disturbance will be used as a proxy for direct measurement. This is wholly inadequate to account for the impacts of sedimentation. Among other things, all ground disturbing activities are assumed to have equal impact with regard to sedimentation and site-specific conditions are not taken into account (e.g., proximity of streams or other waterways, soil conditions, slope, existing ground disturbance, etc.).

According to Table A6.3 of the DEIS (page 3-50), the draft plan would result in the second highest amount of soil disturbance of all the plan alternatives (315 to 407 acres). Even though using acres of soil disturbed as a proxy for sedimentation could be highly inaccurate, the draft plan would have the second greatest impact on sediment and water quality, according to the DEIS. This is troubling in light of the fact that many sixth-level watersheds in the GW are already ―functioning at risk‖ (Forest Service Watershed Condition Classification – Region 8, http://www.fs.fed.us/publications/watershed/).

The final plan for the GW should minimize ground disturbance and the resulting sedimentation in the GW. Measuring sedimentation in strategic locations and waterways must be part of the final plan. Monitoring and measuring sediment will complement the macroinvertebrate sampling in the GW streams and should be part of forest management.

XVI. Wild and Scenic Rivers

58. The DEIS violates NEPA in that it fails to evaluate all rivers and river segments considered eligible for Wild and Scenic River designation.

59. The DEIS fails to consider an alternative which maximizes the designation of eligible rivers and river segments for Wild and Scenic River designation.

60. The DEIS fails to evaluate the long term Net Public Benefts of Wild and Scenic River designations across the full range of alternatives considered.

There are numerous rivers or river segments within the GWNF purchase boundary that are eligible for designation under the Wild and Scenic Rivers Act, yet many of these were not fully evaluated by agency planners.

The following streams need to be evaluated: Trout Run, Waites Run, Stony Creek (North of Bayse), German River, Benson Run, Stuart Run, Mill Creek (Maury River), Wilson Cr, Mill Creek (Cowpasture River), Jim Dave Run, Potts Creek, Little Back Creek, Crow Run, Little Crow Run, and Big Marys. Other streams that were recommended for consideration by the public should be evaluated as well.

The Forest Service must ―[a]lso give consideration to rivers identified in the Pacific Northwest Rivers Study, in State river assessments, or by other Federal or State agencies or by private interests.‖, FSH 1909.12 § 8.11, and NEPA.

Trout-bearing waters listed in Commonwealth of Va. 9 VAC 265-260-00 et seq., which are some of the highest quality waterways in Va., should have received consideration as potential W&S rivers.

The importance of the ―Fisheries/Aquatic‖ and ―Botanical/Ecological‖ outstandingly remarkable values should have been clearly articulated and clear standards should have been established for protecting and maintaining resources. This is particularly important in western Virginia. In the southern Appalachians, rivers and streams are some of the most important components of overall biological diversity. Nearly 400 rare species have important local populations in streams and rivers of the southern Appalachians.

The highest diversity of mussels in the world and the highest diversity of freshwater fish, crayfish, and snails is at stake in the southern Appalachians. Approximately 33% of freshwater fish, 50% of mussels, and 75% of crayfish are now at risk (SAA, SAFC?GA Forest Watch, ―Streams of Diversity‖). According to a study commissioned by the American Fisheries Society Endangered Species Committee, there are ―297 native freshwater mussels (in the United States and Canada), of which 213 taxa (71.7%) are considered endangered, threatened or of special concern…and only 70 (23.6%) as currently stable…freshwater mussels (also called unionids, naiads or clams) of the families Margaritiferidae and Unionidae are worldwide in distribution but reach their greatest diversity on North America with about 297 recognized taxa During the past 30 years, numbers both of individual and species diversity of native mussels have declined throughout the United States and Canada. Freshwater Mussels (as well as other aquatic species) are imperiled disproportionately relative to terrestrial species. This alarming decline, the severity of which was not recognized until recently, is primarily the result of habitat destruction and degradation associated with adverse anthropogenic activities.‖ (Williams, Warren, Cummings, Harris and Neves, 1993) For example, at its peak, the James spinymussel (Pleurobema collina) was distributed from a location a few miles upstream of Richmond, VA and throughout the James River basin upstream. Since that time, its range has been reduced by approximately 90% (Clarke and Neves, 1984). The James Spineymussel nor survives in a few small tributaries of the James (Terewilliger, ed., 1991) Mussels are highly sensitive to sedimentation and contaminants. (Intro. To mollusks section, Neves, Virginia‘s Endangered Species, ibid.). Protection of ecological values in rivers and streams are a critical priority in decisions made under this plan.

Unfortunately, both Potts Creek and Mill Creek were excluded from proper analysis, even though they ―provide habitat for the [endangered] James spinymussel.‖ (DEIS D-1). Other waterways that provide habitat for important TESLR aquatic species may have been excluded as well.

Under the agency‘s own analysis of the issue of consenting to the availability of the Jefferson National Forest for oil and gas well leasing, the failure to determine these recommended rivers as eligible for Wild and Scenic River designation makes them unavailable for such during the

planning period, and results in an irretrievable commitment of resources during the planning period, in violation of NEPA. (Jefferson FEIS, 3-426)

The FS needs to ensure that all corridor widths are adequate to protect and maintain the Outstandingly Remarkable Values of these waterways. In addition, Wild and Scenic River Corridors should not be assumed to exclude the headwaters and upper tributaries of eligible waters where inclusion of such areas is feasible. The headwaters of stream and river systems are of utmost importance because they are the source of our clean water. If they are degraded, downstream resources are also at risk of becoming degraded.

The FS should have looked at what W&S river protections, combined with other prescriptions that benefit water quality and fisheries, would best serve to protect at risk aquatic ecological communities. This would include carefully looking at the geometric shapes and corridor widths that are needed to maintain intact watersheds that contribute to the highest water quality.

XVII. Management Prescriptions

61. The Preferred Alternative violates NFMA by failing to consider a management prescription as "suitable for timber harvest".

The National Forest Management Act, 1982 Regulations insure that ―land management plans are prepared in accordance with the National Environmental Policy Act of 1969 (and) require the identification of the suitability of lands for resource management,‖ (36 CFR Sec. 1604, 1-2A). The Preferred Alternative, unlike the 1982 Plan, fails to include a management prescription as ―suitable for timber harvest.‖ Instead, vague stipulations are made and inferred of different management prescriptions that may include timber harvest. In so doing, it is unclear just which areas of the forest are suitable for timber harvest and obfuscates the clarity that NFMA requires.

XVIII. Climate Change

62. The Draft Plan and DEIS fail to provide a monitoring framework that identifies measurable goals and objectives for climate adaptation and mitigation and monitors progress towards them.

63. The Draft Plan and DEIS fail to adequately address basic considerations of climate change.

64. The DEIS fails to compare long term Net Public Benefits of the range of alternatives with respect to climate change mitigation, CO2 emmissions or carbon sequestration.

Global Climate Change is one of the most serious environmental, social, and economic threats the world is facing today. Global climate is influenced by changes in land cover. Large-scale conversions of forestland into agricultural land or urban development reduce carbon storage and the potential for sequestration and thus contribute to the build-up of carbon dioxide in the atmosphere. Global warming can affect forests by introducing new invasive plants, insects, and animals that expand their range as temperatures increase. Also, the forest could be put under

increased stress from extreme weather events, changed weather patterns and seasons (warmer winters, for example), and increased likelihood of drought and forest fires.

Changing climate affects areas as forest types change, species find areas to establish populations outside their present or historical range and as weather patterns change which can effect all ecological parameters (for instance, air and water quality and temperature, increased intense weather events-drought or deluge-, etc). The retention and restoration of full altitudinal gradients is of crucial importance in order to accommodate faunal and floral population/community shifts upslope to cooler conditions in response to climate change. (Graham, R.W. 1988).

The warming of the atmosphere is linked to increased concentrations of greenhouse gases, including increases in carbon dioxide from changes in land management. Even though forests in the U.S. have acted as net carbon sinks since the 1950s, the annual additions to the sink (sequestration) appear to be declining. The Environmental Protection Agency lists the following forestry practices that can sequester carbon or preserve carbon storage: afforestation, reforestation, avoided logging, and longer harvest-regeneration cycles.

Obviously, planned logging and burning and taking out vegetation for other reasons do not increase the capacity of the GW as a carbon sink. "In fact, young forests rather than old-growth forests are very often conspicuous sources of CO2 because the creation of new forests (whether naturally or by humans) frequently follows disturbance to soil and the previous vegetation, resulting in a decomposition rate of coarse woody debris, litter and soil organic matter that exceeds the NPP (net primary production) of the regrowth." Luyssaert et. al. 2008. Old-growth forests as global carbon sinks. Nature, Vol 455|11

The proposed Plan and DEIS discuss climate adaptation and mitigation fairly thoroughly. Six strategies are outlined in the Plan for climate adaptation and mitigation:
1) reducing vulnerability by maintaining and restoring resilient native ecosystems; 2) providing watershed health; 3)providing carbon sinks for sequestration; 4) reducing existing stresses; 5) responding to demands for cleaner energy including renewable or alternative energy; and 6) providing sustainable operations and engaging in partnerships across landscapes and ownerships. (Plan 3-12)

However, these strategies do not seem to lead to any measurable goals or outcomes or other Plan direction where success or failure can be gauged. The above strategies could be attached to specific outcomes: e.g. forest restored to natural range of variation; watersheds restored to functioning condition class; estimates of carbon sequestered. While there are uncertainties in climate change and in specific targets that would make accomplishments within the strategies outlined, this is an excellent candidate for the adaptive management that the Draft Plan talks about as a means of dealing with uncertainty.

The Directive from the Chief, *Climate Change Considerations in Land Management Plan Revisions*; January 20, 2010 directs forest planning to ―place increased value on monitoring and trend data to understand actual climate change implications to local natural resource management.‖ Monitoring of climate change factors or of any measures of the strategies above is not mentioned in the Draft Plan. The list of ―Monitoring Tasks‖ in Appendix H of the Draft Plan

does not list any items related to climate change or relating to the Draft Plan strategies. It is essential that the Plan incorporate measurable outcomes to measure the success of climate strategies so that the climate strategies can become a part of adaptive management.

Furthermore, the Chief‘s direction on climate change lists two basic considerations for evaluating climate change: How climate change is likely to modify conditions on the planning unit and how management of the planning unit may influence levels of global greenhouse gases and thus climate change? (Climate Change Considerations in Land Management Plan Revisions; January 20, 2010; p. 2)

The Draft Plan and DEIS discuss climate change and potential effects of climate change at length. However, this discussion does not actually address the two key considerations quoted above and does not lead to any direction within the Draft Plan that addresses climate change. The direction states: ―most of the focus of the evaluation for plan revision will be to understand how climate change is affecting the planning unit to determine what parts of the plan need to be changed to maintain the commitment to sustainability….tThe evaluation should also include some discussion of how management of the planning unit may influence climate change. This would usually be limited to how the planning unit contributes to or mitigates the build up of greenhouse gases in the atmosphere. (Ibid. p2)

The DEIS and Plan fail to create elements that would address sustainability and that would provide direction of how the plan contributes to or mitigates CO2 releases forest wide.

Aside from a very general discussion of carbon sequestration, the Draft Plan is fairly silent on this issue. The plan does state, however, that ―sustainable forestry practices can increase the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run. *The most defensible options for managing forests for their carbon storage are keeping forests as forests*, reforesting areas where forests historically occurred, using forest biomass to offset fossil-fuel use (burning forest biomass generally means that fossil fuel will not be burned), and promoting long-lived forest products such as wood-framed buildings. Forests (particularly older forests) generally store carbon better than forest products, so harvesting old-growth forests for their forest products is not an effective carbon conservation strategy (Harmon et al. 1990). However, harvest and regeneration of young to middle-aged forests for long-lived forest products can help with carbon storage (Ryan 2008). The Plan provides for a diversity of ages and structure in the forest to provide multiple strategies for addressing carbon storage. (Plan, 3-14)

But this discussion seems designed to justify maintaining a status quo in the Draft Plan, rather than addressing the issue with specific measures that could be monitored and lead to adaptive management. No Plan direction or measurable items come out of this discussion. The implicit argument seems to be that plan direction coming out of other plan elements is just the right choice. Yet this determination is made without testing assumptions that can be tested. Forest conditions that can be monitored lead to implications for carbon sequestration and climate mitigation. Carbon sequestration can be modeled and estimated under different management scenarios. Different management scenarios in different alternatives are not compared in the DEIS for their potential for

carbon sequestration. The Final Plan and EIS must address the implications of different plan alternatives for carbon sequestration and climate mitigation.

The document gives no justification for the assumption that replacing fossil fuels with forest biomass, suggesting implicitly that this will somehow reduce net carbon emissions. Quite to the contrary, substituting biomass incineration for the burning of fossil fuels increases CO2 emissions and compromises the ability of standing forests and forest soils to sequester carbon storage in the short or long term.

XIX. System Roads and the Clean Water Act

65. The DEIS fails to consider system roads and roadbuilding as point sources of pollution under the Clean Water Act.

66. The DEIS fails to consider the long term Net Public Benefits to closing and decommissioning roads relative to sedimentation and clean water values and the costs of maintaining roads over the entire range of alternatives presented.

Section 402 of the Clean Water Act (CWA) requires an NPDES permit for all point source discharges of pollution. Sand and dirt, which are the primary components of sediment, are listed as pollutants under the CWA. See 33 U.S.C. § 1362(6). The CWA defines ―point source‖ as ―any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.‖ (33 U.S.C. § 1362(14).)

Thus, the text of the CWA makes clear that, should any road runoff be collected in ditches, gullies, culverts, or channels, the Forest Service must obtain an NPDES permit for that runoff. The GW should consider whether sediment-laden runoff from forest system roads that enters streams and rivers constitutes such point source discharges.

Recent court decisions have held that stormwater runoff that flows off roads into a system of ditches, culverts, or channels before entering streams or rivers qualifies as point source pollution and must be regulated as such under the CWA. The most recent case is NorthwestEnvtl.Def. Centerv.Brown, 640 F.3d 1063 (9th Cir. 2011), where the court held that stormwater runoff from logging roads ―collected by and then discharged from a system of ditches, culverts and channels‖ was a point source discharge. (Id. at 1087) The court rejected the EPA‘s attempt, through promulgation of the Silvicultural Rule, to exempt from regulation all stormwater runoff associated with silvicultural activities, including runoff from forest roads. Id. at 1079.This would be inconsistent with the CWA, which plainly prohibits the discharge of any pollutant from a point source without a permit, regardless of the manner in which the pollutant, in this case sediment, reaches the point source. Id. In other words, for the purpose of determining whether water pollution originates from a point source, the proper inquiry is into the means of conveyance, and it is irrelevant if the runoff reaches the ―discernible, confined and discrete conveyance‖ through natural means, such as rainfall.

NorthwestEnvtl.Def.Center echoed earlier decisions that also found that natural runoff delivered to streams and rivers through discrete conduits or channels constitutes a point source discharge. SeeEnvtl.Prot.Info.Centerv.PacificLumberCo., 2003 U.S. Dist. LEXIS 25734, at *49-51; North CarolinaShellfishGrowersAss'nv.HollyRidgeAssoc., 278 F.Supp. 2d 654, 675-77, 679-81 (E.D.N.C. 2003).

Many FS roads in the GW have drainage ditches or channels that funnel and convey sediment-laden runoff to streams. As part of its forest and transportation planning process, the Forest Service should identify and document these sources of pollution and address and remediate them. As explained in our comments on water resources, the effect that sediment production has on water quality and aquatic life is a major concern. The fact that this pollution violates the CWA only compounds the problem and reinforces the need for remediation.

Under the FS transportation regulations, for each national forest the agency is ―required to identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands.‖ 36 C.F.R. § 212.5(b)(1). The minimum system is defined as the system ―determined to be needed‖: to meet management objectives in the forest plan; to meet statutory and regulatory requirements; ―to reflect long-term funding expectations‖; and ―to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.‖ Id. Essentially, the minimum road system must be an environmentally and economically sustainable system. This regulation also directs that roads on each forest be reviewed to identify those which are no longer needed, so should be decommissioned or considered for other uses, such as for trails, with ―priority to decommissioning those unneeded roads that pose the greatest risk to public safety or to environmental degradation.‖ 36 C.F.R. § 212.5(b)(2). To accomplish these tasks, the FS Handbook instructs the FS to conduct a travel analysis that takes into account factors such as: ―[e]nvironmental issues, such as soil and water resources, invasive species, and biological communities‖; ―the availability of resources for maintenance and administration of designated roads, trails, and areas‖; and ―[e]conomic costs and benefits.‖ Forest Service Handbook (FSH) 7709.55, Ch. 21.11(1). The Forest Service should ―[e]xamine the major uses and environmental, social, and economic effects of the portion of the forest transportation system under analysis‖ and ―analyze the risks and benefits associated with the current situation.‖ FSH 7709.55, Ch. 21.4(1).

As part of the travel analysis process (TAP) for the plan revision, as well as in the analysis of effects in the DEIS, the Forest Service must consider both the environmental and economic costs of maintaining roads that deliver sediment to streams through discrete channels and are out of compliance with the CWA. Roads that substantially contribute to degradation of water quality should be a high priority for decommissioning.

The DEIS has clearly failed to analyze and consider the long term Net Public Benefits to closing and decommissioning roads relative to sedimentation and clean water values and the costs of maintaining roads over the entire range of alternatives presented.

XX. Non Native Invasive Species (NNIS) and Forest Fragmentation

67. The Draft Plan and DEIS fail to consider forest fragmentation as a significant issue for analysis.

68. The Preferred Alternative and the DEIS fail to consider the role of management activities and roads in the spread and introduction of non-native invasive species.

69. The Preferred Alternative and the DEIS fail to consider "prevention" as a management goal or objective for the control of NNIS.

The UDSA Forest Service Strategic Plan, FY 2007-2012, names fragmentation as a major threat to national forests nationwide. The GWNF is no exception. While the draft plan acknowledges the need for large, continuous blocks of interior forest for some species of birds, it fails to significantly analyze the extent of fragmented habitat, the distribution of fragmentation forest-wide, and the deleterious effect of subsequent edge effects on forest habitat. It fails to recognize the unique role the GWNF has in safeguarding and expanding unfragmented landscapes and habitat.

The draft plan, as well as the projects it directs, fails to pay attention to 3 types of fragmentation phenomena: forest fragmentation and edge created by timber cutting within particular parts of the GWNF over time, loss of the mature forest and old growth component within particular parts of the GWNF over time, and forest fragmentation and edge along the National Forest boundary and along road corridors, powerline corridors, gas line corridors, and in-holdings. For example, cowbird infestations may not be a major problem in the GWNF as a whole, but may be more serious along the FS boundaries.

The Draft Plan relies upon the use of mere ―forest cover‖ to evaluate large-scale fragmentation. Use of this rationale denies the very concept and significance of fragmentation since fragmentation is not only the amount of habitat that is lost or altered, but also the distribution of that loss or alteration. It further ignores the cumulative fragmentation that occurs at scales other than the ―large‖ and ignores the significance of the internal fragmentation (Harris, L. and G. Silva-Lopez 1992) from roads, logging, utility corridors, and other openings that perforate the Forest. Currently, the discussion in innumerable GWNF EAs confines the analysis of affects to habitat just to "the number of acres cut.‖ A more realistic benchmark would include the perimeter boundaries of any landscape alteration activities and the resulting decrease in total size and distribution of original and subsequent island areas.

The effects of fragmentation are multifarious and multi-scalar (Fahrig, L. 2003; Saunders, D.A. *et al*. 1991). 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 example, amphibians are 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)

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).

Increased predation is an edge effect that is recognized to extend up to 600 meters into the forest from roads, energy corridors and cutting sites. These projects increase edge and facilitate ingress and impacts from meso-predators such as Raccoons, Skunks, and Opossums (see ―subsidized predators‖ in J. Mitchell and M. Klemens 2000). These species are known to predate Wood Turtles and other sensitive species (Mitchell, J.C. 1994b).

In addition, ―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) In addition, edge species diversity is typically maximized on forest boundaries and fragmented landscapes common on private and industry lands.

Yet the Preferred Alternative unbelievably treats forest fragmentation as a desired condition and as an asset to the forest. It states that ―the large unfragmented blocks identified in the 1993 Plan should continue to have desired conditions emphasizing mature vegetation and late successional stages. However, because of greater understanding of the habitat needs for many different species, this desired condition should be expanded to include the need for forest structural diversity, including restoration of more open canopy, late successional stages. This is largely developed through the reestablishment of a historic fire regime that has been suppressed since federal ownership. There is also a need to maintain desired conditions for early successional habitat distributed throughout much of the Forest. To improve progress towards the desired condition for early successional habitat, objectives for prescribed fire should be identified in addition to timber harvest objectives.‖ (Plan, E-1)

Although the DEIS notes that ―forest fragmentation can affect wildlife by encouraging species that use early successional and forest edge habitats, such as the MIS eastern towhee and wild turkey, and discouraging animals that use interior forest habitats, such as the ovenbird and hooded warbler,(DEIS, 3-345) there is absolutely no analysis at all of the effects forest fragmentation for any of the range of alternatives. The information in the appendix (DEIS, Appendix E, 38-39) is largely limited to bird populations and is fairly inconsequential. Yet fragmentation and modification of vegetation and structure (aka. another form of fragmentation) are *the largest stressors noted to largest number of species on the entire forest*. (DEIS, Appendix 3. Species Stresses and Threats and Forest Plan Strategies, F-140-158)

The DEIS fails to consider fragmentation the most significant contributing factor to the increasing populations and areas populated by non native invasive species.

The Draft Plan, in the Desired Conditions for Ecological Systems Diversity, states that this desired state is where ―forest ecosystems are in their natural state with limited infestations of invasive species to the fullest extent possible.‖ (Plan, 2-10) It further states that ―New introductions of invasive species are minimized.‖ Yet the huge role that the development of (new) roads and (newly created areas of) fragmentation of forests play in introduction of new populations of NNIS is never explored or recognized.

The DEIS states that ―non-native invasive plant and animal species can have severe detrimental effects on native species and natural communities, and are problematic across the GWNF. They currently occur on every district. NNIS degrade biological diversity by displacing native species, altering natural community structure and processes, and changing food webs. The desired condition for nonnative invasive plants (NNIP) is to reduce or eliminate percent coverage across the GWNF.‖

―Because of their contribution to biological diversity, threatened, endangered, and sensitive (TES) species habitat and rare communities, including Special Biological Areas, are a high priority for NNIP control efforts. This key characteristic is addressed in the revised Forest Plan by forestwide desired conditions, objectives for eradication and treatment of NNIP, and standards to help control NNIP at the project level. Although we do not have a complete inventory of all occurrences of NNIP, preliminary data indicate that they are widespread on all units. Based upon current and projected program levels NNIP will be treated more aggressively under the revised Forest Plan. Some NNIP will be more easily controlled than others. While we may have good results in some cases, NNIP will remain a difficult challenge and it is likely that species new to the Forest will appear during the life of the Forest Plan. (DEIS, Appendix, E-40)

Note the emphasis on ―control‖ and ―eradication‖ and the conspicuous absence of prevention.

Note that Alternative C, with its ―emphasis…to minimize fragmentation and edge effects‖ (DEIS, 2-8) is the only alternative with a desired future condition of the forest with a significant decrease in the degree and the distribution of forest fragmentation and with a strategy to prevent spread and introcuction of NNIS in the forest.

The DEIS fails to do any NEPA analysis of forest fragmentation, edge effects, and NNIS projections over the range of alternatives. It also fails to present any long term Net Public Benefits relative to fragmentation, roadbuilding and NNIS.

XXI. Fire

69. The Preferred Alternative fails to consider the role that naturally occurring (lightning caused) fire plays on the landscape in its consideration of desired future conditions. The Draft Plan arbitrarily and capriciously considers only prescribed fire as the process by which the desired future condition is achieved.

70. The Draft Plan arbitrarily uses fire regimes based to create a forest that is recovering from the devastating logging and fires that ravaged the forest at the turn of the century.

The burning program as currently implemented under the 1993 Plan is mostly a forced artificial regime that can harm natural forest diversity, conditions, and elements. In some locations, some plants benefit from fire or re-emerge after fire, even after many years of absence. In other biological communities, fire can harm salamanders or other species. When prescribed burning is used inappropriately, the FS is creating an artificial management regime, which can be both environmentally destructive and costly to continue. This trend would be destined to continue under the Preferred Alternative.

One of the goals of the Preferreed Alternativs is ―returning the national forests to more historic fire conditions (which) will require an increase in forest-wide prescribed burn acreages from recent years.‖ (Plan, 2-4) Fires have become the tool of choice to ―manage‖ watersheds (Plan, 2-3), ecosystem diversity (Plan, 2-6), all manner of woodlands (Plan, 2-8), pine forests and oak forests (Plan, 2-12), glades and barrens (Plan, 2-16) and even old growth (Plan 2-18).

The Forest Service has greatly increased the acreage of ―prescribed burning‖ (intentional fires) on the GWNF. For the nine years 1986-1994, 5,309 acres were burned on the GWNF, an average of 590 acres/year. For the ten years 1995-2004, 39,552 acres were prescribed burned on the Forest, an average of 3,955 acres/year. For the five years 2000-2004, 23,920 acres were burned, an average of 4,784 acres/year. In the two years 2003 and 2004, 14,291 acres were prescribed burned, an average of 7,145 acres/year.

It is not clear that the site-specific flora and fauna populations and natural communities found in all the expansive areas proposed for burning are in need of artificial fires. It is not clear what are the damaging effects of past artificial fires occurring on these sites. And it is certainly not clear precisely what scientific data and analyses are being used to substantiate the proposed burning at project sites.

The current plan facilitates actions that are intent on using unnatural conditions (*i.e.*, an anthropogenic or culturally augmented regime) as the ―baseline‖ upon which to base goals, objectives, and/or desired conditions. The use of a ―natural historic range of vegetation and fuel composition‖ and ―historic reference conditions‖ is not justified as they present a subjective and artificial baseline that resulted from intense and widespread human alteration of forest conditions (―1730s to 1900s‖ - DCER).

Prescribed burning operations may significantly harm biota and/or ecosystems directly, indirectly, and/or cumulatively. As does intensive logging, burning alters the microclimate of the forest floor and alters microhabitat conditions (localized structural and compositional attributes). It serves to simplify niche complexity by removing woody and leafy material from the forest floor. Cover and food used by species such as the Wood Turtle can be destroyed, diminished, or altered. And of course wildlife themselves may be incinerated.

A justification 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‘, ―shelter‖, 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). 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).

In addition, woody debris contributes to soil fertility and increases moisture retention capacity throughout decomposition. Moisture retaining logs also serve as firebreaks as well as shelter for wildlife should a fire occur. This contrasts directly with induced fires that 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).

Burning can promote the spread of invasive plant species (Glasgow, L.S. and G.R. Matlack 2007b). Any fire allowed by a forest plan runs a high risk of creating consequences that are directly contradictory to direction given by the Agency as well as moving away from the desired future condition of the forest. Bulldozed firelines can pose a risk to soils and watersheds, can contribute to the spread of invasive species, and can provide access to OHVs. In addition, the FS irrationally combats natural fires at the same time it sets prescribed fires in other locations.

Although the Plan recognizes that ―lightning caused fires range from 12% to almost 45% depending on weather and fuel conditions‖ (Plan, 2-20), it fails to consider the role in these naturally occurring fires in the natural fire regime. All analysis assumes that fires must be ―prescribed‖ in order for them to fulfill their management objectives. Naturally occurring fires are not considered at all in the achieving the desired future condition. (Plan, 2-21)

Alternative C was formulated to respond to members of the public who want the GWNF with minimum active management. One of the aspects of their request was to limit the prescribed burning program to the minimum necessary to maintain rare plants and animals. ―Alternative C would generate the smallest prescribed burn program as prescribed burning would be limited to managing TES species without an emphasis on ecosystem restoration.‖ (DEIS, 3-195) The acreage for this program is described as minimal. However, the budget cost that is assigned for the fire program for this alternative is higher than the cost of the fire program of Alternative A, which has a burn level of 3,000 acres annually.

XXII. Alternative C

71. The DEIS fails to consider and to choose Alternative C as the Preferred Alternative from the entire range of alternatives that maximizes long term Net Public Benefits

Alternative C has the lowest budget of any alternative (Plan, 3-297), 28% less than the current Plan and 35% less than the preferred alternative. All preceding comments and Comments submitted on the NOI by Heartwood and Wild Virginia (ibid.) substantiate the fact that the DEIS has failed to consider and to choose Alternative C as that alternative which, considering the range of alternatives considered, is the alternative that maximizes long term Net Public Benefits.

The analysis of **Alt. C** in the DEIS misrepresents and devalues it, particularly with regards to effects to wildlife and habitat and to present net value. For instance, the amounts of esh created through natural processes are ludicrously underestimated.

The commentors would like to acknowledge the contributions of Wild Virginia, Virginia Forest Watch, Southern Environmental Law Center, the Sierra Club, the Wilderness Society, Southern Appalachian Forest Coalition and Jack Wilson to these comments. We incorporate the referenced comments, sources and citings submitted by Southern Environmental Law Center, Southern Appalachian Forest Coalition, and The Wilderness Society on October 17, 2011 herein. We also incorporate herin, the attached comments of Steven Krichbaum and comments, sources and sitings submitted by Wild Virginia and Heartwood as its Comments on the NOI, *The Conservation Alternative*, May 6, 2010 and Comments on the Draft Forest Plan and DEIS submitted by Wild Virginia, October, 17, 2011.

Thank you for the opportunity to submit these comments on behalf of:

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Attachment #1: Comments of Steven Krichbaum, 10/17/11

Steven Krichbaum
October 17, 2011

George Washington National Forest
5162 Valleypointe Parkway
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comments-southern-georgewashington-jefferson@fs.fed.us

To: Forest Supervisor Maureen Hyzer, Kenneth Landgraf, Karen Overcash, and all whom this concerns
Re: Comments pertaining to the GWNF Plan Revision

Dear All,
I previously submitted comments and supporting material (copies of cited literature on CDs) regarding the Plan revision on Aug. 8, 2008, Sept. 14, 2008, Oct. 24, 2008, Jan. 8, 2009, June 23, 2009, Nov. 23, 2009, Jan. 30, 2010, and May 6, 2010. I have also submitted comments and material regarding the Wood Turtle (*Glyptemys insculpta*). I incorporate by reference all of my previously submitted Plan revision and Wood Turtle comments and material into this submission. This comment has to do chiefly with the Wood Turtle, special biological areas, and habitat fragmentation.

The **Wood Turtle** is now considered a G3 species (―Vulnerable‖ globally) (see NatureServe). It is a **species of national, regional, and/or state significance** (for instance, it is officially listed as ―Threatened‖ in Virginia). Due to these reasons the Turtle must be officially listed and treated as a FS ―Sensitive‖ species by the GWNF managers (regardless of whether the Regional Forester has gotten around to making this status change).

As a a species of national, regional, and/or state significance sites on the Forest with known populations of Wood Turtles should be designated as ―special biological areas‖ in the revised Plan. These sites include Paddy Run/Cove Run (Shenandoah and Frederick Cos.), Cove Run/Waites Run (Hardy Co.), Sine Run Hardy Co.), Harness Run (Hampshire Co.), and Riles Run (Shenandoah Co.). SBAs ―serve as **core areas for conservation** of the most significant and rarer elements of biological diversity identified to date on the Forest.‖ **Management of SBAs** seeks 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.‖ Managing Wood Turtle sites/populations as ―Mosaics of Habitat‖ or as an ―Emphasis Area‖ does not serve to accomplish this perpetuation and increase. Nor do such prescriptions (which allow intense ground disturbance such as timber sales) serve to protect sites as ―core areas for conservation‖. Implementation of draft Plan's management regime could result in significant harm to the sustainability, viability, and/or distribution of the Turtles.

The identification of a site as a Wood Turtle ―Emphasis Area‖ in publicly promulgated documents is a bad idea. Drawing attention to such sites with known populations is particularly bad for a species vulnerable to collection/poaching, which the Turtle is. Many if not most SBAs

are designated without the precise identification in the Plan/EIS of all the rare species found there. Such designations can and should be accomplished for sites with Turtle populations. Naming sites as Turtle ―emphasis areas‖ should be avoided.

My observations/research of Turtles in the Forest so far suggest that small canopy gaps (typically falls of individual trees) maintain and create openings for Turtle foraging and thermoregulation. In addition, Turtles certainly do not confine their activity to ―riparian areas‖. ―Core areas‖ of terrestrial habitat for Turtles extend out *ca*. 300 meters from occupied streams.

The **Shenandoah Mountain Crest-Cow Knob Salamander special area** is not accorded sufficient protection by the standards in the draft Plan. Mineral/gas leasing, wind turbines, road construction, and logging are all of concern. Standards need to be strengthened and revised to remove/neutralize these potential sources of significant harm. Additionally problematic is that all the known locations of the CKS are not being protected. The SMC special area boundaries need to be significantly expanded in latitude and to lower elevations.

The same is also true for **Tiger Salamander** (*Ambystoma tigrinum*) management. **<u>The entire Coal Road corridor should be designated an SBA</u> (encompassing an expansion of the current Maple Flats, Loves Run, and Big Levels SBAs to connect these areas)**. This area represents a preglacial **Pleistocene refugium** containing historically unique populations or lineages vital to conservation and preservation efforts (Church, S.A. *et al*. 2003). ―This refugium contains a disjunct population of the eastern tiger salamander, as well as a community of nearly 70 other disjunct plant and animal species. The tiger salamanders here have been isolated from other populations for 200,000–500,000 years.‖ (*id*.) The Big Levels area is also the crucial refugium for the Virginia/GWNF/Augusta County endemic **Big Levels Salamander** (*Plethodon sherando*).

The agency‘s dealing with **habitat fragmentation and edge effects** is one of the greatest deficiencies in the draft Plan and EIS. Fragmentation is one of the more significant issues in contemporary conservation and land management. Habitat fragmentation and edge effects from multiple sources (*e.g*., roads, logging, utility corridors) has taken place and is taking place at multiple scales and extents across the Forest. The draft Plan exacerbates the ongoing harm through a multitude of prescriptions and standards that accommodate still more roads, logging, utility corridors and other stressors. This is an overarching issue that is correlated with virtually every element of the Plan‘s goals, objectives, guidelines, desired conditions, and standards. Yet the analyzer‘s dispose of this issue in a page-and-a-half in the DEIS. The site-specific analysis/disclosure is virtually nil. Instead we are presented with a generic write-up based on mid-western research pertaining to birds done in the 1990s. In my previous comments I alerted the agency to many concerns involving this issue and also presented many citations and scientific papers to the agency planners, so I will not reiterate all that here. Neither potential nor already realized significant impacts are being fully, fairly, and clearly disclosed to the public. The analysis is insufficient for the public or the agency to make well-reasoned decisions involving Forest aspects and public resources (such as choosing a preferred alternative, allocating prescriptions, or deciding how much logging and road building is appropriate). The scientific integrity demanded by **NEPA** is not being maintained by such superficial and omissive analysis and disclosure. The analysis is insufficient for determining if the on-the-ground protections demanded by the **NFMA** (such as **population viability, productivity, and/or sustained yield**) would be met when the Plan is implemented.

The rationale for choosing to continue to cut **old growth**, and even allow more to be cut than under the current Plan, is not clear or reasonable. Old growth is extremely rare in the landscape (estimated at less than 1% of forests), yet the FS allows (even promotes) its cutting.

Early successional forests are very common in the landscape (42% less than 40 years old in Virginia - Rose, A.K. 2009. Virginia‘s Forests, 2007. USDA FS Resource Bulletin SRS-159), yet somehow more must be fabricated on the Forest.

The agency‘s rationale as exemplified by the above two examples is unreasonable and capricious. The rare must be removed and the common expanded. ??

The rationale for building more **roads** on the Forest is unreasonable and the analysis of this issue is insufficient. Somehow a FS road maintenance backlog of billions of dollars is disregarded by the GWNF planners.

Aside from those mentioned above, many other issues and concerns raised in my ―Conservation Alternative‖ comment (May 6, 2010) have not been fully and fairly addressed by the GW planners. These include **acidic deposition, impacts to soils, sedimentation of streams, use of prescribed fire, invasive species, minerals/energy, wildlife, diversity, natural disturbances, ESH, MIS, monitoring & inventory, disposition of Mountain Treasures, rare species, provision for "primitive recreation", riparian areas, restoration opportunities such as road closures, roadless area identification and protection, special habitat conditions (e.g., rocky outcrops), sustained yield and productivity, timber suitability and the logging program, low site index lands, reference and drinking source watersheds, wild & scenic rivers, and Wilderness designations**.

The analysis of **Alt. C** in the DEIS misrepresents and devalues it, particularly with regards to effects to wildlife and habitat and to present net value. For instance, the amounts of esh created through natural processes are ludicrously underestimated.

Thank you for your attention and response.

Sincerely,
Steven Krichbaum

October 17, 2011

Maureen T. Hyzer, Forest Supervisor
ATTN: George Washington Forest Plan Revision
George Washington National Forest
5162 Valleypointe Parkway
Roanoke, VA 24019 comments-southern-georgewashington-jefferson@fs.fed.us

Re: George Washington National Forest Plan Revision: Comments on Draft Environmental Impact Statement and Draft Revised Land and Resource Management Plan.

Dear Ms. Hyzer:

Please accept the following comments on the Draft Environmental Impact Statement (DEIS) for the George Washington National Forest's Revised Land and Resource Management Plan and on the Draft Revised Plan, on behalf of the Virginia Chapter of the Sierra Club.

The notice of the availability of the DEIS was published in June, and subsequently the notice was amended to extend the comment period to October 17, 2011. See 76 Fed. Reg. 32197, 32198 (June 3, 2011) (notice of availability); 76 Fed. Reg. 53453, 53454 (Aug. 26, 2011) (amended notice).

We incorporate by reference our comments on the GWNF Plan dated August 8, '08, Jun. 8, '09, May 6, '10, Nov. 3, '10, and Nov. 5, '10 and other previous comments we submitted. These comments are already in your possession. The discussion of the issues in these comments are reiterated here by reference. They are pertinent to our review of the DEIS and the Draft Plan because they demonstrate the FS's inability to date to address many of the significant concerns raised therein.

For over three years, Sierra Club members have participated in dozens of public meetings and submitted numerous comments to the Forest Service on the George Washington National Forest Plan. Now, as we approach the end of the official comment period for the draft forest plan, it is time for the Forest Service to take heed of what we the citizens are saying.

We expect the Forest Service to carefully evaluate all possible alternatives and to select an alternative that addresses the concerns raised below and maximizes net public benefits. The 1982 Planning Regulations require the Forest Service to ‖formulate a broad range of reasonable alternatives…to provide an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits.‖ (Sec. 219.11, 5f).

The George Washington National Forest is a tremendous resource, providing backcountry recreation, wilderness, clean water, and wildlife habitat. The Forest Service should manage the George Washington National Forest for values and resources that are not ordinarily available or protected on private lands.

The lands on this national forest are premier recreational lands for our region. And they are much more than that. In a region that is increasingly developed and paved over,

they provide important habitat for wildlife, like black bears, that require large tracts of forest to survive in. They provide mature and old growth forests for songbirds, salamanders, and other species. They supply drinking water to downstream communities. Trees in these forests help to cleanse the air. And trees in these forests sequester carbon, easing the impacts of global warming.

The GWNF is one of the most important public lands in the central and southern Appalachians. Virginia and the Appalachian Mountains contain a diversity of plant life and wildlife found in few other places in the world, with large remote areas, diverse cove hardwood forests, mixed mesosphytic forests, northern hardwood forests, northern evergreen forests, oak-hickory forests, grass balds, glades and bogs, floodplain communities, cliffs and rocky places, and shale barrens. The watershed, unroaded lands, highlands, and other wildlands and public lands of the GWNF provide irreplaceable habitat that must be wisely protected. In this area, plant species common to northern climates intermingle with plant species common to southern climates. This results in a great number of species and species mixes not found in the north or south. And one of the largest blocks of existing black bear habitat extends from western Virginia, through the GWNF and much of Virginia, to WVA and eastern Kentucky (Virginia Black Bear Management plan, VGIF). It is for many reasons, that we ask the Forest Service to use foresight to adequately protect the GWNF for the benefit of future generations in the upcoming forest plan revision.

(A.) Alternative G: We applaudyoufor the banonhorizontalnaturalgasdrilling proposed in Alternative G (the agency's preferred alternative) and other alternatives, and would like all hydrofracking banned on the Forest. In addition, I support the stronger forest-wideriparianstandards in Alternative G that were developed as part of the Fish and Mussel Conservation Plan.

The Forest Service's preferred alternative, Alternative G, has many shortcomings and should be replaced with a better alternative in the final version of the forest plan. For example,

a. Alternative G limits new wilderness recommendations to a tiny fraction of potential acreage, despite a shortage of wilderness in this forest. Disappointingly, the Forest Service adds only one new stand-alone wilderness.
b. Alternative G allows road development and logging in significant portions of newly inventoried roadless areas and Virginia mountain treasure areas.
c. Alternative G targets old growth forests - allowing logging in two of the forest types where old growth is most likely to be found.
d. Alternative G does not protect all of the Virginia Natural Heritage program sites recommended for protection in 1991, 2000, and subsequent biological diversity reports.
e. Only about 1/3 of newly identified roadless areas (new potential wilderness areas) are protected from logging and roadbuilding.
f. Nearly half of the forest (48%) would be designated Prescription Area 13 (Mosaics of Habitat.) a prescription that allows widespread logging and roadbuilding.
g. All public drinking watersheds within the national forest are identified, but less than a third of the land area within them are considered Priority Watersheds.
h. Horizontal drilling is not allowed in the Forest under the preferred alternative, but virtually all of the Forest is open for conventional gas drilling.
i. Alternative G does not adequately protect the following areas from industrial-scale wind development: all newly inventoried roadless areas (also known as potential

wilderness areas), Virginia Mountain Treasure areas, old growth forests, significant trails such as the Great Eastern Trail and Allegheny Trail, and other areas that have special scenic, natural or environmental value, including Shenandoah Mountain, Great North Mountain, and Church Mountain.
j. The preferred alternative would allow prescribed burning over a large part of the Forest – 120,000-200,000 acres per decade. Burning is appropriate on the Forest, but the need for extensive burning should be validated by monitoring and research.
k. The Forest Service accepts more logging as an effective carbon sequestration strategy.

(B.) Alternative C (the Conservation Alternative) is a well-crafted alternative proposed by Virginia citizens. Alternative C should have gotten the thorough analysis and attention that it deserves, but so far has not. We ask you to incorporate the following aspects of Alternative C into the final plan, regardless of which alternative is chosen:

Please plan for climatechange by protecting core wilderness areas, reducing forest fragmentation and decreasing and eliminating non-climate stresses such as logging, road building and oil and gas leasing.

Protectall areas identified in the Virginia'sMountainTreasures publication to the degree possible by designating them as unsuitable for timber harvest, new road building, and surface-occupying oil and gas drilling

Protectallroadlessareastothegreatestextentpossible. The Forest Service should identify all qualified roadless areas and protect all roadless areas, whether previously inventoried or recently identified, consistent with the provisions of the 2001 Roadless Rule.

DesignateMoreWildernessAreas. Only 4% of the George Washington National Forest is permanently protected Wilderness, far less than the national average of 18%. More wilderness (and national scenic area) acreage should be recommended

ProtectallexistingOldGrowthforest. Of particular importance are the sizeable old growth tracts at Peters Mountain North and Frozen Knob areas identified by the Virginia Division of Natural Heritage. All old growth areas should be designated as being unsuitable for logging and roadbuilding and protected as special areas (old growth protection) or as research natural areas.

NoNaturalGasLeasingandHydrofracking. The full cycle of natural gas development and hydraulic fracking (or hydrofracking) brings roads, pipelines, and noise to national forest lands and disrupts groundwater. There should be no hydrofracking or federal natural gas leasing in the forest. Strong protective measures should be applied to ensure that privately-owned mineral developments do not destroy other values on the Forest.

(C.) We support the Friends of Shenandoah Mountain proposal (www.friendsofshenandoahmountain.org/), which would protect roadless areas in the Shenandoah Mountain, Big Levels, and Laurel Fork areas under a combination of designations, including recommended wilderness and recommended national scenic area designation.

Additions to SELC et al. comment letter

The Virginia Chapter of Sierra Club signs onto the comment letter dated Oct. 17, '11 submitted by the Southern Environmental Law Center and other groups.

We would like to make the following additions, reflecting the views of the Sierra Club:

The SELC letter states: "Consistent with the GW Stakeholder Group recommendations, we suggest that a forest-wide standard be added which generally prohibits new permanent (system) roads in PWAs". We agree with this statement. However we are concerned about the long-term adverse effects of temporary roads as well. These should have been analyzed in the DEIS. If this analysis demonstrates that there are adverse effects to the roadless qualities of PWAs (and we believe this will be the case), then temporary roads should not be built in them. If any temporary roads are built, we do not believe that any temporary roads should be allowed within PWAs longer than the time period needed for a project to be carried out and completed, They should be immediately decommissioned afterwards. Nor do we believe that any temporary roads should be turned into quasi-permanent roads, based on a "need for access to meet future habitat management goals". Temporary roads should be temporary.

The SELC letter states:

‖In the final plan, the Forest Service should recommend the following areas for wilderness and national scenic area designation. These areas were recommended by the GW Stakeholder Group.:

* Little River – approximately 12,600 acres for Wilderness Study Area
* Rich Hole Addition – approximately 8,200 acres for Wilderness Study Area
* Rough Mountain Addition – approximately 1,900 acres for Wilderness Study Area
* St. Mary‘s West – approximately 300 acres for Wilderness Study Area
* Ramsey Draft Addition (aka Bald Ridge and Lynn Hollow) – approximately 9,300 acres for Wilderness Study Area
* Beech Lick Knob – approximately 6,200 acres for Wilderness Study Area
* High Knob (aka Skidmore Fork) – approximately 5,200 acres for Wilderness Study Area
* Three Ridges Additions – approximately 370 acres for Wilderness Study Area
* Gum Run/Oak Knob/Hone Quarry/North River Gorge (aka Shenandoah Mountain) – approximately 55,000 acres for National Scenic Area.

‖Additionally, we support the request of VWC that the Forest Service should recommend Laurel Fork for wilderness designation, for the reasons discussed in our prior comments (although the GW Stakeholder Group did not recommend this area, we understand that the group proverbially ‖agreed to disagree‖ on it).

‖There are a number of other areas which are worthy of permanent protection and are wonderful candidates for wilderness and national scenic area designation. In the future, these areas should be considered for recommendation for designation. These areas are listed and discussed in the prior comments of SELC and others, see, e.g., Comments of SELC, SAFC and TWS, May 7, 2010, pp. 54-55; Comments of SELC, SAFC, VWC, Virginia ForestWatch, Sierra Club and TWS, Jun. 8, 2009, pp. 26-28; Comments of SELC, TWS, SAFC, VWC and Wild Virginia, Aug. 8, 2008, pp. 19-20.‖

However, we would like to add:
The prescriptions in the final plan should be as close to the recommendations for wilderness study area and remote backcountry recreation areas in Alternative C as possible, with exceptions. We support (1.) the recommended NSA designations and recommended NRA recommendations proposed in the Friends of Shenandoah Mountain

proposal and (2.) the recommended NSA designations and recommended NRA recommendations proposed outside of the Friends of Shenandoah Mountain proposal area in the stakeholders agreement as exceptions to this.

In addition, specifically, we would like to recommend that the following areas* receive immediate designation as recommended wilderness areas, recommended national scenic areas, remote backcountry, or other designations in the final plan. The following are based on the areas in the Virginia Mountain Treasures publication (Wilderness Society, et. al. 2008):

Lee RD
Big Schloss – Recommended NSA and Wilderness mix
Church Mtn – Recommended NSA
Great North Mtn – Recommended Wilderness
Long Mtn – Remote Backcountry
North Massanutten – Recommended Wilderness
Signal Knob – National Recreation Area

North River RD
Jerkemtight – Recommended Wilderness and NSA
Benson Run – Remote Backcountry
Signal Corps Knob – Remote Backcountry
Crawford Knob – Recommended Wilderness
Elliott Knob – Recommended Wilderness
Broad Run – Remote Backcountry
Hogpen Mtn – Same as Alt. C
Wildcat Ridge – Same as Alt. C
Walker Mtn – Remote Backcountry

Warm Springs RD
Laurel Fork – Recommended Wilderness
Little Mare Mtn – Recommended Wilderness or NSA
Shawvers Run – Recommended Wilderness
Rich Patch – Same Prescription as adjacent area on JNF
Warm Springs Mtn – Remote Backcountry
Galford Gap (Scaffold Run) – Recommended Wilderness

James River RD
Potts Mtn (Toms Knob) – Recommended WIlderness
Mud Run Mtn – Recommended Wilderness
Snake Run Ridge – Candidate Research Natural Area
Dolly Ann – Recommended Wilderness

Pedlar RD
Three Sisters – Recommended Wilderness
Adams Peak – Recommended Wilderness
St Marys North – Recommended Wilderness or strictly protected SBA

* subject to slight boundary adjustments

The Sierra Club has 17,000 members in Virginia and 3,600 members in the nearby District of Columbia. There are thousands of members in other nearby states. Sierrans regularly hike, canoe, or visit these wild and roadless areas. And would like to continue to do so in the future. We would like to see these areas protected under the above designations because if they are not, logging or other extractive development could irreversibly damage them.

Climate

In the coming years, rising levels of greenhouse gases in the atmosphere could contribute to rising temperatures, increased insect damage, erratic rain patterns, and other extreme weather events in Virginia and the George Washington National Forest. Already, in the United States, there have been substantial shifts in migration patterns and timing of reproduction in some plant, wildlife and fish populations as a result of changing climate. Climate change is an emergency; we must carefully plan a response to this threat.

The Forest Service should plan for climate change by (1.) protecting core roadless areas, (2.) reducing forest fragmentation and (3.) decreasing and eliminating non-climate stresses such as logging, road building and oil and gas leasing.

Possessing far more acres of roadless areas than any other national forest in the Southern Region of the Forest Service, the George Washington National Forest is unique. There is opportunity here to promote connectivity among roadless areas via Virginia Mountain Treasure areas and adjacent or nearby roadless areas. And the roadless areas in the George Washington National Forest tend to be fairly large when compared to those other national forests in the Eastern US. Because of these three factors, protecting the roadless areas and Virginia Mountain Treasure areas of the George Washington National Forest is a top priority.

Anyalternative selected by the Forest Service should include (1) a comprehensive climate change adaptation strategy informed by the most up-to-date science, including identification and designation of core areas, corridors, and analysis of the connectivity of the Forest with other lands, (2) conduct an audit of activities permitted in the plan to ensure that, when compared to actual activities over the last decade (2001-2010), plan-permitted activities do not increase carbon emissions and do not decrease carbon sequestration, (3) incorporate monitoring and adaptive management into the Plan to ensure that if climate-related conditions or indicators are worse than expected, appropriate stronger measures will be applied, and (4) conduct vulnerability assessments across the Forest, to inform forest planning and long-range activities. This must be the baseline for all alternatives.

The planning process should include climate vulnerability assessments. The Intergovernmental Panel on Climate Change (IPCC) defines vulnerability as ―the extent to which climate change may damage or harm a system,‖ and says that vulnerability ―depends not only on a system's sensitivity but also on its ability to adapt to climactic conditions‖

The Forest Service already recognizes the need for careful climate change analysis and planning. For example, recent guidance has acknowledged that the Forest Service should ―identify ecosystems that are most at risk due to climate change,‖ should

analyze ―conditions and trends of carbon stocks and fluxes on the planning unit, and greenhouse gas emissions influenced by the management of the planning unit,‖ and should use the best available science in forest planning for the George Washington National Forest, among other things. See ―Considering Climate Change in Land Management Planning,‖ Joel Holtrip, Deputy Chief, Mar. 2, '10 and accompanying ―Climate Change Considerations in Land Management Plan Revisions‖ Jan. 20, 2010.

(a.)VulnerabilityAssessments

Land and resource planning process should have included the conduct of climate vulnerability assessments. The Intergovernmental Panel on Climate Change (IPCC) defines vulnerability as ―the extent to which climate change may damage or harm a system,‖ and says that vulnerability ―depends not only on a system's sensitivity but also on its ability to adapt to climactic conditions.‖
We recommend that in conducting an assessment for forest resources the agency incorporate the following elements[i].

1. **A clear articulation of the need for the assessment.** In this case, to aid in the preparation of the forest plan.

2. **A clear articulation of the target of the assessment.** In this case, the suite of resources covered by the forest plan.

3. **A determination of spatial and temporal scale.** Identify the geographic boundaries of the assessment, the ideal spatial and temporal resolution for relevant data and the level of specificity required to obtain useful results.

4. **Inclusion of stakeholder input.** Identify products of the assessment that will be most useful to users, such as maps, tables, etc.

5. **Inclusion of regional expertise.** Draw from both inside and outside of the U.S. Forest Service for expert input.

6. **Inclusion of existing efforts.** Utilize existing relevant information in addition to developing new information sets.

7. **A clear articulation and, if possible, quantification, of any uncertainties in the results.**

Such an assessment has already been performed by the Chequamegon-Nicolet National Forest. This assessment focuses on the vulnerabilities of different forest types in Northern Wisconsin to climate change, comparing the current landscape with project climate change at the end of the 21st century. It includes predictions of possible changes in the suitability of Northern Wisconsin for 76 different trees species and an examination of how ecosystem processes may change in the future. A similar type of assessment could and should have been conducted on the George Washington National Forest.

(b.)KeyConservationAreasandLinkages

The forest plan management direction should have included specific management direction that will provide adequate space for a number of the relevant species of wildlife to move with least restriction in a climate change environment.

NFS (National Forest System) lands should be managed to maximum extent possible in an unroaded condition and with the greatest administrative protection so as to retain its unroaded characteristics. On other NFS lands where some development (such as roading and timber cutting) has occurred, management direction should recognize and accommodate focal processes and resources as well as prior decisions on wildlife needs.

The management direction we suggest includes:

Core Areas (Unroaded management of core areas where the highest quality of wildlife habitat is generally found):

Maximize the size of any agency recommendation to Congress for Wilderness. Maximize the area of unroaded lands that are not recommended as Wilderness for long term unroaded management. Ensure the standards and guidelines provide the greatest protection.
Existing protections (Wilderness, Wild & Scenic Rivers, unroaded management). Ensure management direction for existing statutorily protected areas (such as Wilderness and Wild & Scenic Rivers) follows the law.

Corridor Areas (Linkages between core areas)

Ensure that the new plan recognizes important landscape linkages identified by state wildlife agencies and non-governmental conservation organizations. The standards and guidelines for these areas must protect relevant wildlife habitat.

Buffer Areas & Other Important Protected Space (Lands contiguous to core/corridor areas and other habitat identified as critical to selected species):

Identify critical lands adjacent to core and corridor areas. Ensure that a level of protection is conferred to these buffer areas that will allow the core/corridor areas to be functional.
Ensure the plan recognizes species critical habitat identified under the Endangered Species Act are covered with specific direction in the standards and guidelines.
Ensure the plan recognizes wetlands identified in the National Wetlands Designated Research Natural Areas

<u>CoordinationAcrossBoundariesWithOtherLargeLandscapeConservationPlansand Initiatives</u>

The forest plan should coordinate with goals established in other large landscape conservation plans including

State climate adaptation plans
State Wildlife Action Plans[ii]
Partners in Flight Bird Conservation Plans[iii]
The National Fish Habitat Action Plan and related partnership plans[iv]
North American Waterfowl management Plan and related joint venture plans[v]

The National Invasive Species Management Plan[vi]
Management plans of directly adjacent conservation areas

Based on the vulnerability assessment the forest plan should have identified focal ecological processes, species and other resources that will be managed for under the forest plan. The forest plan should identify key areas for focal processes, resources and other resources and promote the management for the same through the designation of management areas for that purpose. These can include, but not necessarily be limited to

Inventoried roadless areas
Important landscape linkages identified by state wildlife agencies and non-governmental conservation organizations, such as Virginia Mountain Treasure areas (TWS et al.) and TNC Matrix Blocks (The Nature Conservancy)
Important habitat areas for species at important times in their life cycles as identified by state conservation agencies
Species critical habitat identified under the Endangered Species Act
Important habitat identified in Conservation Plans for species with viability concerns
Wetlands identified in the National Wetlands Inventory[ii]

The concept of protecting key conservation areas and associated corridors is not new. A system of potential linkages was proposed as far back as 20 yrs. ago. The proposed Virginians for Wilderness ―Wilderness/Corridor System for the George Washington National Forest‖ (Sep. 12, '90) which was developed into Alternative 3 for the Plan Revision. A map is already in your possession and is incorporated by reference. Note that on the map ―corridors are shown bounded by brown dashes and double arrows.‖ The science of climate change adaptation has developed since 1990, so this concept and mapping proposal needs to be updated, but the existence of such a mapping proposal dating to the time before the <u>last</u> GWNF Forest Plan Revision is a clear indication that the concept of conservation areas and corridors is <u>not</u> new to the Forest Service and should be fully and fairly dealt with in this Plan Revision also, taking recent climate science into consideration.

The Nature Conservancy, in its May 7, 2010 letter on the NOI stated:
―The Conservancy has previously recommended the GWNF contribute to such a network of resilient landscapes or forests by effectively conserving a set of priority matrix forest blocks identified through a vigorous assessment conducted by the Conservancy and partners (including biologists from the GWNF) for the Central Appalachians Ecoregional Plan (Thorne et al. 2003). These matrix forests are large (typically greater than 50,000 acres and as large as 300,000 acres), contiguous blocks of native forest that include an array of characteristic forest communities occurring across a range of geologic strata, soils, moisture regimes, topographic positions, and landforms. Matrix forests are important as ―coarse filters‖ for the conservation of most common species, wide-ranging fauna such as large herbivores, predators, and forest interior birds. The size and natural condition of these forested ecosystems allow for the maintenance of dynamic ecological processes, natural disturbance regimes, and meets the breeding requirements of species associated with a diversity of forest habitats….

―More specifically, we have recommended the GWNF manage single or multiple ―core biological areas‖ of at least 20,000 contiguous acres within each matrix forest block primarily for biodiversity and the maintenance of ecological processes while

surrounding ‖buffer areas‖ can be managed for a wider variety of biological, social, and economic values. Most recently, the Conservancy has conducted a landscape integrity analysis of the Central Appalachians ecoregion, exploring primarily disturbance and fragmenting features. Not surprisingly, the matrix forest blocks located within the GWNF contain among the highest integrity sites in the region (Figure 3). Also not surprisingly, those high integrity sites significantly overlap with areas already identified for their remote characteristics (e.g., Wilderness, Inventory Roadless Areas, uninventoried roadless areas).‖….

Some of the key climate change strategies proposed in the Nature Conservancy‘s May 7, ‘10 letter include:

‖1) Conserving the geophysical stage: geophysical (e.g., soils, bedrock geology, slope,
elevation, aspect) diversity helps to maintain species diversity, such that conserving representative examples of geophysical settings as part of regional conservation, offers an approach to conservation that will hopefully protect regional diversity under both current and future climates;

‖2) Enhancing regional connectivity: maintaining or improving the permeability of land and water for the movement of both individuals and ecological processes (e.g., fire, hydrological flows). Doing so provides the best opportunity for the adaptation of species and communities, whose response to a changing climate is to track optimal habitat conditions, and can also help maintain patterns of connectivity with regard to hydrological flows, which are critical to the ecological integrity of a region;

‖3) Sustaining social-ecological systems and functions: the explicit use of conservation
actions in a region to help sustain key ecological processes and functions that improve the capacity of both biological and human systems to deal with the impacts of climate change.‖

(c.)CarbonSequestration

In Virginia, forests offset nearly 20% of our state‘s CO2 emissions according to the Department of Forestry (www.dof.virginia.gov/resinfo/climate-change.shtml). The forest plan should recognize the forest‘s value for carbon sequestration and identify management areas that will help serve that purpose in addition to helping ecosystems adapt to climate change.

An analysis of existing and potential carbon storage and the effects of management for carbon on other resource values

An analysis of how changes in fire regimes, pestulance and insect outbreaks under different climate scenarios are likely to effect the forest‘s ability to store carbon

Examples of some carbon calculation tools and methodologies that could be utilized by the staff of the George Washington National Forest can be found at: http://www.efi.int/projects/casfor/models.htm (Version 2 of the CO2FIX Model), http://www.nrs.fs.fed.us/pubs/2394 (US Forests Carbon Calculation Tool), and http://wilderness.org/content/measuring-forest-carbon.

Caution should be exercised and appropriate adjustments should be made when using some tools that use methods that are flawed (e.g., not taking into account below-ground biomass (where in our region much of the stored carbon exists) or the carbon releases from logging (losses from increased respiration in soil layers can be tremendous, as well as losses from decay or burning of slash and milling waste)).

Although the science is new, numerous studies have found evidence that logging is not carbon neutral. See for example, Davis et al., Forest Ecology and Mgmt (2009) 2101-2109, Nunery et al. ―Forest carbon storage in the northeastern United States: Net effects of harvesting frequency, post harvest retention, and wood products,‖ Forest Ecology and Mgmt (2010) In Press; Zhou et al. Science, Vol. 314 (2006) pp. 1417 et seq.; Shanks, ―Carbon Flux Patterns in US Public Timberlands under Alternative Timber Harvest Policies,: M.S. Thesis, Oregon St. Univ., Mar. 20, '08.

See also Rhemtulla, et al, "Historical Forest Baselines Reveal Potential for Continued Carbon Sequestration" Proceedings for the National Academy of Science, v. 106, no.15, 6082-6087, Apr. 14, 2009 and Depro et al., "Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Lands" Forest Ecology & Mgmt. 255 (2008) 1122-1134.

(d.) ManagingtoMitigateorEliminateNon-ClimateStressors

Logging, roads and road building, off-highway vehicle use, invasive species, livestock grazing and other activities can degrade habitat and water quality and exacerbate the effects of climate change on forest resources. Forest management should be directed towards mitigating or eliminating these impacts so that forest units are better able to absorb the effects of climate change.

Based on the needs of focal resources as identified in the climate vulnerability assessment and other sources, forest plans should reconsider and adjust

Road density standards
Multiple-use trail density standards
Timber harvest objectives
Animal Unit Months
Energy leasing objectives

Concurrently, the agency should seek to actively improve habitat conditions via the removal of invasive species, restoration of native vegetation, stream recontouring, road closure and removal and other activities. Both of these approaches are generally effective at conserving valuable forest resources under current climate conditions and future climate change scenarios.

(e.)AdaptiveManagement

The plan forest plan should be developed in a way that encourages adaptive management in order to allow managers to respond to changing and unforeseen conditions. Management tests hypotheses with the knowledge gained used to inform future management decisions and improves the ability of forest users to determine whether or not climate adaptation strategies are working

Biomass

The current (1993) forest plan makes no mention of use of woody biomass as a resource, fuel source or as a consideration under timber management.

―Currently, the demand for biomass fuels on the GWNF, other than traditional firewood, is negligible. (DEIS, 3-264) All this changes with the Draft Plan.

–The timber program may also provide supplies of those wood products where the Forest Service is in a unique position to make an impact on meeting the demand for those products, especially as regards emerging markets such as biomass fuels . . . Biomass for fuel will likely become an emerging market. There is a concern that increasing demand for biomass fuel could result in increased harvest levels using whole tree harvest logging methods, especially on formerly low productivity or less commercially valuable sites‖ (Plan, pages 3-22, 23)

–Biomass fuels for the generation of energy are gaining interest and support in many parts of the south. The potential to supply biomass fuels from the GW is included in the… (timber supply) estimates. Of the .51 billion cubic feet (bcf, or 510,000,000 cubic feet in this instance) available as supply, anywhere from 0 to .25 bcf (250,000,000 cubic feet) could potentially be utilized as biomass fuel, or a maximum of 8.75 million tons forest wide. (Plan, Appendix E, E-9; DEIS, 3-260)

Biomass should not be allowed in situations where it
(a) Threatens the wild forest characteristics of old growth, native or roadless areas

(b) Relies upon ecologically destructive clearcutting, in situ chipping where excessive amounts of biomass are being removed from the land, or involve conversion of native forests to non-native species.
(c) Jeopardizes fully functioning forest ecosystems on the GWNF, or interferes with ongoing restoration of ecosystems with native plants and animals, or with the protection of biological corridors.
(d) Is scaled beyond the reliably available, environmentally sustainable feedstocks, or
(e) involves commercial logging on public lands. We do not consider personal firewood permits for individuals to be commercial logging.

Biomass incineration has the potential to create a very high level of forest extraction throughout the southeast and throughout the GWNF and adjacent nearby sourcing areas. Because it is a totally new future use of the forest never considered by any legislation overseeing forest management by the USDA/USFS and in the George Washington National Forest, the GWNF should be required to do a full NEPA analysis on the use of biomass in the GWNF as a fuel source for energy generation. That NEPA analysis should determine the degree to which permitting biomass development could affect the resources and values in items (a)-(d) in the paragraph above.

We believe that it is appropriate, for all of the above reasons, and because commercial sourcing of biomass for electrical generation would conflict with numerous other existing resource values of the forest, that commercial sourcing of biomass for electrical generation should be considered an incompatible use of the forest and not allowed in the GWNF.

Logging and Roadbuilding

Acres suitable for logging should clearly fall, not rise as they do in Alternatives B, D, E, and G because newly inventoried roadless areas (also called ―potential wilderness areas‖) have been added since 1993, because new Natural Heritage program identified conservation areas have been added since 1993, and because the Fish and Mussel Conservation Plan would increase the size of stream buffers, etc. There is no reason for suitable acreage to increase.

Moreover, nearly half of the forest (48%) would be designated Prescription Area 13 (Mosaics of Habitat.) This prescription is formed by lumping together various wildlife emphasis/logging prescriptions from the 1993 plan. Under the 1993 GWNF Plan (and the 2004 Jefferson National Forest Plan), portions of the wildlife emphasis/logging prescriptions were more protective than other portions and he prescriptions actually limited logging levels and roadbuilding levels. For example, some parts of the Forest were managed for black bear and allowed only limited active management. Unlike the 1993 GW Plan or the 2004 Jefferson Plan, the Mosaics of Wildlife prescription establishes **no** quantitative limits on logging or roadbuilding whatsoever.

Under the preferred alternative, 22.5% of the acreage of ―potential wilderness areas‖ (areas inventoried as eligible for possible wilderness designation by the Forest Service) are open to logging. Much of this is within the Mosaics of Habitat prescription.

And the Forest Service lumps them all together, with no distinction between the areas. This leaves management of these areas solely to the discretion of district rangers.

Some district rangers place timber production as a higher priority than other values, placing remote or biologically sensitive areas at risk.

We have major concerns with this approach. There is a risk that if managers are given the discretion to increase logging and roadbuilding in former remote habitat areas, then these areas will be the very areas that are targeted for heavy logging and other disruptive activities, rather than areas that are closer to roads. In addition, closed roads in these areas may attract illegal motorized use, destroying whatever remote habitat value remains.

The FS should protect remote landscapes by assigning them to appropriate prescriptions that prohibit logging, roadbuilding, & mineral development.

Natural Gas Development and Hydrofracking

The full cycle of natural gas development brings roads, pipelines, and noise to national forest lands. It involves the construction of access roads, well pads and sites, excavated areas, collector and transmission pipelines, power generation and distribution to well sites, construction of oil and gas storage facilities, excavation of pits for waste drilling materials, and the construction of field buildings

Natural gas is found in both conventional and non-conventional gas deposits. Conventional natural gas, what we most commonly think of as natural gas, is easier to find and extract. Non-conventional gas deposits require deeper drilling, higher investments, or new technologies to extract. In the lower 48 states, conventional gas production is expected to decline and non-conventional gas production is expected to grow from 35% of gas production in 2003 to 44% of gas production by 2025. Non-conventional gas extraction techniques coax out gas trapped in the watery surfaces within coal (coalbed methane), sandstone (tight sands), and shale formations (gas shales).

One of the newest forms of non-conventional gas extraction involves hydraulic fracking (or hydrofracking) within the Marcellus shale formation. Drilling for Marcellus shale gas requires very large volumes of water to cool the drill bit, to flush rock cuttings out of the borehole, and to stimulate the formation so that gas will flow. A large quantity of wastewater is produced that must be disposed of somewhere because it usually contains some harmful chemicals. In addition, large amounts of equipment must be transported to each drill site, sometimes creating a larger footprint than conventional forms of gas drilling. (Soeder and Kappel, 2009)

Alternative G stops short of an outright ban on hydrofracking, but prohibits the use of horizontal drilling, the most costly and risky form of hydrofracking. Alternative G, on the other hand, allows conventional gas drilling across most of the Forest.

There should be no hydrofracking or federal natural gas leasing in the forest. Strong protective measures should be applied to ensure that privately-owned mineral developments do not destroy other values on the Forest.

Wind Development

Wind development should primarily be targeted for already degraded lands, and only with adequate wildlife and site-specific environmental studies beforehand. In the forest plan, wind development should not be suitable in important lands such as wildernesses,

recommended wilderness areas, inventoried roadless areas, newly inventoried roadless areas (or "potential wilderness areas"), critical habitat and designated habitat recovery areas for endangered, threatened, and rare species, areas of cultural significance, sacred lands, and anyotherareasthathavespecialscenic,naturalorenvironmental value, including but not limited to Shenandoah Mountain, Great North Mountain, Church Mountain, and other important locations.

Alternative G is not acceptable. Alternative G does not adequately protect newly inventoried roadless areas (also known as potential wilderness areas), and it does not require a more thorough analysis for areas where there is a strong possibility of significant environmental concerns, such as Virginia Mountain Treasure areas; watersheds that are sources of drinking water to local communities; Shenandoah Mountain Trail, Great Eastern Trail, Allegheny Trail, Tuscarora Trail, and other significant trails; and tracts of old growth forest.

Scenic Values

Under Alternative G, the Forest Service would place 38% of the forest in the ―low‖ scenic integrity objective, essentially allowing the degradation of scenery in over one third of the forest. (DEIS 3-252).

- ―[P]eople expect to see a naturally appearing character within each general region‖ (VMS Handbook Vol 2, p 2). Such areas should be emphasized across the forest.
- The GWNF should incorporate the new Scenery Management System into the plan revision. See the new Scenery Mgmt. System handbook which states that remote, rarely visited areas can have high scenic value.

The FS must adequately protect the scenic landscape.

Alternatives

The EIS for the Plan Revision must consider alternatives to the proposed action and federal agencies must ―study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.‖ 42 U.S.C. § 4332(2)(C)(iii), § 4332(2)(E). EISs must ―provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.‖ § 1502.1. Adequate consideration of alternatives is the ―heart‖ of the NEPA process because it defines the issues and provides a clear basis for choices among options by the decisionmaker and the public. § 1502.14. The Forest Service must ―rigorously explore and objectively evaluate all reasonable alternatives. . .‖ § 1502.14(a). The failure to consider a ―viable but unexamined alternative‖ will render a study inadequate. Dubois v USDA, 102 F.3d 1273, 1289 (1st Cir. 1996), cert. denied sub nom. Loon Mt. Rec. Corp. v. Dubois, 521 U.S. 1119 (U.S. 1997) (quoting Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1994)). Applying these principles requires that ―[a]n agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action, and sufficient to permit a reasoned choice.‖ Idaho Conservation League v. Mumma, 956 F.2d 1508, 1520 (9th Cir. 1992).

As stated in our comments on the Plan Revision submitted during the comment period for the NOI, we believe the FS should analyze, in detail, the Conservation Alternative submitted by Ernie Reed of Heartwood and others, and include it among all

other alternatives fully examined in the Draft and Final Environmental Impact Statement. We, therefore, again, request that Alternative C be given full consideration and the full NEPA analysis be conducted on Alternative C including net public benefits analysis.

In addition, we ask you to incorporate the following aspects of Alternative C into the final plan, regardlessofwhichalternativeischosen:

Please plan for climatechange by protecting core more wilderness areas, reducing forest fragmentation and decreasing and eliminating non-climate stresses such as logging, road building and oil and gas leasing.

Protectall areas identified in the Virginia'sMountainTreasures publication to the degree possible by designating them as unsuitable for timber harvest, new road building, and surface-occupying oil and gas drilling

Protectallroadlessareastothegreatestextentpossible. The Forest Service should identify all qualified roadless areas and protect all roadless areas, whether previously inventoried or recently identified, consistent with the provisions of the 2001 Roadless Rule.

DesignateMoreWildernessAreas. Only 4% of the George Washington National Forest is permanently protected Wilderness, far less than the national average of 18%. More wilderness (and national scenic area) acreage should be recommended

ProtectallexistingOldGrowthforest. Of particular importance are the sizeable old growth tracts at Peters Mountain North and Frozen Knob areas identified by the Virginia Division of Natural Heritage. All old growth areas should be designated as being unsuitable for logging and roadbuilding and protected as special areas (old growth protection) or as research natural areas.

NoNaturalGasLeasingandHydrofracking. The full cycle of natural gas development and hydraulic fracking (or hydrofracking) brings roads, pipelines, and noise to national forest lands and disrupts groundwater. There should be no hydrofracking or federal natural gas leasing in the forest. Strong protective measures should be applied to ensure that privately-owned mineral developments do not destroy other values on the Forest

We strongly support the Friends of Shenandoah Mountain proposal (www.friendsofshenandoahmountain.org). The Shenandoah Mountain area, particularly between Rt. 250 and Rt. 33 in Virginia, is a special area within the GWNF. The recreational and ecological value of the mountain is tremendous, and it deserves lasting protection from logging and road-building.

The proposal

- Includes 5 National Forest roadless areas and Ramsey's Draft Wilderness Area.
- Is one of the largest tracts of wildlands on National Forest land in the East.
- Has exceptional scenery and wildlife habitat, including over 250 species of birds as well as black bear, native trout, and a number of rare species.
- Provides outstanding recreational opportunities including camping, hiking, mountain biking, horseback riding, fishing, hunting, rock-climbing, and birding.
- Developed recreational opportunities include campgrounds at Todd Lake, Hone Quarry, Braley Pond, and North River.
- Fishing abounds at Switzer Lake, Hearthstone Lake, Briery Branch Lake, Elkhorn Lake, and Braley Pond.
- Other important recreational/historical spots include Reddish Knob, High Knob Fire Tower, Confederate Breastworks, and Mountain House picnic area.
- The area has an exceptional 150-mile trail network, including the Wild Oak National Recreation Trail. The new Great Eastern Trail follows the crest of the

mountain. Has potential for even better trail networks, including more mountain bike loops to avoid riding on roads.

- Offers outstanding opportunities for solitude.
- Protects Laurel Fork, a high elevation ecosystem in a remote section of Highland County.

The ―Friends of Shenandoah Mountain Proposal encompasses important watersheds, including Skidmore Fork (Switzer Lake) for • Harrisonburg, Staunton Lake, and North River for Bridgewater and Harrisonburg. Also provides clean air and erosion and flood control for residents of the Shenandoah Valley. A broad coalition of businesses, faith groups, recreation groups, conservation groups, academic societies, and other groups supports the proposal. (http://www.friendsofshenandoahmountain.org/ see endorsees list).

The current Remote Habitat/Remote Recreation Alternative (F) has some good aspects, but falls short in many areas. In fact, as it stands, we believe that it is possible that negative aspects of this alternative may outweigh some of its positive aspects. But this alternative needs to be fully examined before that determination can be made, however, and it should be examined alongside the Conservation Alternative and other alternatives.

We want to mention a few of the ―trade-offs‖ that are being proposed in the Remote Habitat/Remote Recreation Alternative (F), the preferred Alternative, and other alternatives. For example, a very large acreage of the Forest is assigned to MRxA 10B, sustained timber management. This includes part of Snake Run Ridge Virginia Mountain Treasure Area (VMT) and part of the Peters Mtn North special biological area, all of Frozen Knob special biological area, large tract of land surrounding the Hoover Cr area (where an outstanding old growth tract was found and logged), areas close to the boundaries of numerous inventoried roadless areas and VMTs, the area surrounding Augusta Springs Wetland and numerous other important and sensitive areas. Also, in this alternative, Virginia Mountain Treasures and other important areas identified by the public are not protected from salvage logging (MRxA 12D). We wonder why a new prescription was created, instead of using the more logical MRxA 12C (Natural Processes in Backcountry Areas), which already exists (or similar designations), where salvage logging is not allowed and where roads are required to be decommissioned. In this alternative, ATV/OHV trails are retained in or near special biological areas, despite the history of damage to surrounding areas on existing ATV/OHV trail systems in the GWJNFs. That is putting surrounding areas at enormous risk. In addition, the emphasis is on Remote Habitat/Remote Backcountry only, so other types of biological values & habitats in non-remote areas (eg some salamander, wood turtle habitat) may not be adequately protected since these fall outside of the theme of the alternative.

Rare and Federally Listed Species

Protect sufficient habitat for all endangered, threatened and rare species—especially the Wood Turtle, the Cow Knob Salamander, Cerulean Warbler, and Indiana Bat. Some rare species on the GWNF are at the edge of their range (e.g., the wood turtle) and vulnerable. Others, such as the Indiana bat, have seen declining populations in the past, and now face new threats such as white-nose syndrome. Other, such as mussels and aquatic species, are threatened by declining water quality in some areas:

According to a study commissioned by the American Fisheries Society Endangered Species Committee, there are ‒297 native freshwater mussels [in the U.S. and Canada], of which 213 taxa (71.7%) are considered endangered, threatened, or of special concern... and only 70 (23.6%) as currently stable... Freshwater mussels (also called naiads, unionids or clams) of the families Margaritiferidae and Unionidae are worldwide in distribution but reach their greatest diversity in North America with about 297 recognized taxa... During the past 30 years, numbers both of individual and species diversity of native mussels have declined throughout the United States and Canada. Freshwater mussels (as well as other aquatic species) are emperiled disproportionately relative to terrestrial species... This alarming decline, the severity of which was not recognized until recently, is primarily the result of habitat destruction and degradation associated with adverse anthropogenic activities.‖ (Williams, Warren, Cummings, Harris and Neves, 1993)

Management Indicator Species

The vulnerability assessment should be the starting point for evaluation and selection of management indicator species. Based on that assessment, the agency and public should have a better idea of what processes, communities, interactions, and services can be expected to persist on the landscape relatively unaided; what processes, communities, interactions, and services might need some degree of active or passive management in order to be maintained; what processes, communities, interactions, and services are likely to be lost regardless of what steps are taken; and what new opportunities might emerge. Management indicator species could then be identified, based upon these expectations, as needed. Some of the best management indicator species might be species vulnerable to climate change, while some might be species that are not highly vulnerable. The Forest Service shouldn't prioritize only species vulnerable to climate change, because that could ultimately prove to be futile.

That being said, the Forest Service should adopt management indicator species that truly represent a fullrange of the habitats and niches found on the Forest. Ideally, these should include aquatic, riparian, non-game, old growth/late successional, remote habitat, and high elevation indicator species. Species that are vulnerable to climate change, such as high elevation species, might also be included. The Cow Knob salamander is an example of such a high elevation species. In addition, a salamander that is found at lower elevations and common across most of the Forest should also be selected. Birds are not appropriate substitutes for small site-sensitive species of low mobility such as salamanders and turtles.

The Plan Revision documents do not appropriately weigh the effects of wildlife/rare plant and wildlife/rare plant habitat among Alternatives, or allow minor adjustments in Alternatives that would improve the viability of species

The Forest Service attempts to assess the ‒risks to viability of species‖ on the GWNF on DEIS 3-69 et seq. See Outcome Groups table B.2.5. The FS claims that ‒almost all of the species benefit from each alternative, other than Alternative A, due to the additional species group protections that are common to all the other alternatives‖ and ‒[t]he lack of [active vegetation management in the form of timber harvest and prescribed burning] in Alternative C makes it the only alternative that does not address the viability needs of all of the species on the Forest.‖ (DEIS 3-77).

This section refers to Alternative C. However the statements referring to Alternative C do not apply only to Alternative C, but also to other alternatives that contain sizeable recommended wilderness, recommended NSA, and other areas protected from roadbuilding and extractive development, and to elements of Alternative C thatshould beaddedtothealternativechoseninthefinalForestPlan,regardlessofwhich

alternativeischosen.

The Plan Revision documents are biased, inconsistent, or lacking in information and do not appropriately weigh the effects of wildlife/rare plant and wildlife/rare plant habitat among Alternatives.

There are several problems with the approach the FS uses.

First, the analysis assumes that ―additional species group protections‖ are adequate. These protections, for the most part, cover a small part of the forest. Levels of protection vary according to the particular prescriptions in the various alternatives. Myriad species are involved, many with differing habitat needs. The FS never discloses the degree to which these ―additional species group protections‖ are adequate, whether significant habitat needs are covered for multiple species, whether additional buffers around protected areas may be needed in some cases and are not provided, whether activities upstream from these areas may negatively affect species or habitat, and whether undiscovered, unprotected populations may exist outside areas.

Likewise, it is assumed that Alternative C does not address the viability needs of all species in part because it does not allow 1000-4200 acres of logging/year that the other alternatives offer across a 1.1 million acre NF. The FS does not explain how 1000 or 4200 acres of logging disturbance would maintain the viability of species while 0 acres of logging would not, especially when the Forest continually creates openings on its own. Studies in the southern Appalachians show that small intensity disturbance creates about 1/2% a year in an unmanaged forest. (Lorimer, Age Structure and Disturbance History of a Southern Appalachian Virgin Forest). The Wilson Mtn EA (Glenwood RD), p.88, estimated a gap phase regeneration rate of 0.4 to 2.0% across the GW&JNFs. The annual natural mortality rate for this Forest is said to be "0.4 to 2.0% of the land area" (GW-J NF Indiana Bat EA-20. At such gap phase regeneration rates, a large percentage of ESH has undoubtedly been created during the current plan period, and more ESH is constantly being created. The FS should use gap phase regeneration rates to predict future ESH levels in the GWNF. This is in addition to openings already existing on the GWNF or predicted on the GWNF, including utility corridors, undecommissioned road corridors, game openings, and the nearly 400 acres of natural gas openings predicted under Alternative C (DEIS 3-322). Also, the FS states that Alternative C lacks prescribed burning (DEIS 3-77) when it does not (DEIS 2-30); and the FS has the opportunity to carefully allow natural wildfires to create habitat in some areas, particularly remote areas where prescribed burning may be more difficult and where adjacent property is not at risk.

The FS states that ―additional species group protections‖ are part of all alternatives except the no-action alternative and that ―almost all of the species benefit.‖ By stating this the FS admits that only a verysmallnumberofspecies are not benefiting from the protections afforded in Alternative C and other alternatives. We believe that if the FS explored this matter further, we would find that many of the species allegedly not protected in Alternative C thrive in adjacent and nearby cutover lands throughout the landscape, and in and around existing utility corridors, decommissioned and undecommissioned road corridors, game openings, and other openings on the GWNF.

Second, the FS uses inappropriate habitat component descriptions for many of the species it lists as having negative ―Habitat Management Effects Compared to Current Condition‖ in Alternative C (DEIS H-18 to H-29). For example, the FS lists the Cow Knob Salamander,
Swamp pink, Waterfan lichen, Va northern flying squirrel, Southern water shrew, NE bulrush, McGraw Gap xystodesmid, Rock skullcap, Roughhead shiner, Virginia

sneezeweed, Bald eagle, Southern water shrew, and Southern rock vole as ―species that DO NOT need active management‖ (DEIS 3-243) but rock skullcap and northern flying squirrel are listed as having negative ―Habitat Management Effects Compared to Current Condition‖ in Alternative C, despite the fact that it has a greater percentage of land area where natural processes are allowed to operate freely.

The FS places the northern flying squirrel in the ―‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found. The northern flying squirrel is listed among species species ―that DO NOT need active management‖ (DEIS 3-243). See also the Appalachian flying squirrel recovery plan , 1990, pp. 8-14.

The FS places the Indiana bat in the ―‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found:

"*Myotis sodalis* hibernates in caves; maternity sites generally are behind loose bark of dead or dying trees or in tree cavities (Menzel et al. 2001). Foraging habitats riparian areas, upland forests, ponds, and fields (Menzel et al. 2001), but forested landscapes are the most important habitat in agricultural landscapes (Menzel et al. 2005).‖‖ Garner and Gardner (1992) reported that 38 of 51 roost trees in Illinois occurred in uplands and 13 trees were in floodplains. Of the 47 trees in forested habitat, 27 were in areas having a closed (80-100%) canopy, and 15 were in areas having an intermediate (30-80%) canopy.‖ ―Roosts were not found in forests with open canopies (10-30%) or in old fields with less than or equal to 10% canopy cover. In eastern Tennessee and western North Carolina, several maternity colonies were in sun-exposed conifer snags (roost sites were above the surrounding canopy); some of these snags fell and were not used in subsequent years (Britzke et al. 2003).‖‖ Known roost tree species include elm, oak, beech, hickory, maple, ash, sassafras, birch, sycamore, locust, aspen, cottonwood, pine, and hemlock (Cope et al. 1974, Humphrey et al. 1977, Garner and Gardner 1992, Britzke et al. 2003, Britzke et al. 2006), especially trees with exfoliating bark.‖ (www.natureserve.org, accessed Oct. 2011).

The Forest Service does not seem to recognize the precariousness of the species' population in Virginia. Here on the periphery of their range, the Bats' numbers have plummeted. **A net loss of 1300 Bats since counts were initiated in VA winter hibernacula** (IBat EA-11)**, a decline of approximately 75% in this state**. Bat populations in Starr Chapel Cave plummeted from 600 bats in the early 60s to 54 bats by 1996-97. . Bat populations in Mtn. Grove Cave have declined from 23 bats in 1992 to 2 bats by 1997-98 (IBAt EA-11).

The Brack and Brown (2002) study discloses that less than half of identified roost trees are shagbark hickory, but here the FS mainly only protects shagbark hickories in its inadequate mitigation measures with no assurance that adequate other potential roost trees are protected. Research in Indiana and Kentucky indicates that bats range up to 5 mi. from hibernacula during fall and spring swarming periods (ibid p. 25). Clawson(2002) reported an 80% decrease in bat populations over the last 40 years in the southern portion of the bats' range (Alabama, Arkansas, Kentucky, Missouri, Tennessee, and Virginia) (ibid, 13).

The FS has not performed the needed surveys and inventories of the area and its habitat (the proper site-specific good faith "hard look" by qualified personnel using valid methods) necessary for clearly establishing the status of the Bat here, it is clear the agency would not be placing the requisite highest priority on the Indiana Bat and other T&E bats and their habitat. Past dereliction as regards proper survey information was articulated at the appeal resolution meeting for the Chestnut Ridge #2 TS on the GWNF Deerfield RD where agency personnel declared that it "wouldn't do any good to

determine if Indiana Bats are using this area."

Logging allowed in many of the Alternatives could adversely affect roosting (sheltering), maternity (breeding), foraging (feeding), and swarming habitat of the Indiana Bat and other T&E bats. Logging could remove the very trees (large mature with broken tops and cavities and snags and exfoliating bark) with the characteristics known to be used or favored by the Bats. Top priority should be given to the Bats.

This felling/removal also ignores the Bats' known loyalty to habitat. The must address the impact of removing a roost tree when the bats are not there. There is the need to consider, loyalty to the roost trees, stress of finding new roosts, and the impacts of removing trees next to roosts or potential roosts (i.e., making the tree more susceptible to windthrow and changing the thermal dynamics).

Ignored also is the fact that the Bats are known to especially use riparian and stream corridors for dispersal and feeding. All forested habitat is not "equal', yet the agency's EA/BE analysis traditionally acts as if it is. The agency is proposing to disturb and degrade areas of Forest that are particularly important to the Bats. Most, if not all, of the tracts proposed for logging are adjacent to streambeds.

Efficacy of proposed mitigation measures for the Bat must be explained, and they must completely compensate for potential adverse effects. For example, the increased susceptibility of remnant leave trees to windthrow should be assessed. Efficacy of retaining only shagbark hickory trees is unsubstantiated; the Bats are known to use other tree species that are present here that the cuts will remove. See Table 4 at pg. 21 of GWJNF IBRS. White, chestnut, and northern red oaks, species which are prevalent here, are "Class 1 Tree Species" and are likely to be used for roosting and maternity sites. The effectiveness of retaining a certain number of snags per acre should be substantiated. If the Bats were receiving the required ‖top priority‖ all snags and large potential den trees would be retained. See Bensman v. USFS (1997). The mitigation may not necessarily retain the large old or dead/damaged trees of greatest benefit to the Species. And concern over low snag amounts (and quality) are not merely conjectural. See the information found in USDA FS General Technical Report SE-94 "Biodiversity and Coarse Woody Debris in Southern Forests" (incorporated by reference).

Another mitigation often offered for I. Bat roost trees is in effect no mitigation. "If during implementation active roost trees are identified. . ." Loggers or timber officers can not be expected to be qualified at identifying or locating TESLR species or roost trees. And there is no assurance that they would notify proper authorities if they did find anything. Reliance upon such mitigation for a FONSI is unreasonable and/or arbitrary and capricious.

There is no mitigation requirement for examining cut trees to ascertain if "incidental take" or significant harm to Bats should occur. In a meeting attended by members of the appellants on July 26, 2002 at the GWNF Deerfield RD office, the agency timber sale administrators and contract inspectors present made it quite clear that they ‖do not monitor or track wildlife killed‖ at logging sites.

Of particular concern are cumulative impacts to the IB. The proposed action, in concert with other past, present and future actions, could result in CIs to the Bat. Past actions have already harmed Bat habitat in this analysis area. There is clear evidence that further habitat modification (e.g., cutting of trees for sale) is foreseeable here and elsewhere in the Bats' habitat in this Forest and ranger district. The agency's assertion that CIs will not result to the Bat's populations here or in Virginia must be explained & substantiated. The Bats' viability is particularly at risk here due to it being on the edge of its range and its small population in Virginia.

The agency is at present modifying and/or damaging and/or degrading and/or destroying IB habitat (or contemplating such) throughout its range. These actions

include, but are not limited to, the Dice Run, Open Trail, Johnson Mtn., Shady Mtn., Enterprise, Sugar Tree, Lip Trap, Hiner Hollow, Jehu Hollow, Apron, CMB, Bark Camp, Hagan Hall, Chestnut Ridge #2, Sandtrap, Nutters Mtn., Panhandle, Barn Hollow, Rogers Road, Peter's Ridge, Peters Mtn., Taylor Branch, Broad Run, Bear Trap, Hoover Creek, Canbe, Enterprise, Johnson Mtn., Uneven Steven, Open Trail, Slate, and Mulligan TSs on the J-GWNFs.

The planners often do not seem to recognize the precariousness of the species' population on this Forest. Here on the periphery of their range, the Bats' numbers have plummeted. A net loss of 1300 Bats since counts were initiated in Virginia winter hibernacula (GWJNF IBat EA-11), a decline of approximately 75% in this state.

The FS places the Big Levels salamander in the ─╢ category. The DEIS does not properly analyze which alternatives have stronger or weaker protection for the habitats where this species is found. The DEIS does not analyze the degree to which alternatives would promote (or not promote) greater interaction with the eastern red-backed salamander and the degree to which this could adversely affect the salamander: ─This recently described species from the Blue Ridge Mountains of the eastern USA is known only from 15 sites in a small area in the vicinity of Big Levels, Augusta County, Virginia, at elevations ranging from 579m asl (Lake Sherando) to 1,091m asl (at the top of Bald Mountain). It overlaps very narrowly with Eastern Red-backed Salamander *Plethodon cinereus* on the edge of its range.

Conservation Actions: Most of its range is within the George Washington National Forest, but the management of this is not necessarily compatible with the conservation of this species, perhaps especially when logging is permitted. There is a need for continued close monitoring of the population status of this species.│ (IUCN Redbook species account for the Big Levels salamander http://www.iucnredlist.org/apps/redlist/details/61905/0, accessed Oct. 2011).

The FS places the shale barren rockcress in the ─╢ category. The DEIS does not properly analyze which alternatives have stronger or weaker protection for the habitats where this species is found. ─Management needs are primarily limited to exempting shale barren communities from pesticide application for gypsy moth control. Protecting plants from deer browse also is important. No active management of shale barrens appears necessary.│││ Management needs are primarily limited to exempting shale barren communities from pesticide applicationforgypsymothcontrol. Preventing application of Dimilin and BT is necessary in order to preserve the insect fauna that pollinates the species.│││ No active management of shale barrens appears necessary (Dix 1990). The influence of fire on barren formation and maintenance is likely negligible (Dix 1990). Fires do not typically carry through steep barrens where surfaces are bare and tree cover sparse (Platt 1951). These barrens remain open and do not require fire for opening maintenance. On barrens with shallower slopes, herbaceous cover may get relatively thick and fire may play a sole in limiting shrub succession (Thompson in litt.). Periods of severe drought may also act to eliminate shrub encroachment and reestablish the barren character (Bartgis in litt.).│ [this latter comment should be applied to our discussion of all shale barren plants in this section.]((www.natureserve.org, accessed Oct. 2011).

The FS places the sword leaved phlox in the ─╢ category. The DEIS does not properly analyze which alternatives have stronger or weaker protection for the habitats where this species is found..│ Shaly slopes in open woods and shale barrens; often occurs along roads. Shales tend to be of Devonian age.│ See also discussion re. shale barren rockcress, above:│ No active management of shale barrens appears necessary (Dix 1990). The influence of fire on barren formation and maintenance is likely negligible (Dix 1990). Fires do not typically carry through steep barrens where surfaces are bare

and tree cover sparse (Platt 1951). These barrens remain open and do not require fire for opening maintenance. On barrens with shallower slopes, herbaceous cover may get relatively thick and fire may play a sole in limiting shrub succession (Thompson in litt.). Periods of severe drought may also act to eliminate shrub encroachment and reestablish the barren character (Bartgis in litt.).‖ (www.natureserve.org, accessed Oct. 2011).

The FS places the rock skullcap in the ―‖ category. Rock skullcap is listed among ―species that DO NOT need active management‖ (DEIS 3-243). The DEIS does not properly analyze which alternatives have stronger or weaker protection for the habitats where this species is found. "Threats: Primarythreatislossofforestcanopy (affects the moist microclimate of forest floor) and invasion of exotic species" and "Management Summary: Stewardship Overview: Preserves should be designed so that they are large enough to allow for population expansion and should include adequate buffer area surrounding occurrences. Invasive exotic plant species and encroachment by woody plants should be controlled. Grazing should be prevented.Forestcanopyneedstobe withoutlargegapsandopeningswhichallowsunlighttodryplants;therefore,canopies should beprotectedfromloggingoreliminationbyothermeans. Populations need to be protected from trampling and other destructive threats. Monitoring needs to be carried out on a frequent basis to assess population size and vigor, reproductive success, habitat quality, and threats. Research is needed to investigate population dynamics, seed dispersal mechanisms, establishment regimes, and the natural history of this species. Preserve Selection & Design Considerations: Preserves should be of sufficient size to sustain viable populations over time. Preserves should be of large enough size so that population expansion can occur.Inaddition,adequatebuffershouldsurround occurrencestoprotectfromoutsideinfluencessuchasexoticspeciesintroductions, erosion,etc. Management Requirements: Ensure that exotic invasive plant species (such as Lonicera japonica and Microstegium vimineum) are controlled or removed as part of management considerations (Homoya 1992, Rock 1992). See www.NatureServe.org (accessed Oct. 2011) [underlining for emphasis]

These are but a few examples.

Third, the FS selectively omits information about numerous species in Table H.2, distorting the meaningfulness of Table B.2.5 (DEIS 3-78 to 79). Key species with omitted information on Table H.2 could be treated favorably for Alternative C while treated unfavorably for some other alternatives Table H.2 states that ―Blank means no difference in habitat among the alternatives.‖ Another category on Table H.2 states ―= means habitat remains the same.‖ It is easy for the FS to inappropriately place species in these categories, even when a comparison of alternatives indicates that there is a clear difference in how habitat is managed forest-wide between alternatives.

For example, the FS places the eastern small-footed bat in the ―Blank‖ category. However, the 2001 VDCR Eastern Small Footed Bat Conservation Agreement states: " When timber harvesting activities occur near summer bat roosts, caves, and foraging areas, use of buffers and minimal disturbance zones is strongly recommended. Timber harvesting techniques that leave snags,and trees with cavities and exfoliating bark are potentially beneficial, and are recommended in areas known to support eastern small-footed myotis. " The conservation agreement states that "Summer roosts are often in trees, buildings, behind loose bark, on rock outcrops, and on rocky ridges (Barbour and Davis 1969; Tuttle1964; Whitaker and Hamilton 1999)." NatureServe states: Warm-season roosts include buildings, towers, hollow trees, spaces beneath the loose bark of trees, cliff crevices, and bridges.‖ And ―The caves and mines that serve as significant hibernacula must be protected from disturbance November through March. If necessary, the entrance should be gated. Foraging areas (mostly streams and ponds) should be

protected from pesticides and anything else that might adversely affect production of the bat's insect food. Forest should not be eliminated above or around hibernacula, nor around foraging areas. Public education about the value of bats is necessary in the long-term.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze which alternatives have stronger or weaker protection of rocky areas, bat roosts, snags, and other habitat components throughout the eastern small-footed bat‘s range.

The FS places the northeastern bulrush in the ―Blank‖ category. NatureServe recommends that ―All populations of *Scirpus ancistrochaetus* should be protected from human intrusions such as development, dredging, water level alterations and off-road vehicles use of the habitat.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze which alternatives have stronger or weaker protection from OHV incursions, or the degree to which the alternatives protect interior portions of the Forest from OHV incursions throughout the northeastern bulrush‘s range and nearby surrounding areas. The DEIS does not analyze the degree to which alternatives have stronger or weaker protection from activities that can change water quality or cause water level alterations.

The FS places the southern water shrew in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Along mountain streams, especially shaded sections in northern hardwood and subalpine conifer forests; also, peatlands with small streams. Generally closely associated with swift, rocky streams, often with moss-covered rocks and rhododendron on the banks, and yellow birch as one of the main canopy trees; other trees in the habitat may include hemlock, red spruce, red maple, sugar maple, beech, or tulip tree (Handley 1991).‖ (www.natureserve.org, accessed Oct. 2011). This could include habitat along ephemeral streams where there are clear differences in protection levels among alternatives.

The FS places the swamp pink in the ―Blank‖ category. NatureServe recommends the following: ―Conservation of this species requires maintenance of appropriate site hydrology (Laidig et al. 2009) Upland buffers are a key tool to minimize indirect habitat degradation, with evidence suggesting that 300-foot buffers are the minimum necessary (USFWS 2007). Of course, direct habitat degradation, such as site drainage, should also be avoided.‖ (www.natureserve.org, accessed Oct. 2011). The DEIS does not analyze the degree to which alternatives have stronger or weaker protection for such habitat components, including protection from illegal OHV access, upstream protection to avoid impacts to site hydrology, and a 300-ft minimum buffer.

The FS places the nodding pogonia in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Leaf-lined depressions on gentle slopes in old-age/maturing forests dominated by Tsuga canadensis and Fagus grandifolia.‖ (www.natureserve.org, accessed Oct. 2011).

The FS places the southern rock vole in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found: ―Cool, damp, coniferous and mixed forests at higher elevations in the Appalachians; mossy rocky areas throughout Canada. Optimal habitat: ferns/mossy debris near flowing water in coniferous forests. Also occupies deciduous forest/spruce clearcuts (mainly recent cuts), forest ecotones, grassy balds near forest, and sterile-looking rocky road fills. Occupies shallow burrows and runways. Nests probably are placed under logs or in similar protected sites. They are made of moss with a lining of grass and have multiple entrance tunnels. "Sphagnum moss is frequently pulled off in clumps where rock voles are found...," presumably for use in nest building (Martin 1971).‖ (www.natureserve.org, accessed Oct. 2011).

The FS places the Allegheny woodrat in the ―Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection for the habitats where this species is found. According to Terwiller (1991), "Populations of Neotoma floridana magister have declined precipitously in recent years in the northeastern and midwestern portions of the range of the subspecies…. In view of the speed of its decline in states to the north, Virginia should initiate a program to periodically monitor woodrat cliffs and ledges throughout the state to gain baseline data on the rat's population." (pp. 550 & 551). See also Mengak, 2002: "A recent study has examined woodrat population structure using microsatellite DNA analysis (Castleberrey et al, 2002c). This analysis suggests that across the woodrats range in Virginia and West Virginia, isolation by distance is occurring…Low population abundance (Tables 6,7 and 8) frequent loss of a colony at individual sites (Tables 4 and 6), declining abundance at monitoring sites (Table 8, Figures 3a and3b), absence of woodrats at 34% of historical sites, and loss of some historic sites to development (Appendix A.2) clearly suggest that the long term survival of the Allegheny woodrat in Virginia is in doubt…. Strategies such as habitat manipulation (eg creation of early successional habitat), nest box construction (as for songbirds, waterfowl, bats, and flying squirrels), and traditional habitat protection (such as bat gates on caves) may have no impact on woodrats." New strategies such as "maintaining sufficient old growth mast producing canopies (Beck 1977; McShea 2000), maintenance of continuously forested corridors," " public education, maintenance of course woody debris such as large snags and fallen logs, and more may be required to insure the long-term survival of the Allegheny woodrat" (See '01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 30-34, See also the entire'01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 1-38,already in your possession, incorporated by reference). E.g, While the extensive distribution of woodrats in Virginia is not in doubt, their long-term survival prospects are not certain. They occur in isolated locations with few individuals per location." (p. 30).

―Throughout its range, this species associated with extensive rocky areas such as outcrops, cliffs, talus slopes with boulders and crevices, and caves.‖ (www.natureserve.org, accessed Oct. 2011).

NatureServe recommends: ―Human intrusion in nesting areas must be discouraged. According to Kirkland (1986), "Although it would be difficult to document a direct cause and effect relationship between the decline of the woodrat and its intolerance of human contact, any management efforts to preserve the eastern woodrat should at least consider this possibility and incorporate into recovery plans safeguards to minimize contact between humans and woodrats."

―Pennsylvania Game Commission has formulated provisional protection guidelines, pending more specific guidance that should come out of current research (Hassinger and Dunn 1989). These guidelines are:

―1. All caves and limestone mines on public land having either NEOTOMA and/or bats in residence (seasonally or all year) should be designated as "no admittance: restricted areas." Caves with a history of public use or easy accessibility should be gated or fenced to reinforce the "restricted area" concept.

―2. Contiguous woodrat habitat, with NEOTOMA occupying any portion thereof, should be protected from any surface disturbance or other form of fragmentation.

―3. No surface disturbance should occur within 200 meters [660 ft] (the primary foraging zone) of active colonies.

―4. A diversity of mature, mast-producing trees (and all evergreens) should be reserved

overtopping and within 50 meters [165 ft] of contiguous woodrat habitat with NEOTOMA occupying any portion thereof.

-5. No tree cutting should occur within 200 meters [660 ft] of the "center" of active colonies. Logging roads should be excluded from this zone.

-6. If a streambottom occurs within 400 meters [1320 ft] of an active colony, a minimum disturbance corridor (no surface mining, no clearcutting...) of 100 meters [330 ft] in width or wider should connect the colony site to the stream corridor.

-7. Blasting - attendant mining - should never be so close as to shift rocks within the colony site.‖
(www.natureserve.org, accessed Oct. 2011).

The FS places Kates mountain clover in the -Blank‖ category. The DEIS does not analyze which alternatives have stronger or weaker protection this species. NatureServe recommends: -Management needs are primarily limited to exempting shale barren communities from pesticide application for gypsy moth control.‖
(www.natureserve.org, accessed Oct. 2011).

The bald eagle, listed as among the -species that DO NOT need active management‖ (DEIS 3-243) is also placed in the -Blank‖ category in Table H.2. The DEIS does not analyze which alternatives have stronger or weaker protection this species or its habitat.

The FS places Cow Knob salamander in the -=‖ category. This salamander is listed as among the -species that DO NOT need active management‖ (DEIS 3-243). The DEIS does not analyze which alternatives have stronger or weaker protection this species or its habitat, including newly discovered areas where the Cow Knob salamander occurs or is likely to occur. NatureServe states: -Mixed hardwood stands, hardwoods mixed with eastern hemlock, and hemlock stands; most abundant in high-elevation old-growth forests with many downed logs and in areas with an abundance of surface rocks (Mitchell 1991), including talus. Tends to be most abundant on north-facing slopes. Occurs under rocks and logs or in burrows during the day. Terrestrial breeder.‖ (www.natureserve.org, accessed Oct. 2011).

These are but a few examples.

Fourth, aquatic/riparian species are omitted from the Outcome Groups table B.2.5, even though these species could be adversely by upstream land management activities. Species including the James spinymussel, Virginia sneezeweed, swamp pink, northeastern bulrush, orangefin madtom, roughhead shiner, Maureens shale stream beetle, Appalachian tiger beetle, southern water shrew, brook floater, yellow lance, Atlantic pigtoe, green floater, notched rainbow, waterfan, eastern tiger salamander, *Cambarus monongalensis*, American eel, brook trout, spotted turtle, wood turtle, and several other species are listed as having -increased protection‖ under Alternative C compared to the existing plan and other alternatives for most watersheds. (Table H.5 DEIS H-46 et seq). Unroaded watersheds are important for maintaining populations of aquatic and riparian species. According to the FS, -waters in inventoried roadless areas have been shown to function as biological strongholds and refuges for many fish species. The size of an area, kinds and intensity of management-induced and natural disturbances that have occurred, and the landscape context in which it is found, all affect the quality, distribution, and extent of these habitats. Some of these waters may now play a relatively much greater role in supporting aquatic species viability and diversity than in the past due to cumulative degradation and loss of other, potentially more

biologically rich habitat within associated drainages. The Nature Conservancy and the Association for Biological Information identified the United States as a global center of freshwater biodiversity. (Chaplin and others, 2000). In examining the distribution of 307 fish species and 158 mussel species that are imperiled or vulnerable, they identified 87 watersheds as aquatic biodiversity hotspots, supporting 10 or more vulnerable or imperiled species. The majority of these watersheds are in the Southeastern United States.‖ (Roadless Area Conservation FEIS 3-160 to 161). The FS should have included aquatic/riparian species, esp. those sensitive to land disturbing activities, in its assessment of the risks to viability of species‖ on B.2.5 on DEIS 3-78. There is no comparable table for aquatic/riparian species. In addition, because the size of an area, kinds and intensity of management-induced and natural disturbances that have occurred, and the landscape context in which it is found, all affect the quality, distribution, and extent of these habitats,‖ the FS should have analyzed the extent to which roadless, remote, and other lands are protected from extractive development in each of the Alternatives and the degree to which aquatic/riparian species would be affected. There are discernable differences among the Alternatives.

Fifth, the FS should have examined whether any minor adjustments in Alternatives would improve the viability of species without significantly changing the nature of alternatives. For example, the FS states that [t]he lack of [active vegetation management in the form of timber harvest and prescribed burning] in Alternative C makes it the only alternative that does not address the viability needs of all of the species on the Forest.‖ (DEIS 3-77). However, the DEIC actually states that prescribed burning would be allowed. It would be limited to managing threatened, endangered, and sensitive species habitats‖ (DEIS 2-30). We believe that if the exceptions to this limitation were expanded to include threatened, endangered, sensitive, and locally rare species habitats (or species equivalent to locally rare species) that require disturbance by fire, many of the problems would be solved. We are aware that prescribed burning using light-on-the-land techniques has been successfully used in inventoried roadless areas on the GWJNFs, including one area that was included in the most recent wilderness bill on the Jefferson NF at the time it was burned. Large portions of the GWNF could still be open to prescribed burning for the indefinite future, even if Alternative C (or a variation of Alternative C) were chosen. In addition, the FS can make careful use of natural wildfires to a greater degree in remote areas as suggested above.

Other minor adjustments could be made, including allowing greater use of liming via helicopters as is done in St. Marys Wilderness.

Some open areas that contain TESLR species requiring openings or early successional habitat could be periodically maintained, as well.

The possibility of making adjustments such as these should be fully explored – provided that that they do not compromise the Alternatives and do not depart from the intents of the aforementioned Alternatives.

Sixth, at least eleven species on the GWNF are undergoing studies to determine whether they will be listed as threatened or endangered species under the Endangered Species Act under a July 12, ‘11 settlement agreement between the Center for Biological Diversity and the US Fish and Wildlife Service, approved Sept. 9, ‘11. See http://www.biologicaldiversity.org/programs/biodiversity/species_agreement/index.html . These species include the roughhead shiner, brook floater, orangefin madtom, yellow lance, Atlantic pigtoe, green floater, Avernus cave beetle, crossroads cave beetle, South Branch Valley millipede, and Tennessee pondweed. These species have been

proposed for listed under the ESA and may warrant, or may soon warrant, higher priority than current priorities.

Seventh, it is not apparent how the analysis takes the potential for climate change into consideration when it assesses the ―risks to viability of species‖ on the GWNF in table B.2.5. The ―additional species group protections‖ (DEIS 3-77) may not be adequate unless they incorporate large core areas, corridors, and connectivity, and take into account the potential for shifts in ranges or distribution of species as a response to climate change. Alternative C (and other alternatives) that incorporate more large core areas, corridors and opportunity for connectivity so might be superior to other alternatives in this respect.

Omission (and misinterpretation of) the Alternative's effects on these species improperly skews the analysis against Alternative C and other alternatives that have a high component of recommended wilderness, recommended-NSA, and protected lands.

Special Biological Areas proposed in Virginia Division of Natural Heritage reports or identified by other sources

The Forest Service should protect and buffer all ―Special Biological Areas‖ and areas with rare communities or other natural heritage resources recommended for protection in 1991 and 2000 reports, subsequent lists, and other biological diversity reports.

Alternative G and some other alternatives understate the acreage of special biological areas found on the George Washington National Forest. The Virginia Division of Natural Heritage recommended numerous areas for protection as special interest areas, research natural areas, and other designations in 1991 and 2000 reports, subsequent lists, and new biological diversity reports. Over 140,824 acres have been so recommended. This acreage includes part of the acreage of the Peters Mountain North, Frozen Knob, and Paddy Run/Cove Run Special Biological Areas that were omitted.

Unfortunately, the Forest Service has only recognized 114,000 acres of special biological areas. Many more acres have been identified in the above-mentioned reports, studies, and lists. The degree to which all of these areas are protected is unclear from the DEIS. Because of this, we want to make it perfectly clear that the areas below should be fully protected as special biological areas in the final plan. This is not intended to be an all-inclusive list. Additional areas have been identified and should be protected as well.

Logging, roadbuilding, OHV use, and extractive development should be excluded from all special biological areas and rare communities. Where appropriate, sound, scientifically-based management techniques should be used to maintain and protect rare species and biological communities.

The FS should review all management prescriptions for every portion of the Forest and should ensure the public that the following areas are protected and that the recommendations of the Virginia Division of Natural Heritage (VDNH) for the areas listed below are included in the final plan as standards. The FS should ensure the public that additional areas recommended by VDNH in other VDNH publications and documents are protected in the final plan as standards.

The 6 candidate areas from the 1993 Plan and the Peters Mountain North special biological area should be designated as candidate research natural areas in this Plan

Revision.

(A.) The following areas are identified in VDNH Natural Heritage Technical Report Rpt 91-1 (1991), already in your possession, incorporated in full:

Big Levels 13423 ac. –Recommended Designation: Research Natural Area.‖ –Swamp pink…populations would be threatened by impoundment construction, and road construction activities that would alter patterns of groundwater seepage. Logging in close proximity to,,,, populations should not be permitted…The possibility of withdrawing all mineral activities from Big Levels should be explored.‖

Laurel Run 5530 ac. . –Recommended Designation: Research Natural Area.‖ –Current threats to Plethodon punctatus include fragmentation of its range…Additionally clearcuts and planted pine stands appear to provide unsuitable habitat.‖‖This area contains substantial undisturbed natural habitat (Stevens 1989) which is important to the Cow Knob salamander and many other forest-dwelling species.‖

Maple Flats 1370 ac/ . –Recommended Designation: Research Natural Area.‖‖Threats…Logging, draining, offroad vehicles‖

Shale Barren RNA 2337 ac. . –Recommended Designation: Research Natural Area.‖‖In general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species and shale woodland communities.‖

Slabcamp/Bearwallow 2838 ac. . –Recommendation: Research Natural Area.‖‖Current threats to the natural heritage resources occurring in the Laurel Fork area are overuse for recreation, offroad vehicle use, natural and artificial red spruce conversion to hardwoods, a general reduction of average timber age, and single or nonsensitive species management prescriptions. Management for a mosaic of communities that would result from natural succession and regeneration process are viewed as the preferred means of protecting all natural heritage resources while maintaining the natural diversity of this unique area.‖‖should be protected as a core conservation site and surrounded by an appropriate buffer, which is recommended as the Laurel Fork SIA.‖

Bald Knob 90 ac. . –Recommended Designation: Special Interest Area.‖‖Road expansion projects should be excluded‖

Big Schloss 476 ac. . –Recommended Designation: Special Interest Area.‖
‖Recommendations…. boundaries sufficient to protect this as nesting and roosting habitat for the peregrine falcon. Additional protection may be needed after a rare plant inventory has been completed.‖
Bother Knob/High Knob 1,626 ac. . –Recommended Designation: Special Interest Area.‖‖Current threats to Plethodon punctatus and many forest-dwelling birds include fragmentation of their habitats. The old growth forest should be left in its natural state to serve as a control area for future ecological studies….all forms of chemical and biological pesticides should be excluded. Protection of the upper Skidmore drainage will create a pristine aquatic ecosystem available for future research. … The proposed area should be designated as an SIA which encloses the Skidmore RNA.‖

Browns Pond 156 ac. –Recommended Designation: Special Interest Area.‖‖timber cutting and road construction should be excluded…The existing forest road that crosses the

outlet or overflow of Browns Pond should not be improved in any way that would affect the drainage or the hydrology of the pond…No timber cutting should occur in or around the sinkholes that are scattered outside of the Special Interest Area boundaries.‖

Craig Cr Shale Barren 95 ac. –Recommended Designation: Special Interest Area.‖‖in general, activities such as road and trail construction, logging, mining and increased visitation are threats to the rare species and the shale barren community.‖

Cow Knob 1129 ac. –Recommended Designation: Special Interest Area.‖ –Current threats to Plethodon punctatus include fragmentation of its habitat and range….‖

Dabney Lancaster Barren 63 ac. –Recommended Designation: Special Interest Area.‖ .‖‖In general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species and shale barren vegetation.‖

Dry Run 397 ac. –Recommended Designation: Special Interest Area.‖‖Road expansion projects should be excluded…‖

Edinburg Gap 250 ac. –Recommended Designation: Special Interest Area.‖ In general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species and shale woodland communities.‖‖chemical and biological pesticides should not be sprayed within site boundaries‖

Elliot Knob 1,025 ac. –Recommended Designation: Special Interest Area.‖

Gauging Station Barren 47 ac. –Recommended Designation: Special Interest Area.‖ .‖‖In general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species and shale barren vegetation.‖

House Hollow 929 ac. –Recommended Designation: Special Interest Area.‖‖A management plan for the area should be developed in conjunction with the recovery plan for Myotis sodalis.‖‖Any land management decisions made which pertain to the House Hollow SIA need to include consideration of subsurface drainage and cave dwelling organisms. The protection of the forests and particularly the riparian areas are essential since these are the most used foraging areas.‖

Laurel Fork 6,601 ac. –Recommended Designation: Special Interest Area.‖ .‖‖Current threats to the natural heritage resources occurring in the Laurel Fork area are overuse for recreation, offroad vehicle use, natural and artificial red spruce conversion to hardwoods, a general reduction of average timber age, and single or nonsensitive species management prescriptions. —

Little Bald Knob 6,884 ac. –Recommended Designation: Special Interest Area.‖ –Current threats to Plethodon punctatus include fragmentation of its range…Additionally clearcuts and planted pine stands appear to provide unsuitable habitat.‖

Loves Run Ponds 617 ac. –Recommended Designation: Special Interest Area.‖‖Activities which negatively affect the hydrology of the area should be avoided. This includes road construction, excavation, and clearcutting‖

Maple Springs 100 ac. –Recommended Designation: Special Interest Area.‖‖Primary management considerations will focus on maintaining the hydrological integrity and mainitaining the proper successional status of the habitat for this species of Scirpus.‖

Middle Mountain 1,346 ac. –Recommended Designation: Special Interest Area.‖ Current threats to Plethodon punctatus include fragmentation of its range…Additionally clearcuts and planted pine stands appear to provide unsuitable habitat.‖‖This area should be designated an SIA with the management objective of maintaining natural migration corridors to the proposed Laurel Run Research Natural Area to the north and the proposed Bother Knob /High Knob Special Interest Area to the south.‖

Paddy Knob 1,764 ac. –Recommended Designation: Special Interest Area.‖ –Threats to the species and habitats of the SIA include any hydrological alteration of the headwaters of Little Back Creek above the existing reservoir.‖

Peters Mill Run 804 ac. –Recommended Designation: Special Interest Area.‖‖Avoid impacts to the surface and groundwater entering and exiting the system…. The creation of new roads and trails should be discouraged..‖‖In general, timber harvest activities in this area should be discouraged.‖

Pines Chapel Pond 152 ac. –Recommended Designation: Special Interest Area.‖‖The protection of groundwater quality and hydrologic integrity is of the utmost importance….Vehicle use within and near the pond should be eliminated. Activities such as clearing, road construction, or excavation should be avoided..‖

Potts Pond 51 ac. –Recommended Designation: Special Interest Area.‖‖The greatest threats to this pond are draining, disruption of hydrology, and direct impacts from off-road vehicles…. Activities such as clearing, additional road and trail construction, or excavation should be avoided in the area of this pond‖

Puffenbarger Glade 141 ac. –Recommended Designation: Special Interest Area.‖‖ in general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species, glades, and the associated woodland communities.‖

Reddish Knob 4,084 ac. –Recommended Designation: Special Interest Area.‖‖Current threats to the salamander include fragmentation of its habitat. Additionally clearcuts and pine stands appear to provide unsuitable habitat…Possible impacts to the plant populations include4-wheel drive access to known sites of rare species.‖

Salus Spring 304 ac. –Recommended Designation: Special Interest Area.‖‖Potential threats include any surface activity that would contribute to a decrease of groundwater quantity and the degradation of either surface water or groundwater quality.‖

Short Mountain 0 ac. –Recommended Designation: Special Interest Area.‖ .‖‖In general, activities such as road and trail construction, logging, mining, and increased visitation are threats to the rare species and shale barren community‖chemical and biological pesticides should not be sprayed on the site.‖

(B.) The following areas are identified in VDNH Natural Heritage Technical Report 00-10 (2000), already in your possession, incorporated in full:

All are proposed SIA sites
Big Cedar Shale Barren – 43 ac. –The shale barren rockcress population should be monitored.‖
Big Levels Extension – 1800 ac. –Timber harvest could remove the overstory necessary to provide shade for the species and could disrupt hydrological conditions necessary to maintain the seeps‖

Blowing Springs 834 ac.‖The [three significant communities] would be greatly altered by logging.‖‖Timber harvests should not be permitted.‖

Brushy Mtn. 76 ac.

Camp Kannata 48 ac.‖The leatherflower population should be monitored and the area surveyed for additional rarities.‖

Campground Barren 26 ac.‖Herbivory on some shale barren plants was noted.‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Cedar Cliffs 26 ac.‖Appalachian Trail should be rerouted away from this site. Timber harvesting should not be permitted.‖

Cemetery Barren 52 ac. .‖Herbivory on some shale barren rockcress plants was noted.‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Chestnut Ridge Seep 127 ac.

Chimney Rocks/Dry Run 668 ac. –Timber harvests should be prohibited in significant forest communities.‖

Cole Mtn. 71 ac. –the site should be monitored to determine population trends.‖

Copeland Barrens 140 ac. .‖Herbivory on some shale barren rockcress plants was noted.‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Cowardin Run 86 ac. –Shale barren rockcress population should be monitored for long-term changes.‖

Cowcamp Gap 81 ac.

Cub Run Headwaters 280 ac. –Occasional prescribed burning‖

Daddy Run Barrens 140 ac. Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖
–Timber harvest should be prohibited within the site boundary.‖

Daisy Knob Barrens 103 ac. . .‖Herbivory on some shale barren rockcress plants was noted.‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Elliott Knob Extension 2215 ac.‖Additional inventory work is recommended.‖

Forest Road 462 Barrens 88 ac.‖Long=term monitoring of Millboro leatherflower populations…‖

Frozen Knob 1125 ac. –Logging or road construction would destroy the integrity of this unusually large stand of old growth.‖

Gauging Station Barrens Extension 175 ac. –Invasion by weeds may adversely affect the shale barrens and timber harvesting would impact the old-growth forest.‖

Grassy Pond 249 ac. –The forests surrounding the pond should be protected from clear-cutting and the site should be monitored for potential vehicular traffic from the adjacent road.‖

Harrington Roadside 57 ac.

Hidden Valley 693 ac. –Additional biological investigation at this site is highly recommended.‖ –Exotic weeds are a major problem in parts of this site.‖

Indian Grave Ridge 35 ac. –The rare plants should be monitored.,.

Lake Moomaw Barrens 397 ac. .‖Herbivory on some shale barren rockcress plants was noted.‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Lower Potts Creek Barren 57 ac.

Mill Hill 76 ac.‖The exotic shrub autumn olive …has abundantly invaded the dry oak-hickory forest occupying the top of Mill Hill.

Mill Mountain Pond 31 ac. –Logging would severely disrupt this site.‖–No active management is required for this site.‖

Moreland Gap Bog 45 ac.‖Actions such as logging on the National Forest portion of this site could affect the upslope hydrology of the significant community.‖

Morris Hill 252 ac. –This site is rarely visited and largely undisturbed. –‖–Timber harvests should be avoided at this site.‖

Mount Pleasant 95 ac.‖The vegetation of this glade is suffering from disturbance by too many campers and hikers.‖

Mountain Grove Saltpetre Cave 697 ac. –Logging could disrupt the foraging area for bats and alter the hydrology of the cave.‖

Mountain View Church 222 ac. –The conservation boundary encompasses the swamp-pink population, a wooded buffer to ensure sufficient shade for the site, and the portion of the watershed necessary to maintain the seep.‖

Mudhole Bog Extension 444 ac. –The site should be protected from significant disturbances to soil and hydrology.‖

Nicholson Run 663 ac. –The [rare plant] should be vigorously protected …the entire area should be surveyed for other rarities.‖

Nimrod Hall Ridge 151 ac.‖The significant communities should be protected from timber harvests. Additional species and natural community inventory of this area is recommended.‖

Northeast Beards Mtn. 866 ac. .‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

Peters Mill Run 821 ac. –Maintenance of groundwater quality, and hence undisturbed conditions in the significant wetlands hydrological recharge zone, is a critical management objective for this site. The source of groundwater for this habitat appears to be on uplands to the west, which should be rigorously protected from timbering, road construction, and other soil –disturbing activities. Additional clearing and habitat manipulation … should be avoided.‖

Peters Mtn, North 4051 ac. –The old growth occurrence occupies approximately 3600 acres on the crests and middle to upper sideslopes of the northernmost ridge of Peters Mountain. Most of the old-growth stand has evidently never been loggedand is in near pristine condition, and has sustained little fragmentation. …Logging or road construction would destroy the integrity of this unusually large stand of old-growth forest.‖

Punchbowl Mtn. 16 ac. Road maintenance activities or logging may threaten the rare species.‖

Ratcliff Hill 33 ac. –The rare plant communities should be monitored and the site protected from disturbances that might permit the introduction of invasive species.‖

Rocky Mtn. Glade 29 ac. –Expansion of the radio tower complex and running new powerlines could potentially harm the rare plant community.‖

Salsus Spring 303 ac. –The exotic watercress should be monitored and timber harvests at this site should be avoided. Zoological inventory is needed…‖

Scott Hollow Barrens 41 ac. –Long-term monitoring of plains frostweed is recommended…‖

Sister Knobs Extension 315 ac. –The site should be protected from disturbance that may permit weed invasion.‖

Solomons Run Barrens 46 ac. .‖‖Long term monitoring of the shale barren rockcress is recommended to determine population trends, source of herbivory on the rockcress, and extent of threat from this herbivory.‖

South Fork Pads Cr Barrens 95 ac. –Long term monitoring of the shale barren rockcress is recommended to determine viability of the population.‖

Spy Rock 22 ac.

Straight Run/Cook Hollow 324 ac. –Timber harvesting or roadbuilding could adversely affect the rare plants at this site.‖

Three Ridges Mtn .1104 ac. –Timber harvest should be avoided.‖

Waterfall Mtn Cliffs 29 ac. –Major disturbances such as clearcutting should be avoided.‖

(C.) All areas listed on the spreadsheet entitled "SBA-Spreadsheets.xls" ("SBA 2009") and any updates should be included as well. The acreage on this spreadsheet totals 136,124 ac.

SPECIAL BIOLOGICAL AREA NAME	ACRES
Anthony Knobs	31
Bennetts Run	2,145
Big Cedar Shale Barren	43
Big Levels - Macrosite	17,751
Big Schloss	476
Blowing Springs	627
Blue Suck Barren	23
Brattons Run Shale Barren	222
Browns Hollow	1,148
Browns Pond	117
Brushy Knob	48
Buck Mountain	1,245
Camp Run Prairie	163

Campground Barren	18
Cast Steel Pond	540
Cellar Mountain	280
Cemetary Barren	52
Chestnut Ridge Seep	127
Chimney Rocks	160
Clayton Mill Pond	28
Clayton Mill Spring	37
Cold Spring Branch	542
Cole Mountain	135
Copeland Barrens	140
Cove Mountain Ponds	99
Cowardin Run	85
Craig Creek Shale Barren	102
Cub Run Headwaters	170
D.S. Lancaster Shale Barren	67
Daddy Run Barrens	103
Daisy Knob Barrens	126
Devils Garden	77
Dry Run	2,075
Dunkle Knob	25
East Sharon Shale Barren	435
Edinburg Gap Shale Barren	351
Elliott Knob	3,139
Forest Road 462 Barrens	74
Frozen Knob Montane Wetland	51
Gauging Station Shale Barren	225
Harrington Roadside	24

Head Waters Shale Barren	98
Heavener Mountain Shale Barren	57
Hidden Valley	1,074
Humpback Mountain	366
Indian Grave Ridge	17
Indiana Bat Primary and Secondary Cave Protection Areas	18,379
Johns Run East Barren	20
Johns Run West Barren	68
Johnsons Creek	335
Lake Moomaw Barrens	398
Laurel Fork	6,694
Little Fork Shale Barren	108
Little Irish Creek	39
Little Laurel Run RNA	1,980
Lower Potts Creek Barren	57
Maple Springs	102
Mill Hill	56
Mill Mountain Pond	31
Millboro Tunnel Shale Barren	207
Moreland Gap Bog	45
Morris Hill	291
Mount Pleasant	95
Mountain Grove	635
Mountain View Church	229
Nicholson Run Seeps	129
Nimrod Hall Ridge	131
Northeast Beards Mountain	854
Ogle Creek	46

Overall Riverside	27
Paddy Knob	1,709
Passage Creek	173
Peters Mill Run Bog	525
Pines Chapel Ponds	323
Pond Run Pond	85
Potts Pond	75
Powells Fort Camp Bog	147
Puffenbarger Glade	141
Punchbowl Mountain	16
Rainbow Rock	101
Ramseys Draft RNA	1,698
Ratcliff Hill	31
Reubens Draft Shale Barren	39
Road Run Shale Barren	136
Rocky Mountain Glade	42
Rough Mountain	2,950
Salus Spring	304
Scothorn Gap	35
Scott Hollow Barren	24
Shenandoah Mountain	54,323
Signal Knob Barren	226
Sister Knob	1,554
Solomons Run Barren	46
South Fork Pads Creek Barren	125
Spy Rock	22
Starr Chapel Primary	1,162
Stuart Run	473

Sugar Run Shale Barren	163
Swamp Run Trib Shale Barren	14
Teets Bog	32
The Priest	723
Three Ridges Mountain - Flatrock	8
Three Ridges Mountain - Hanging Rock	12
Trout Pond	2
Twin Blackwater Ponds	17
Upper Crabtree Creek	209
Upper St. Marys River	2,208
Vances Cove - Revised per Flemming	6
Warm Springs Mountain	146
Waterfall Mountain Cliffs	29
Waterfall Mountain Seeps	71
Whetmiller Knob	49
Winterberry Pond	59
2009 Total GWNF	136,124

(D.) VDNH Tech. Natural Heritage Rpt. 99-2 (1999),), already in your possession, incorporated in full:

Shale Barrens Study, with maps, discussion, rare species list and analysis of significance,

Campground Barren:
Cemetery Barren:
Copeland Barren: Daddy
Run Barrens: Daisy
Knob Barrens: Forest
Rd 462 Barrens: Lake
Moomaw Barrens:
Lower Potts Cr Barrens:
Scott Hollow Barrens:
Solomons Run Barrens:
South Fork Pads Cr Barrens:

(E.) VDNH Natural Heritage Tech. Rpt. 99-4. Already in your possession, incorporated in full:

Limestone and Dolomite Areas Study, with maps, discussion, rare species list and analysis of significance,

―There are a number of reasons why areas underlain by limestone and dolomite should be considered high priorities for conservation. First. Most of the community types that characterize these sites are uncommon to rare in the Virginia national forests….Limited inventory to date has already documented occurrences of more than 25 rare plant species monitored by the Department of Conservation – Division of Natural Heritage (DCR-DNH), which benefit from available soil calcium that is critical to shell formation. Most important is western Virginia's diverse cave fauna, including salamanders, bats, and many invertebrates, eg, isopods (some of them endemic), amphipods, beetles, spiders, millipedes, springtails, and cave crickets. Many cave invertebrates are associated with subsurface streams and interstitial groundwater. …Rare and usual animal life associated with carbonate substrates include a high diversity of land snails Therefore, overall water quality in epikarstic areas is paramount to the long –term viability of these invertebrates and should be a major consideration in Forest planning and management. Lastly, many sinkholes, cliffs, and aggregate karst landscapes are considered significant geological features of geological, scientific and/or aesthetic value‖ (p. 167)

Blowing Springs: ―Timber harvests should not be permitted in this area.‖ ―..Recommended for .. SIA designation‖

Chimney Rocks and Dry Run: ―Timber harvests should be prohibited in significant communities:―Recommended for .. SIA designation‖

Hidden Valley: ―occurrence of …roughhead shiner‖ ―..Recommended for .. SIA designation‖

Lake Moomaw Barrens: ―This site was recommended for Research Natural Area (RNA) or Special Interest Area (SIA) by Belden et al (1999).

Mill Hill: ―..Recommended for .. SIA designation‖

Morris Hill: ―..Recommended for .. SIA designation‖

Nimrod Hall Ridge: ―Significant communities should be protected from timber harvest. ―..Recommended for .. SIA designation‖

Peters Mill Run:

Salsus Spring: ―After this site was originally recommended for SIA designation, a logging road was constructed and areas upslope of the wetland but within the site boundary were clearcut. …additional timber harvests at this site should be avoided.‖

(F.) VDNH Tech. Rpt. 00-07 (2000) , already in your possession. Fleming, G.P. and W.H. Moorhead III. 2000. Plant communities and ecological land units of the Peters Mountain area, James River Ranger District, George Washington and Jefferson National Forests, Virginia. Natural Heritage Technical Report 00-07, Virginia Dept. of Conservation and Recreation, Division of Natural Heritage, Richmond. Unpublished report submitted to the USDA Forest Service. 195 pp. plus appendices.

"The Peters Mountain study area contains several rare natural community types with high biodiversity significance, including shale barrens (LTP 1.3), a natural mountain pond (LTP 2.2), and a high-elevation boulderfield forest (LTP 4.1). Two plant species occurring in the area – *Arabis serotina* (shale barren rockcress) and *Scirpus ancistrochaetus* (northeastern bulrush) – are listed as endangered under the federal Endangered Species Act and by the Commonwealth of Virginia. Also of special significance are approximately 1,900 ha (4,700 ac) of

the area that escaped logging. Included are patches of ca. 1,130 ha (2,800 ac) and 445 ha (1,100 ac) that qualify as old-growth forest under regional criteria set forth by the Forest Service (USDA Forest Service 1997). These patches are among the larger occurrences of old growth in the George Washington and Jefferson National Forests and provide exceptional opportunities for the investigation of disturbance regimes, post-chestnut-blight succession, and compositional variation in stands that have not been altered by cutting." VDNH Natural Heritage Technical Report 00-07 Apr. 2000, p. 189.

According to VDNH, ―This community is considered to be a heritage resource because, covering approximately 3600 acres, it is one of the largest known occurrences of Appalachian oak forest in old-growth condition in Virginia and perhaps in all of the central Appalachians,‖ (Apr, 2, '96 VDNH letter to James River District Ranger Cynthia Snow, already in your possession, incorporated by reference. Also, ―VDNH states: ―It is important to identify these largest areas of relatively undisturbed habitat so that they may be targeted for inventory and assessment of biological significance, for avoidance of further fragmentation, and as logical ―core areas' of reserves.‖ (Apr. 2, '96 letter).

(G.) Coulling, P.P. and T.J. Rawinski. 1999. Classification of vegetation and ecological land units of the Piney River and Mt. Pleasant area, Pedlar Ranger District, George Washington and Jefferson National Forests, Virginia. Natural Heritage Technical Report 99-3. Virginia Dept. of Conservation and Recreation, Division of Natural Heritage, Richmond. Unpublished report submitted to USDA Forest Service.

(H.) Fleming, G.P. and W.H. Moorhead III. 1996. Ecological land units of the Laurel Fork Area, Highland County, VA. Natural Heritage Technical Report 96-08. Virginia Dept. of Conservation and Recreation, Division of Natural Heritage, Richmond. Unpublished report submitted to the USDA Forest Service. 114 pp. plus appendices.

See also

(I.) Fleming, G.P., and P.P. Coulling. 2001. Ecological communities of the George Washington and Jefferson National Forests, Virginia: preliminary classification and description of types. Natural Heritage Technical Report 01-14. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Unpublished report submitted to the USDA Forest Service. 372 pp.

(j.) Fleming, G.P. and K.D. Patterson. 2009. Classification of Natural Vegetation for the Appalachian National Scenic Trail (APPA), Southern Appalachian Section. Natural Heritage Technical Report 09-20. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond.

(K.) The Appalachian Trail MegaTransect Study

(L.) ―Forests of the Central Appalachians Project"

See also plant inventories and other surveys in unique biological communities by R.F. Mueller, Robert Hunsucker and others as part of the ―Forests of the Central Appalachians Project‖ at http://www.asecular.com/forests/ (accessed Oct. 2011)

(M.) The Natural Communities of Virginia : Classification of Ecological Community Groups - SECOND APPROXIMATION (Version 2.4)
http://dcr.state.va.us/natural_heritage/ncintro.shtml (Accessed Oct. 2011)

Impacts of OHV routes and other motorized vehicle routes on Special Biological Areas

The DEIS did not adequately assess the impacts of OHV routes and other motorized vehicle routes in or near special biological areas on the rare species or biological communities.

The Taskers Gap OHV system in and around the Peters Mill Run SBA (MA 4) is one such example. Maintenance projects have been proposed in this area in 2003 and 2009. According a scoping notice regarding proposed alterations to the Taskers Gap trail system circa 2003, the FS stated that the Peters Mtn motorized route is in close proximity to Peters Mill Run and the "the road is very prone to being wet and muddy. The combination of traffic and rain events cause silt and muddy water to occasionally flow directly into the creek. The Lee District has tried to correct this problem but due to the soil conditions and location of the trail the correction has only been temporary… a portion of the Peters Mill system does pass adjacent to Management Area 4, Special Interest Area. This Management Area 4 contains bogs lying to the west of Peters Mill Run" (2003 SN 1). "The Taskers Gap system… has several small wet areas on the trail where there are drainage crossings. There are no mitigating measures that prevent silt from moving off the trail at these sites" (2003 SN 1).

Another example is the Potts Mountain Road. An expensive rock ―barricade‖ was placed between that four-wheel drive route and a special biological area.

There have been a number of OHV-related repair and maintenance projects across the GWNF and JNF in recent years. [The Jefferson NF is included in this discussion because scarce funding and personnel must be divided between projects on both forests, and budgets are interrelated.]

How much has the agency spent on these OHV systems over the last decade? Please examine the fiscal costs of maintaining the entire OHV system on the GWNF and JNF and disclose how much of this money is going towards (1.) make-work activities that must be done on a frequent basis to maintain this expensive system, but yield no real improvements in water quality, soil depletion rates, etc. over the long-term, and how much of this money is going towards (2.) activities demonstrated to improve water quality and soil depletion rates over the long-term, with no diminishment. As the FS has stated n GWNF Planning meetings, the OHV system on the GWNF is increasingly expensive to maintain. The FS should disclose how much of the money for this project is going towards activities like #1 above and how much of the money is going towards activities like #2 above.

The FS should disclose whether the fee structure for existing areas is sufficient to pay for the activities examined. The FS should disclose whether the existing fee structure is sufficient to pay for all activities needed to maintain them adequately and to cause no further degradation of streams (where streams are unimpaired) or to raise water quality levels to unimpaired levels (where streams are impaired).

What watershed and riparian area problems, impacts to plants & wildlife, and other resource problems have occurred around existing routes or could occur again? How will potential impacts be addressed?

Where have chronic problems occurred/are occurring on these (entire) rts and elsewhere in the GW&JNFs? How has the FS addressed these?

OHV use on public lands can cause an inordinate amount of damage to wildlife, native plants, non-motorized recreational opportunities, special areas and SBAs, soils, watersheds, cave and karst areas, heritage sites, aesthetic experience (noise, visual, etc.) and other resources and values.

The FS should consider whether any OHV use is appropriate in these project areas at all. The FS should consider an alternative that would close routes with a history of problems (damage to wildlife, native plants, non-motorized recreational opportunities, special areas and SBAs, soils, watersheds, cave and karst areas, heritage sites, aesthetic experience (noise, visual, etc.), litter, and other resources and values).

We expected the DEIS to address these issues but it has not.

Old Growth

The Forest Service should protect all existing old growth forest of one acre or larger**.** Alternative G allows logging in two of the most common forest types - areas where old growth is most likely to be found. Alternative G does not adequately protect the entire Peters Mountain North area identified as old growth by Virginia Division of Natural Heritage.

Old growth habitat is a rare habitat in the Southeastern U.S. According to the Regional Old Growth Guidance (R8-FR-62)("RG"), "old growth forests are rare or largely absent in the southeastern forests of the United States. Existing old growth communities may represent around 0.5% (approximately 676,000 acres of the total forest acreage (approximately 108,400,000 acres) in the Southeast (Davis 1996)"

Old growth forests comprise only ~0.5 percent of the forested areas of the southeastern region as a whole according to the Forest Service's own regional old growth guidance. Much of this is in small tracts that were historically difficult to access. Of particular importance are the sizeable old growth tracts at Peters Mountain North and Frozen Knob areas identified by the Virginia Division of Natural Heritage. These areas should be designated as being unsuitable for logging and roadbuilding and protected as research natural areas or special areas (old growth protection). The Forest Service should examine the locations of small, medium, and large tracts of old growth across the Forest to ensure that there is adequate distribution of tracts of all sizes across the Forest, and to ensure that appropriate linkages are provided.

The Peters Mountain North site ―encompasses an unusually large contiguous stand of old-growth oak-dominated forest. The old growth occurrence occupies approximately 3600 acres….‖ (VDNH Tech. Rpt. 00-10 pp. 74). ―This community is considered to be a heritage resource because, covering approximately 3600 acres, it is one of the largest known occurrences of Appalachian oak forest in old-growth condition in Virginia and perhaps in all of the central Appalachians,‖ (Apr, 2, '96 VDNH letter to Ranger Cynthia Snow. The nearby Frozen Knob tract encompasses an additional 1,100 acre ―unusually large contiguous stand of old growth Mid Appalachian mixed oak forest.‖ (VDNH Tech. Rpt. 00-10 pp. 44).

―We would state **unequivocally** that the outstanding size and internal community type diversity of the Peters Mountain old growth warrants its **exclusion from the timber base** and justifies formal protection of some kind.‖ VDNH Natural Heritage Technical Report 00-07 Apr. 2000, p. 180. [bold text for emphasis].

Old growth forest is a rare community listed among "ecosystem communities that have declined by 70 or more in the South since European settlement" as described by Noss et al, 1995 and listed in the Southern Forest Resource Assessment Table p. 20 (already in your possession; included as a reference in the Draft Plan). The rare communities include old growth deciduous forests, Southern Appalachian spruce fir, and canebreaks ("critically endangered: > 98% loss"), red spruce, Appalachian bogs, and ultramafic glades ("endangered 85-98% loss), and bottomland and riparian forest ("threatened: 70-84 % loss). Protection of old growth is not primarily a social issue. Protection of old growth is not optional. Protection of old growth is scientifically defensible

because old growth forest is an important ecosystem community that is rare on the landscape and —critically endangered.‖

FS disclosure distorts the amount and distribution of old growth on the GWNF. The FS readily, and without explanation, substitutes the terms -old growth‖, -old growth using Region 8 guidelines‖ and -possible old growth‖ throughout the DEIS and its maps without distinguishing whether a term it refers to old growth verified in the field using all four criteria in the Region 8 Old Growth Guidelines, or old growth defined using less than all four criteria in the R-8 OG Guidance, or old growth identified using simply FSVeg data. This misleads the decisionmaker and the public regarding the extent of old growth in the GWNF.

Based on conversations with FS staff at '11 Plan Meetings and email correspondence with FS staff, I learned that Table B.3.2 (DEIS 3-146) and the July 26, 2006 Old Growth maps on the Plan Revision website only refer to areas that may be old growth according to FSVeg (forest type and age type). No other criteria are used. CISC and its successor FSVeg have known to be highly unreliable when determining whether an area is old growth because age classes are determined using a different method (a silviculturally based method) from that which biologists actually use to determine the age of an old growth tract. Regional Old Growth Guidance acknowledges the fact that CISC data is unreliable. FSVeg also frequently misidentifies or oversimplifies forest type. In addition, in our experience of over a decade of forest watch work, we know of numerous examples where the FS has categorized stands as not meeting the Region's old growth criteria, even when the stands met the same FSVeg (or CISC) age classes used to classify stands as old growth in this DEIS. In fact, even for stands meeting the FSVeg age-classes, old growth recognition appears to be the exception and not the rule. We question the subjective misapplication of criteria or misuse of quantitative criteria to improperly exclude some forest tracts from old growth recognition on the GWJNFs (see, eg, our report —And Still They Fall‖ http://www.virginiaforestwatch.org/docs/OldGrowthWhitePaper2ded.pdf, incorporated by reference).

This poses several problems. The old growth acreages in Table B.3.1 are undoubtedly overestimated. The NEPA analysis in the DEIS does not provide enough evidence to make a determination as to whether there is an adequate level of old growth forest on the Forest or whether it is distributed adequately. Because of this, a decision to allow the cutting of old growth in Forest Type 21 and/or Forest Type 25 cannot be justified. A decision to allow the cutting of any old growth could not be justified.

Because of the above, Table B.3.2 (DEIS 3-146) undoubtedly also contains unreliable information about the actual distribution and size of small, medium, and large tracts of old growth tracts on the GWNF. The NEPA analysis in the DEIS does not provide enough evidence to make a determination as to whether there is an adequate level of medium and large tracts of old growth on the Forest, its distribution, or whether the actual largest medium and large-size tracts are protected. Table B.3.2 contains no information on the old growth forest types of old growth in the small, medium and large tracts of identified old growth tracts and there is no cross-walk between small. Medium, and large tracts and old growth forest types in the DEIS, so the decisionmaker and public have no way to determine whether underrepresented old growth forest types of various sizes are being adequately protected. Because we do not know how many actual medium and large old growth tracts exist and the proportion of them that contain underrepresented old growth forest types, a decision to allow the cutting of any old growth cannot be justified. Because of this, a decision to allow the cutting of old growth in Forest Type 21 and/or Forest Type 25 cannot be justified.

According to the DEIS, " to date no species had been identified in the Southeastern United States that is considered an old growth obligate; that is requiring old growth for some portion or all of their life cycle" (DEIS 3-144).

This declaration is in sharp contrast to FS findings in other regions of the country. For example, there are over 58 species of wildlife on the Kootenai NF in Region 1 that rely or depend upon old-growth habitat for such purposes as breeding, feeding, thermal cover, or hiding cover (USDA Forest Service. 1991. Forest Service Manual. Title 2400 _ Timber Management. Kootenai National Forest Supplement No. 85. Also see KNF Forest Plan Appendices 16 and 17.). And Warren (1990), a FS publication states: "Of 48 old-growth-associated species occurring in

the [FS] Northern Region, about 60 percent are thought to require stands larger than 80 acres." And ..."The greater vertical and horizontal diversity found within an old-growth stand allows for niche specialization by wildlife. Although the individual wildlife species occurring may not be unique to old-growth stands, the assemblage of wildlife species and the complexity of interactions between them are different than in earlier successional stages." The questions these findings pose is: why are dozens of species considered old growth dependent or old growth associates in the Northern Region when not ONE single species is considered old growth dependent or an old growth obligate in the southeastern US, southern Appalachians, and GWNF, if you would believe the FS? If it is because the southeastern US, southern Appalachians, and GWNF are more "fragmented" than Northern Region forests, then why are there so many old growth dependent species in the heavily fragmented Kootenai NF (See the FS"s Aerial Photo poster of the Kootenai "Kootenai National Forest: A Working Forest" for a vivid picture of the fragmented landscape there.)

And the statement in the DEIS that " to date no species had been identified in the Southeastern United States that is considered an old growth obligate; that is requiring old growth for some portion or all of their life cycle" (DEIS 3-144) is clearly misleading and inaccurate, as demonstrated by analysis on the nearby Daniel Boone National Forest. That Forest found that at least one species ―appears to be old-growth-dependent‖, the sixbanded longhorn beetle. (DBNF DEIS 3-90). That species occurs in Virginia in far southwestern Va. and in Loudoun County, a county close to the GWNF. (www.natureserve.org, accessed Oct. 2011). It is therefore possible that it may occur in the GWNF also. Other species that depend on "old forests with dead/dying trees" as a habitat element in the recent Daniel Boone NF Plan DEIS include sharp-shinned hawk (acknowledged as a locally rare species on the GW&JNF, see GW&JNFs Rare Species list), cerulean warbler (acknowledged as a locally rare species on the GW&JNF, see GW&JNFs Rare Species list), and yellow-throated warbler (DBNF Plan DEIS H-9 to H-32). "Old forests with dead/dying trees" describes essentially the same habitat components as old growth forests (See, e.g., the description of old growth forests by Chief F. Dale Robertson, in RG p. 1&2), so it can be demonstrated that there are species now on the GWNF that do, in fact, require "old growth for some portion or all of their life cycle." The Forest Service has suppressed pertinent information from within the agency that demonstrates that there are in fact old-growth dependent species in the GWNF. Additionally, ―species not now appearing in this area could colonize this habitat, or begin to express themselves in a visible manner, once old-growth is established." (DBNF Plan DEIS 3-90).

Nodding pogonia is a species on the GWNF listed on DEIS Table H.2. NatureServe describes its habitat as: ―Leaf-lined depressions on gentle slopes in old-age/maturing forests dominated by Tsuga canadensis and Fagus grandifolia.‖ (www.natureserve.org, accessed Oct. 2011).

The Allegheny woodrat is a species on the GWNF listed on DEIS Table H.2. New strategies such as "maintainingsufficientoldgrowthmastproducingcanopies (Beck 1977; McShea 2000), maintenance of continuously forested corridors" ―public education, maintenance of course woody debris such as large snags and fallen logs, and more mayberequiredtoinsure thelong-term survivaloftheAlleghenywoodrat" See (See '01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 30-34, See also the entire'01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 1-38,already in your possession, incorporated by reference).

If there are no old growth dependent species in the southeastern US, southern Appalachians, and GWNF, then what are the reasons? (1.) Were there never any? We would like the FS to demonstrate that this is the case if it believes this is so.(2.) Have all of these species been extirpated or killed off as a result of the removal of virtually all of their habitat in the past? If so, then the FS needs to think seriously about allowing the return of as much of this habitat as possible (by deferring logging in many more areas) and, eventually, reintroducing these species as habitat becomes available, insofar as is possible. This is a REAL viability concern that is not receiving adequate consideration. (3.) Are those species that were once dependent on old growth habitat now utilizing other less optimal habitat because that is virtually all that is available? If so, how do we know that this is not putting strains on populations? How long can viable populations be maintained? How is genetic diversity being impacted? (4.) Are there are other factors involved that the definition "old growth dependent" is not capturing? (How does the FS

define "old growth dependent" anyway?) For example, does application of the old growth criteria cause the FS to omit some patches that might serve as old growth habitat because it has slightly different ages or conditions than those in the official old growth criteria? Do the analyses break patches into patches above a certain size (e.g. 80, 100, 250, or 1000 acres) and are any species dependent on those particular types of old growth habitat? Do the analyses consider areas that include BOTH old growth & roadless or remote habitat and are any species dependent of those types of old growth habitat? Do the analyses consider sufficient acreages of very-old old-growth? (For example, the DEIS states that most of the NF"s "mid- and late-successional forests have not yet begun to develop the canopy gaps characteristics of old growth forests" and "it may be centuries" before this occurs (DEIS 3-56).) If not, then the current habitat groupings might not give us an accurate picture of how many species are truly old growth dependent. (5.) Do we simply not know enough about species or how species relate to habitat? If so, we should remember the Aldo Leopold approach - "keeping all of the pieces" (RG-12).

And restricting the analyses and disclosure to so-called"obligates" avoids the very relevant and significant issue of species who may be associated with or prefer old growth. Where does the Regional Guidance mandate that the FS only consider old growth obligates. Regional Old Growth Guidance states " To date no species or species group has been identified as being obligate to old-growth forest communities. However, old-growth forest communities may serve as optimal habitat for some species associates (i.e. red-cockaded woodpecker, salamanders, and landbird late successional habitat associates). Much is still unknown about many species (especially non-vascular plants and invertebrates) associated with old growth. To account for these unknowns, the argument to provide representative old-growth forest communities goes back to Aldo Leopold"s conservative approach of " keeping all the pieces" (Leopold 1949)" (RG 12). [underlining for emphasis]

By utilizing the narrow terms, "old growth obligate" and "old growth dependent", the FS is ignoring many species that prefer old growth, that utilize old growth, or species for which old growth is the optimal habitat. The difference is not just a difference of semantics; instead it reflects our current incomplete level of understanding, and may be a difference of tremendous importance to species living in the NF.

Indeed, the FS should have listed the species that are old growth obligate, old growth dependent and species that prefer old growth, species that utilize old growth, and species for which old growth is the optimal habitat and should have assessed the role that old growth habitat (or particular habitat components typically found in old growth habitat) play in maintaining species diversity. The FS should have conducted a viability analysis that takes into consideration these relationships. And the FS should have utilized this information in evaluating the old-growth values and developing issues, developing land allocation strategies during alternative development, deciding what amount and distribution of various old growth patches are needed, and providing management direction (including strong, binding standards) for old-growth allocations and individual stands of old-growth forest communities. Instead, the FS has side-stepped all of this.

The Forest Service simply did not analyze wildlife and native plant relationships to old growth habitat and therefore devalued the ecological role of old growth in southern Appalachian ecosystems.

The primary goals of the Region‘s old growth guidance is ―restoring and conserving old- growth forests on national forests in the Southern Region.‖ Accordingly, in order to ―restore and conserve‖ this critically endangered ecosystem community the FS should take the broadest approach possible and develop a more scientifically sound approach to old growth than that suggested in the Draft Plan documents. The FS should protect more old growth communities (and buffers and linkages to old growth communities) than the Draft Plan would accomplish.

- The "inconsistency" of stand conditions is a characteristic of old growth; see, e.g., "a temporally and spatially 'shifting mosaic' of age and size-class patches [pg.2] . . . Irregular age distributions are common in old-growth stands [pg.8] . . . the tremendous variability among and combination of features exhibited in old-growth forests.[pg.9]" in "An Old-Growth Definition for Western and

Mixed Mesophytic Forests" by C. Greenburg, D McLeod, and D. Loftis, USDA FS General Technical Report SRS-16, 1997).
- See also "Eastern Old-Growth Forests: Prospects for Rediscovery and Recovery," M.B. Davis (ed.), Island Press, 1996. S
- See also "Composition and Structure of an Old-Growth Versus a Second-Growth White Oak Forest in Southwestern Pennsylvania", by J. Downs and M. Abrams, pp. 207-223 in Proceedings of the 8th Central Hardwood Forest Conference, USDA FS General Technical Report NE-148. An important finding of this research was that "over 90% of all trees in the old-growth stand were < 120 years old."
- Analysis of CWD and LWD must occur. See, e.g., the list of old growth attributes at page H-1 of the GWNF FEIS; .These factors are elements of identifying and assessing old growth.
- See also the relevant information found in M. Spetich, S. Shifley, G. Parker, "Regional Distribution and Dynamics of Coarse Woody Debris in Midwestern Old-Growth Forests", Forest Science 45 (May 1999), 302-13; incorporated by reference. They learned that old-growth forests can have more than three times the volume of deadwood of seventy- to ninety-years-old forests. During the decades following logging, volume of deadwood falls off rapidly and is at a minimum fifty to a hundred years after the cut.
- See also the relevant information found in J.M. Goodburn and C.G. Lorimer, "Cavity Trees and Coarse Woody Debris in Old-Growth and Managed Northern Hardwood Forests in Wisconsin and Michigan", Canadian Journal of Forest Research, 28 (1998): 427-38; incorporated by reference. In this study, habitat structure was measured by total coarse woody debris (snags and fallen wood. CWD provides greater habitat diversity, therefore facilitates the ability to support a wider range of species. The old growth sites had the greatest amount of CWD.
- See also "Avifauna and Vegetation Structure in an Old-Growth Oak-Pine Forest on the Cumberland Plateau, Tennessee," J.C. Haney and J. Lydic, Natural Areas Journal, 2000; (incorporated by reference). The researchers found significantly greater population densities of breeding birds in a plot within the old growth.
See also, D.L. White and F.T. Lloyd, 1998, "An Old-Growth Definition for Dry and Dry-Mesic Oak-Pine Forests", USDA FS General Technical Report SRS-23; D.L. White and F.T. Lloyd, 1995, "Defining Old Growth: Implications for Management", pp. 51-62 in USDA FS General Technical Report SRS-1; L.E. Tyrrell et al, 1998, "Information about Old Growth for Selected Forest Type Groups in the Eastern United States", USDA FS General Technical Report NC-197 (all incorporated by reference), relevant information as the forest types described therein grade into those found at this project area and incorporate similarities in composition, structure and function (e.g., disturbances); see also SAMAB SAA Terrestrial Technical Report pp. 159-161, and GWNF 1993 FEIS Appendix H.

The National Forests in Alabama recently amended their Revised Forest Plan to protect existing old growth, adopting a forest-wide standard which states: —Existing old growth as defined in *Old Growth Guidance for the Southern Region*, when encountered, will be managed to protect its old growth characteristics.‖ This is a good example for the revised GW plan.

Peters Mountain North and Frozen Knob

Peters Mountain North and Frozen Knob old growth areas identified by Virginia Division of Natural Heritage must be identified as unsuitable for timber production. These two areas should be protected in the agency's preferred alternative. Among other reasons, the 3,600-acre Peters Mountain North old growth site and the 1,100-acre Frozen Knob site are large and medium patches of old growth which should be identified during forest planning as part of the old growth network. See Guidance at 17, 19. We recommend that the FS consider the following designation for these two areas: Recommended Research Natural Areas and Management Prescription Area 6A (from the Jefferson National Forest Plan Revision(2004)).

The Virginia Division of Natural Heritage wrote of the area: "Both [old growth tracts

on Peters Mountain] rank among the largest old-growth patches documented to date in the George Washington and Jefferson National Forests (J. Overcash, pers. comm.).

"Old-growth forests have unique biological, scientific, educational, recreational, economic, cultural, and spiritual values (Whitney 1987, Davis 1996, USDA Forest Service 1997). Forest Service guidelines for the conservation and management of these forests are less clear than the operational criteria for their identification. Wewouldstate**unequivocally** thatthe outstandingsizeandinternalcommunitytypediversityofthePetersMountainoldgrowth warrantsits **exclusion from the timber base** andjustifiesformalprotectionofsomekind. Although the amount of old growth in the central and southern Appalachians may be underestimated due to lack of recognition and inventory, estimates of the amount of existing old- growth oak and oak - hickory forest are generally low (Davis 1996, Parker 1989, Smith 1989). Moreover, the remaining stands are subject to increasing fragmentation, as well as compositional changes resulting from fire suppression and the invasion of more mesophytic successors. Because of these factors, collection of baseline data from larger old-growth oak forests is becoming critical. The inclusion of smaller-scale, young patches that have been impacted by natural disturbances such as destructive fires within the unlogged stands on Peters Mountain adds value to these areas. According to White and White (1996),

"Oak and hickory trees can live at least 200 to 400 years, so for most areas we are still within the period for which old-growth forests can have individual trees that predate European settlement. As these trees age and die, emphasis must shift from the question of whether the forest has continuously existed from presettlement times with no direct harvest of trees. Forests that have existed continuously as forests (even if they have changed with such factors as changing climates, chestnut blight, fire suppression, and air pollution) are valuable for research. By recognizing such forest sites, we are essentially recognizing that the forest can be older than the current generation of trees on the site .... Such forests are valuable for their species composition and their ancient undisturbed soils, even if they are not now dominated by old trees or characterized by compositional stability. If we set high priorities only on the patches currently holding large trees, we will miss the full mosaic of patch states .... Such sites are important for understanding natural vegetation....."

VDNH Natural Heritage Technical Report 00-07 Apr. 2000, p. 180. [underlining and bold text for emphasis]

And,

"The Peters Mountain study area contains several rare natural community types with high biodiversity significance, including shale barrens (LTP 1.3), a natural mountain pond (LTP 2.2), and a high-elevation boulderfield forest (LTP 4.1). Two plant species occurring in the area – *Arabis serotina* (shale barren rockcress) and *Scirpus ancistrochaetus* (northeastern bulrush) – are listed as endangered under the federal Endangered Species Act and by the Commonwealth of Virginia. Also of special significance are approximately 1,900 ha (4,700 ac) of the area that escaped logging. Included are patches of ca. 1,130 ha (2,800 ac) and 445 ha (1,100 ac) that qualify as old-growth forest under regional criteria set forth by the Forest Service (USDA Forest Service 1997). These patches are among the larger occurrences of old growth in the George Washington and Jefferson National Forests and provide exceptional opportunities for the investigation of disturbance regimes, post-chestnut-blight succession, and compositional variation in stands that have not been altered by cutting." VDNH Natural Heritage Technical Report 00-07 Apr. 2000, p. 189.

See also VDNH Tech. Rpt. 00-10 pp. 74 & following page.

Also, ―VDNH states: ―It is important to identify these largest areas of relatively undisturbed habitat so that they may be targeted for inventory and assessment of biological significance, for avoidance of further fragmentation, and as logical ‗core areas' of reserves.‖ (Apr. 2, '96 letter). Identified threats to the proposed special interest area are logging or road construction.: ―Logging or road construction would destroy the integrity of this unusually large stand of old growth.‖ (VDNH Tech. Rpt. 00-10, p. 74).

VDNH Natural Heritage Technical Report 00-07 and the sections of VDNH Tech. Rpt. 00-10 on Peters Mtn. North (pp. 74 et seq) and Frozen Knob (pp. 44 et seq), already in your possession, are incorporated by reference into this letter.

Wild and Scenic River Protection

According to VDNH, ―This community is considered to be a heritage resource because, covering approximately 3600 acres, it is one of the largest known occurrences of Appalachian oak forest in old-growth condition in Virginia and perhaps in all of the central There are numerous rivers or river segments within the GWNF purchase boundary that are eligible for designation under the Wild and Scenic Rivers Act, yet many of these were not fully evaluated by agency planners.

The following streams need to be evaluated:

Trout Run, Waites Run, Stony Creek (North of Bayse), German River, Benson Run, Stuart Run, Mill Creek (Maury River), Wilson Cr, Mill Creek (Cowpasture River), Jim Dave Run, Potts Creek, Little Back Creek, Crow Run, Little Crow Run, and Big Marys.
Other streams that were recommended for consideration by the public should be evaluated as well.

The Forest Service must ―[a]lso give consideration to rivers identified in the Pacific Northwest Rivers Study, in State river assessments, or by other Federal or State agencies or by private interests.‖, FSH 1909.12 § 8.11, and NEPA.

Trout-bearing waters listed in Commonwealth of Va. 9 VAC 265-260-00 et seq., which are some of the highest quality waterways in Va., should have received consideration as potential W&S rivers.

The importance of the "Fisheries/Aquatic" and "Botanical/Ecological" outstandingly remarkable values should have been clearly articulated and clear standards should have been established for protecting and maintaining these resources. This is particularly important in westernVirginia. In the southern Appalachians, rivers and streams are some of the most important components of overall biological diversity. Nearly 400 rare species have important local populations in streams and rivers of the southern Appalachian. The highest diversity of mussels in the world and the highest diversity of freshwater fish, crayfish, and snails is at stake in the southern Appalachians. Approx. 33% of freshwater fish, 50% of mussels, and 75% of crayfish are now at risk (SAA, SAFC/Ga. Forest Watch "Streams of Diversity"). According to a study commissioned by the American Fisheries Society Endangered Species Committee,

there are "297 native freshwater mussels [in the U.S. and Canada], of which 213 taxa (71.7%) are considered endangered, threatened, or of special concern... and only 70 (23.6%) as currently stable... Freshwater mussels (also called naiads, unionids or clams) of the families Margaritiferidae and Unionidae are worldwide in distribution but reach their greatest diversity in North America with about 297 recognized taxa... During the past 30 years, numbers both of individual and species diversity of native mussels have declined throughout the United States and Canada. Freshwater mussels (as well as other aquatic species) are emperiled disproportionately relative to terrestrial species... This alarming decline, the severity of which was not recognized until recently, is primarily the result of habitat destruction and degradation associated with adverse anthropogenic activities." (Williams, Warren, Cummings, Harris and Neves, 1993) For example, at its peak, the James spinymussel (Pleurobema collina) was distributed from a location a few miles upstream of Richmond, Va. and throughout the James River basin upstream. Since that time, its range has been reduced by approximately 90% (Clarke and Neves, 1984) The James spinymussel now survives in a few small tributaries of the James. (Terwilliger, 1990) Mussels are highly sensitive to sedimentation and contaminants. (Intro. to mollusks section, Neves, Virginia's Endangered Species, Terwilliger, ed., 1991) Protection of ecological values in rivers and streams are a critical priority in decisions made in this plan . Unfortunately, both Potts Creek and Mill Creek were excluded from proper analysis, even though they provide habitat for the [endangered] James spinymussel. (DEIS D-1). Other waterways that provide habitat for important TESLR aquatic species may have been excluded as well.

The FS needs to ensure that all corridor widths are adequate to protect and maintain the Outstandingly Remarkable Values of these waterways.

Wild and Scenic River Corridors Should Not Exclude the Headwaters and Upper Tributaries of Eligible Waters where Inclusion of Such Areas Was Feasible

The FS should have looked at what W&S river protections, combined with other prescriptions that benefit water quality and fisheries, would best serve to protect at risk aquatic ecological communities. This would include carefully looking at the geometric shapes and corridor widths that are needed to maintain intact watersheds that contribute to the highest water quality. The headwaters of stream and river systems are of utmost importance because they are the source of our clean water. If they are degraded, downstream resources are also at risk of becoming degraded.

Maximizing and Monitoring of Long Term Net Public Benefits

The 1982 National Forest System Land and Resource Planning Rule in its opening paragraph that the resulting plans shall provide for multiple use and sustained yield of goods and services from the National Forest System in a way that maximizes long term net public benefits in an environmentally sound manner. (47 FR 43037, Sec 219.1)

The term net public benefits is defined in the 1982 NFMA regulations as: An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the

National Forest System is consistent with the principles of multiple use and sustained yield.‖(Sec. 219.3)

In other words, Net Public Benefit comprises:

1) Revenues (benefits) and Expenditures (costs) that can be valued in Dollars, and

2) Non-Monetary Costs (inputs, negative effects) and Benefits (outputs, positive effects) expressed in quantitative or qualitative terms including Ecosystem Services valuations.

Long term Net Public Benefits of an alternative are maximized when, over the 10-15 duration of the implementation of that alternative:

1. The public benefits derived from the provision of goods and services—including Ecosystem Services—as outlined in the alternative are higher than the public costs incurred in providing them,

2. The stock, store, supply and value of the goods and services—including Ecosystem Services—available is maximized so that the potential yield of goods and services could be maximized over the term of the alternative, and

3. There is no conceivable other mix of goods and services—including Ecosystem Services—or use of resources that could provide any higher long term Net Public Benefit.

Within the constraints of its budget, the Forest Service maximizes long term Net Public Benefit by creating, considering and choosing the alternative that generates the greatest long term Net Public Benefit over those that create a lower long term Net Public Benefit or a net loss. Long term Net Public Benefit for an alternative is maximized when management directives, goals, objectives and prescriptions allow and encourage those management activities that increase the supply and value of goods and services and strictly limits or eliminates those management activities that decrease the value of goods and services so that the supply and value of available goods and services is maximized.

What does it mean when long term Net Public Benefit is not maximized? It means that when both monetary and non-monetary effects of the forest plan are considered and estimated, that a different use of funds, pursuing different activities, or refraining from particular activities could provide society with a higher long term Net Public Benefit than the one achieved by the GWNF Plan. Long term Net Public Benefit cannot be maximized when activities allowed under one alternative that have a lower long term Net Public Benefit are preferred over activities that are allowed by another alternative which have a higher long term Net Public Benefit.

The Unites States Forest Service, both in its forest planning, implementation and monitoring, has consistently failed to fulfill its legally required responsibilities with regard to long term Net Public Benefits. For example the January 1993 Final Revised Forest Plan and Final Environmental Impact Statement for the Revised Land and Resource Management Plan for the George Washington National Forest, contain no mention of

long term Net Public Benefits in the entire document. The DEIS uses the term twice: the term net public benefit is defined in the glossary (Glossary-5) and is mentioned once in reference to 1982 regulatory requirements (The Analysis Process, Appendix B, B-90). Neither the Final Plan or the Final DEIS contains any long term Net Public Benefit analysis, comparative or otherwise.

The DEIS appears to use Present Net Value as a proxy for long term Net Public Benefit. This arbitrary and capricious abdication of responsibility results in comparative economic analysis which totally ignores the value of the stock of resources—increasing or decreasing—over the long term. It also fails to include any valuation of Ecosystem

Services—a critical component of long term Net Public Benefits—over the term of the plan.

The April 2011 DEIS is no improvement. Its only references to net public benefit makes note of the NFMA regulations and states that ―for resources that have no values estimated by generally accepted methods, we will discuss them in a narrative fashion as part of the assessment of net public benefits that is made in the Record of Decision…‖ (DEIS, 3-297). The DEIS then presents Table C12.19: Cumulative Decadal Present Net Value of Benefits and Costs, which compares various components of cost and benefits by program among the 7 alternatives.

The absence of any economic analysis of ecosystem services and the failure of any analysis that values the stock of resources under these alternatives, demonstrates that net present value cannot substitute for long term Net Public Benefits.

Ecosystem services are only loosely defined in the Draft Plan as ―the suite of goods and services from the forest that are vital to human health and livelihood and are traditionally viewed as free benefits to society, or "public goods" - wildlife habitat and diversity, watershed services, carbon storage, and scenic landscapes, for example.‖ (Appendix E , E-19) For instance, there is no mention of public health benefits from recreation activities. (See J. D. Kline, R. S. Rosenberger, E. M. White. ―A National Assessment of Physical Activity in US National Forests‖. Journal of Forestry, September 2011, and

Draggan, Sydney. "National Forests and Public Health Benefits". Encyclopedia of Earth. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). (First published in the Encyclopedia of Earth September 8, 2011)

Nowhere is there any specificity, methodology or analysis of ecosystem services on the range of alternatives. Government agencies regularly do this type of analysis and courts have to do this type of analysis when they try to determine natural resource damages, for instance when there is an oil spill for example and the courts try to assess how much the oil company has to pay to make it right again. (See Daily, G., Alexander, S., Ehrlich, P.,

Goulder, L., Lubchenco, J., Matson, P., Mooney, H., Postel, S., Schneider, S., Tilman, D., and Woodwell, G., ECOSYSTEM SERVICES: Benefits Supplied to Human Societies by Natural Ecosystems, Ecological Society of America. Number 2, Spring 1997.)

In the creation of its range of alternatives and in its subsequent economic analysis of long term Net Public Benefits of the 7 alternatives presented, the DEIS must account for the increased value/benefits over the next 10-15 years of Ecosystem Services which all forest users and non-users benefit from which include, but is not limited to:

** visual quality,
** recreational opportunities, value and health benefits
** stored carbon and continued carbon sequestration capacity of forest flora and soils
** climate change mitigation and prevention
** air quality, including concentrations of Nitrogen Oxides, Sulfur Dioxide, Carbon Dioxide, heavy metals, ground-level ozone, and the the costs of degraded air particulate concentrations specifically from biomass incineration and prescribed burning programs
** soil retention
** water quality, including rising temperatures from lack of forest cover, siltation from management activities, accumulation of herbicides/pesticides from management activities, and
** Prevention of NNIS intrusion and proliferation due to management activities.

The agency appears to assume that the GWNF ID Team has no responsibility to comply with NFMA regulations and no responsibility to analyze, assess or compare long term Net Public Benefits—or ecosystem services—under different management scenarios. ‖While the concept of net public benefits is widely discussed in the economics literature and while various statutes and administrative directives suggest that this is indeed a goal of national forest management, the reality is that there is no objective way to determine when this goal is achieved—too many relevant factors cannot be quantified, let alone expressed in monetary terms. In a democratic society such as ours, the presumption is that net public benefits will be maximized as diverse stakeholders compete with one another through the political process (directive from Ann M. Bartuska, Director, USFS Forest and Rangeland Staff to Regional Directors, File Code: 2400, November 6, 2000).‖ To defer responsibility for clear economic analysis to a ‖democratic political process,‖ is arbitrary, capricious, irresponsible and unacceptable.

The absence of any comparative long term Net Public Benefit analysis in the GWNF DEIS prevents the agency from making a determination of which alternative does maximize long term Net Public Benefit.

Moreover, the absence of any comparative long term Net Public Benefit analysis denies the public critical information from which to compare alternatives and/or determine which alternative, in fact, maximizes long term Net Public Benefit.

A most clear, specific and relevant analysis of net public benefit can be found in;

* Economic Contributions and Expenditures in the National Forests, Prepared by Karyn Moskowitz, MBA, for the American Lands Alliance and the John Muir Project of Earth Island Institute, Washington, D.C. January 1999.
* The Economic Case Against National Forest Logging, Karyn Moskowitz, National Forest Protection Alliance, December, 1999.
* Economic Analysis of the 2006 Wayne National Forest Plan, Greenfire Consulting Group, LLC, Heartwood, May, 2008.

Analysis on maximizing long term net public benefit by issue in the George Washington National Forest can be found in :

* The Conservation Alternative—George Washington National Forest—comments on the Notice of Intent, Wild Virginia and Heartwood, May 6, 2010.

The DEIS should have included the required Net Public Benefits analysis as required by NFMA on all of the alternatives, include comparative analysis of all ecosystem services as specified above.

Roadless Areas

The Forest Service should identify all qualified roadless areas and protect all roadless areas, whether previously inventoried or recently identified, consistent with the provisions of the 2001 Roadless Rule.

Since the time the roadless rule was first considered, over 90,000 comment letters have been submitted by Virginians in favor of roadless area protection. Roadless areas provide important areas for wildlife habitat, recreation, and spiritual renewal.

Alternative G appears to protect roadless areas **inventoried before 2001** with a backcountry prescription, or similar prescription, which is consistent with the terms of the Roadless Rule. The only major departure from the Roadless Rule appears to be a provision for more game openings.

A significant number of **new** areas have been inventoried as part of the forest plan process. Unfortunately, many of these areas are not protected with terms similar to those in the Roadless Rule.

The final plan should be based on the strongest Alternative for inventoried roadless area protection and should provide all significant elements of this Alternative. The final plan should be consistent with the Friends of Shenandoah Mountain proposal as well.

Wilderness

The Forest Service should have recommended substantially more acreage for wilderness and national scenic area designation than the small increase the Forest Service proposes in Alternative G. Alternative G limits new wilderness recommendations to a mere 1.8% of the GWNF (20,400 acres out of 1.1 million acres.) There are 372,000 acres in the Forest Service's list of eligible areas, and many additional areas that would meet road density requirements and other requirments.

Only 4% of the George Washington National Forest is permanently protected Wilderness, far less than the national average of 18% (Johnson 2001; US Forest Service 2000; Southern Appalachian Assessment 1996). The neighboring Jefferson and Monongahela National Forests have a higher percentage of wilderness. Ironically, the George Washington National Forest currently possesses far more roadless areas than other eastern national forests. Roadless areas receive a strong measure of protection under the Roadless Rule, but this protection is not as strong as wilderness protection and does not constitute permanent protection.

The entire Southern Appalachian region is significantly underrepresented in terms of wilderness; in the entire 37-million-acre region, only *ca.* 1.3% (468,000 acres) is currently designated as Wilderness. (Loomis and Richardson 2000 at pp. 20-23; Cordell, SAMAB SAA Social Technical

Report at 178-82; USDA FS Southern Research Station 2006; updated with recent additions to acreage from www.wilderness.net).

There clearly is a high demand for recreation in wild areas. According to the Draft Environmental Impact Statement, hiking and walking is the most popular activity on the forest and this form of recreation is expected to increase by 165% over the next 50 years. Wilderness use is expected to increase by 148% by 2060 (DEIS 3-201 & 202).

Clearly more wilderness (and national scenic area) acreage should be recommended.

The final plan should be based on the strongest Alternative for potential wilderness area protection and should provide all significant elements of this Alternative. The final plan should be consistent with the Friends of Shenandoah Mountain proposal as well.

Virginia Mountain Treasures

Virginia'sMountainTreasures:TheUnprotectedWildlandsoftheGeorgeWashingtonNational Forest (2008) is a publication focused on *mountain treasure areas*, the unprotected wildlands of the George Washington National Forest. Along with dozens of sponsoring groups and business, The Wilderness Society, the Sierra Club, and others have identified 63 areas with high quality fisheries, mature-forest wildlife habitat, backcountry recreation opportunities, intact watersheds, and beautiful scenery across the national forest. These areas, selected for their outstanding wild and natural values, total 602,432 acres.

While it is clearly not an expectation that all of these areas should become designated wilderness, all of them deserve a strong measure of protection from the pressures of development. They are an important reserve of biodiversity. All of them should be protected from logging, roadbuilding, federal gas leasing, and OHV use. They play a critical role in providing wildlife corridors, needed for climate change adaptation.

To the maximum extent possible, the Forest Service should protect all areas identified in the Virginia's Mountain Treasures publication by designating them as unsuitable for timber harvest, new road building, and surface-occupying oil and gas drilling.

These include important areas not yet fully protected as roadless areas such as Great North Mountain and Falls Ridge, part of the Great Eastern Trail route, Catback Mountain, in the Massanutten Mountain area, and the approx. 30,820 acre Jerkemtight-Benson Run area, one of the largest unroaded areas on the Forest.

Alternative G does not adequately protect many of these areas. For example, the Great North Mountain, Falls Ridge, portions of Catback Mountain, and the Benson Run portion of the Jerkemtight-Benson Run area are not protected in Alternative G. Nor are the Toms Knob (Potts Mountain), Signal Knob, Friar, Warm Springs Mountain, Scaffold Mountain (Galford Gap), and Paddy Lick (Paddy Knob) areas, to provide a few examples.

The final plan should be based on the strongest Alternative for VMT protection and should provide all significant elements of this Alternative. The final plan should be consistent with the Friends of Shenandoah Mountain proposal as well.

Protecting Wild and Unroaded Areas in the East, the Appalachians, and the GWNF

"Inventoried roadless areas provide clean drinking water and function as biological strongholds for populations of threatened and endangered species. They provide large, relatively undisturbed landscapes that are important to biological diversity and the long-term survival of many at risk

species. Inventoried roadless areas provide opportunities for dispersed outdoor recreation, opportunities that diminish as open space and natural settings are developed elsewhere. They also serve as bulwarks against the spread of non-native invasive plant species and provide reference areas for study and research species (Final Roadless Rule, January 2001, p3)" (See USDA Forest Service, Federal Register; January 5, 2001) The FS does not appear to fully consider all of these important values in the Draft Plan or ensure that they are protected. If these values were properly and fully considered, as they legally should be, then it is a good probability that a much greater acreage would be recommended as Recommended Wilderness, Recommended NSAs, Remote Backcountry, certain Special Biological Area prescriptions, or other prescriptions that prohibit roadbuilding and logging.

The Plan is fundamentally flawed regarding this important issue. The FS should adequately protect roadless wildlands in this Draft Plan and should designate all inventoried and uninventoried roadless areas under Recommended Wilderness prescriptions, Recommended NSA, Remote Backcountry, certain Special Biological Area prescriptions, or other prescriptions that prohibit roadbuilding and logging.

For proper representation, Wilderness or Wilderness Study Areas should be designated in all the Ecological Units on the Forest (i.e., Landtype Associations).

What are the acreage amounts and proportions of total Unit area for Wilderness and inventoried roadless areas presently in each Landtype Association and in each Subsection?

By basing management decisions and allocations on a greatly restricted scale (1-10,000 acres), the depauperate condition of the greater landscape, and the significant contribution that the GWNF can make to mitigating and rectifying that condition, is improperly ignored and not adequately considered.

An important reason for a greatly expanded wilderness base is the need for metrics by which to gauge the effects of land under various active management regimes. The presence of control areas is a hallmark (or should be) of truly scientific management. At present, what amounts to a vast management experiment is taking place across millions of acres of Appalachian National Forest and private forest lands. Where is the concomitant control area of millions of acres, or even of hundreds-of-thousands of acres ? They do not exist. Even a single Wilderness control area of tens-of-thousands of acres does not exist. Yet we are told consistently that significant impacts are not occurring under intensive management regimes. These conclusions are simply not scientifically defensible. This situation needs to be rectified and is further evidence of the need for a greatly expanded wildlands base on the National Forest.

"One of the greatest potential values of natural areas is as benchmarks or control areas for management experiments. . . . Scientists shudder to think of experiments without controls, but this is the case for much of current natural resources management. . . . Existing natural areas are imperfect baselines for many reasons, but they are the best we have. Ecosystem management, because it is essentially experimental and adaptive, requires natural areas as controls." Christensen et al, 1996, "The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management", Ecological Applications 6: 665-691 (incorporated by reference).

There is a high demand for roadless areas, wilderness areas, dispersed recreation areas, adventure recreation/backpacking areas in the eastern U.S. (esp. region 8 and region 9) According to the Draft Environmental Impact Statement, hiking and walking is the most popular activity on the forest and this form of recreation is expected to increase by 165% over the next 50 years. Wilderness use is expected to increase by 148% by 2060 (DEIS 3-201 & 202).

See Cong. James Hansen Dear Colleague Letter, Apr. 22, 1997. The eastern U.S. has been typically underrepresented in wilderness and roadless area protection. There is a tremendous need to link up and protect remaining eastern wildlands.

The Appalachian national forests, and many of the Appalachian roadless areas, lie at the headwaters of the eastern watercourses and provide drinking water, fisheries, and aquatic diversity for much of the heavily populated east. (See SAFC/PRC, ―Streams of Diversity‖) It is critical that we protect these watersheds to the highest degree possible. Research in areas lacking roads and with minimal levels of human disturbance reveals that "'the importance of wilderness in aquatic conservation is extraordinary' [quoting Hitt and Frissell (1999)] . . . They also concluded that, given the relative rarity of unprotected areas that support a relatively greater

degree of aquatic biological integrity, undisturbed areas warrant permanent protection." (Roadless Area Conservation FEIS 3-161-162; EIS incorporated by reference).

The National Forests in Virginia have unfortunately been forced into serving as de facto wildlife sanctuaries. In biogeographic terms, they are islands of habitat that have paradoxically become the "continental source pools" of the region. These precious remnants of the original Great Eastern Forest are vulnerable arks in a sea of human disturbance. They serve as biological "sources" for the "sinks" that our developed landscape has become (see "Sources, sinks, and population regulation", 1988, H. R. Pulliam, American Naturalist 137: S50-S66; incorporated by reference).

In recent years, scientists, land managers, and policy makers have become more aware of the importance of landscape "representation" to conserving biodiversity. One way to examine the adequacy of representation is the inclusion of representative samples of naturally occurring ecosystems in the National Wilderness Preservation System. Only about 2% of the land area in the continental United States is protected as Wilderness; the situation in Virginia is even worse, with a mere 0.8% of the state as Wilderness. Under the Bailey ecosystem classification regime, the GWNF is part of the ecoregion called the "Central Appalachian Broadleaf Forest - Coniferous Forest - Meadow Province". The area of this province is approximately 43,600,000 acres, which is 2.3% of the conterminous U.S. land area. Only 0.6% of the province is presently protected as Wilderness. And though the province represents 2.3% of the U.S. land area, it only contains 0.6% of the National Wilderness Preservation System. The Wilderness-to-province-area ratio of less than 1 (viz., 0.26) indicates that this ecoregion is under-represented in the National Wilderness Preservation System and not well protected (see Loomis and Richardson at pp. 20-23 [TWS, 2000]; also Cordell). Parts of the GWNF can also be described as part of the "Ridge and Valley" physiographic or geomorphic Province of the Appalachians. This region, stretching from Pennsylvania to Alabama, is approximately 29 million acres in size. At present only around 73,000 acres, or less than 0.3%, of this area is protected as Wilderness. And of the entire 37 million acre "Southern Appalachian" region, only 1.1% (428,000 acres) is currently designated as Wilderness, with another 3.3% as roadless acreage (see SAMAB SAA Social Technical Report at 178-82). The current under-representation is further emphasized by the fact that only about 4% of the GWNF is designated as Wilderness, far below the national average for the National Forest system of 18 percent (Johnson 2001; US Forest Service 2000; Southern Appalachian Assessment 1996). Finally, Forest Service analysts estimate that only 3% of the total forest land area in the East is "reserved", or withdrawn from logging by statute or administrative regulation (USDA 2000 RPA Assessment at pg. 26 [http://www.fs.fed.us/pl/rpa/]).

The southern Appalachians is one of the most biodiverse regions in the country (TWS, et al. Va. Mtn. Treasures) and is under threat from air pollution, encroaching development, exotic plant invasion and a number of other threats. The roadless areas of the southern Appalachians should be of high priority. Protection of roadless areas here can provide a baseline for research and can serve to protect ecosystems from some threats.

The FS should consider all species in the Appalachians known to rely on roadless forests or the clean water flowing from them. Species such a black bear, a wide-ranging mammal, neotropical migratory birds, and key aquatic indicator species such a freshwater mussels should receive high consideration. See TWS letter 11/27/96 to FS, TWS letter 6/27/97 to FS,, TWS letter 12/6/96 to FS,, TWS/SAFC/SELC to FS letter Oct. 3, 1997, PAW letters to FS dated 3/30/98 with enclosures, TWS et all., Va. Mtn. Treasures, 1999, Mon. NF "Roadless Opportunity Area" report, SAFC, Streams of Diversity) Continued development of these areas is negatively affecting a number of species critical to the ecosystems of the east.

The Forest Service should recognize and consider the unique ecological values associated with designated and de facto roadless areas within what is otherwise a heavily roaded and fragmented national forest system. The Forest Service continues to resist change, excluding a sound application of "ecosystem management" that looks at the role of the increasingly scarce roadless resource in sustaining ecosystems far into the future. Scientists both inside and outside of the Forest Service have come to recognized that such undisturbed areas provide critical habitat for the maintenance of biological diversity and population viability. See, e.g., Wilcove, D.S., C.H. McLellan and A.P. Dobson. 1985. Habitat Fragmentation in the Temperate Zone. In:

M.E. Soule, ed. Conservation Biology: The Science of Scarcity and Diversity. Sinauer Associates, Sundland, Mass.; Noss, R.F. 1987. Protecting Natural Areas in Fragmented Landscapes. Natural Areas Journal 7(1): 2-13; Saunders, D.A., R.J. Hobbs and C.R. Margules. 1991. Biological Consequences of Ecosystem Fragmentation: A Review. Conservation Biology 5(1): 18-32; Harris, L.D. and G. Silva-Lopez. 1992. Forest Fragmentation and the Conservation of Biological Diversity. In: P.L. Fiedler and S.K. Jain, eds. Conservation Biology: The Theory and Practice of Nature Conservation, Preservation, and Management. Chapman and Hall Publishers, New York, NY. pp. 197-238.

The establishment of a regional network of interconnected reserves and appropriate linkages is considered, by many scientists, to be critical to managing for genetic, species, and landscape diversity on our public lands. See, e.g., Noss, R.F. 1983. A Regional Landscape Approach to Maintain Diversity. Bioscience 33(11): 700-706; Hudson, E.E. 1991. Landscape Linkages and Biodiversity. Island Press, Covelo, Cal., 195pp. You should consider the unique functions of roadless areas as refugia for solitude-dependent wildlife and at-risk fisheries, reservoirs of undisturbed genetic material, connecting corridors within an increasingly fragmented landscape and natural "control" areas for experimental "management" and scientific research.

You must address the Plan Revision‘s impact on these critical ecosystem features by closely examining land beyond the immediate analysis area and considering the cumulative landscape-scale effects of continued habitat destruction within and adjacent to unroaded forest land in the GWNF. NEPA demands such. See e.g., City of Tenakee Springs v. Clough, 915 F. 2d 1308, 1312-1313 (9th Cir. 1990) (finding Forest Service"s cumulative impact analysis inadequate under NEPA and citing LaFlamme v. Federal Energy Regulatory Commission, 852 F.2d 389 (9th Cir. 1988) for the proposition that remand to the agency for further consideration of cumulative impacts is appropriate where the agency examined single projects in isolation without considering net impacts of all past, present and future projects in the area); Save the Yaak Committee v. Block, 840 F. 2d 714, 721 (9th Cir. 1988); 40 CFR € 1508.27(a) ("the significance of an a
ction must be analyzed in several contexts"). These cumulative impacts include not only present and foreseeable future effects, but also the accumulated, incremental effects of past human activity, including prior degradation or destruction of undisturbed habitat. See 40 CFR € 1508.7.

For example, logging these adjacent or marginal places will degrade the roadless/unroaded area‘s special ecological, recreational, and scenic values; the roadless area will in effect be diminished in size as visitors will have to retreat further and further into the interior in order to escape "sights and sounds of civilization". This and other relevant impacts are not assessed by the planners. The cumulative effects of these actions are important and relevant.

NEPA requires that the Forest Service consider the best available scientific and technical information in making its decisions including the decisions in the Revised Plan. See, e.g., Warm Springs Dam Task Force v. Gribble, 621 F. 2d 1017, 1023 (9th Cir. 1980). The scientific literature on biological diversity makes it clear that logging project assessments should consider, among other things, size distribution and connectivity for various types of habitat patches, amount and distribution of important types of such patches (such as roadless areas) which have been reduced by prior human activity, disturbed and historic vegetative mosaic patterns across the forest, cumulative effects of past activity from a watershed or regional ecosystem level, and edge effects of further forest fragmentation. See, e.g., Noss, R.F. 1990. Indicators for Monitoring Biodiversity: A Hierarchical Approach. Conservation Biology 4(4): 355-364.

The best science states that a major focus of analyses such as this should be to find ways to connect and buffer roadless areas with other undeveloped land to assure species viability and ecosystem functioning is perpetuated. In short, take a "hard look" at the cumulative impacts of allowing logging and road building in unroaded areas and in roaded areas providing corridors or linkages between core roadless areas. See Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976); Save the Yaak, supra, 840 F. 2d at 718-719. State-of-the-art conservation biology and the principles that underlie the agency"s own new policy of "ecosystem management" dictate an increasing focus on the landscape-scale concept and design of large biological reserves accompanied by buffer zones and habitat connectors as the most effective (and perhaps only) way to preserve wildlife diversity and viability. See, e.g., Noss, R.F. 1993. The Wildlands Project Land Conservation Strategy. Wild Earth Journal, Special Issue: 10-26; Baker, W.L.

1992. The Landscape Ecology of Large Disturbances in the Design and Management of Nature Reserves. Landscape Ecology 7(3): 181-194; Graham, R.W. 1988. The Role of Climatic Change in Design of Biological Reserves: The Paleoecological Perspective from Conservation Biology. Conservation Biology 2(4): 391-394; Noss, R. 1995. Maintaining Ecological Integrity in Representative Reserve Networks. World Wildlife Fund, Washington, DC. 77 pp..

Over 95% of the 37 million acre southern Appalachian region is roaded (SAA, 1996). Only 12% of the total area is national forest land, so there are fewer opportunities to protect roadless habitat across the landscape here than in the west. While there are 103.6 million acres in the wilderness system only 4.5% is east of the Mississippi, and there is only 428,545 acres of wilderness in the southern Appalachians. (SAFC, "SAA Highlights" and SAA). All existing roadless areas should be protected to the highest levels possible.

Forest Service projections for the southern region estimated that 1.4 million acres of wilderness would be needed to meet recreational demands and "carrying capacity" of wilderness. (Morton, 1994. The Living Landscape, The Wilderness Society). A 1993 FS study estimates that backpacking in the south will increase 238% by the year 2040. (SAFC, "SAA Highlights" and SAA)

Remaining roadless areas provide essential area-sensitive species habitat, wildlife corridors, clean water, high quality fisheries, clean water sources for freshwater mussels, and habitat for wide-ranging, disturbance-sensitive herbivores, omnivores and carnivores like elk, bears, wolves, and cougars, etc. (both existing and extirpated species). Black bears occupy only 5-10% of their former range in the southeast and "would now likely be totally extirpated in this region were it not for federal lands containing designated wilderness or de facto wilderness" (Pelton, "Habitat needs of black bears in the east," in Wilderness and Natural Areas in the Eastern United States, Kulhavy and Conner, eds., 1984) Other such species have been extirpated or are barely
surviving in the east, such as the Fisher.

Inventoried roadless areas comprise only 752,000 acres of the southern Appalachians, or 2% of the landscape. Conservationists in the southern Appalachians have identified another 750,000 acres of de facto roadless areas and wildlands in the region. (AL, NC, GA, TN, SC, VA Mountain Treasures volumes, The Wilderness Society; PAW, Heartwood, and Virginians for Wilderness roadless/wildlands area proposals for G Wash. NF and Jefferson NF; SAFC; special areas in the Save Americas Forests Bill.) Given the high demand for recreation and the need for maintaining this wild habitat, all of these de facto roadless areas should be fully protected in the Plan Revision. (See below).

In the spring of 2009, I reviewed the GIS layers the GWNF used to make the determination of potential wilderness areas. I looked at as many configurations in the vicinity of each Virginia Mountain Treasure area as possible. I looked at configurations that would yield an area as large as possible in the vicinity of each Virginia Mountain Treasure area. I found that:

(Category A): There is strong evidence that the following areas would meet road density criteria without any adjustments at all, or slight adjustments that do not materially change the acreage of the area:
Great North Mountain
Falls Ridge
Church Mountain
Signal Knob
Catback Mountain
Short Horse Mountain
Dunkle Knob
Broad Run (Dyers Knob)
Signal Corps Knob
Jerkemtight-Benson Run
Elliot Knob
Sidling Hill
Scaffold Run

Scaffold Run incl. the Monongahela NF portion
West Back Creek Mountain
Warm Springs Mountain
Little Mare Mtn
Mud Run
Panther Knob incl. Monongahela NF portion

(Category B): There is strong evidence that the following areas would meet the road density criteria with some small adjustments to boundaries:
Jonnies Knob
Big Schloss
Long Mtn
Cove Mtn
South Massanutten Mtn
Little Cow Knob
Hogpen Mtn
Kretchie Mtn
Feedstone Mtn
Wildcat Ridge (Radar Mtn)
Walker Mtn
Hankey Mtn
Back Creek Mtn
Short Mtn
Rough Mtn
Longdale (North Mtn)
Jerrys Run
Slaty Mtn (Dameron Mtn)
The Friar
Whites Peak

(Category C): Size and configuration of the FS-recognized Potential Wilderness Area is the same or very close to the size and configuration of the Virginia Mountain Treasure Area:
North Massanutten
Dry River (Skidmore, High Knob)
Archer Knob
Dolly Ann
Mill Mountain (Rich Hole Addition)
Kelley Mtn
Gum Run
Oak Knob
Skidmore Fk
Little River
Bald Ridge/Lynn Hollow (Ramseys Draft Addition)
Shaws Ridge
Crawford Mtn
Laurel Fk
Paddy Lick
Little Allegheny
Toms Knob
Olliver Mtn
St Marys A, B, C

(For each of the categories above, I am referring to an area approximating <u>all or nearly all of the larger</u> Virginia Mountain Treasure area as the starting point of the examination, This is the case even if the FS recognizes only a smaller area as roadless or PWA)

See also the attachment at the bottom of this section (from SELC, Sierra Club et al. comments on the GWNF Plan submitted June 8, '09).

This is not intended to be an all-inclusive list. Other areas on the GWNF may meet road density requirements, including significant portions of areas not listed above. In addition, other areas could and should be examined by the FS, including the Bearwallow Mtn area in the James River RD.

The FS simply has not properly evaluated and inventoried all unroaded areas on the GWNF. The FS has not examined and recognized as potential wilderness areas the largest areas of any configuration in the vicinity of Virginia Mountain Treasure areas and other de facto roadless areas across the GWNF. The PWA inventory is incomplete and inaccurate. There is nothing in the administrative record that shows all possible configurations that were examined in the evaluation of PWAs. The public and decisionmakers have know way to know how the FS determined what areas are PWAs and what areas are not or whether key areas were omitted from the inventory.

In addition, a disproportionately high number of areas in the James River District, Warm Springs District, Pedlar District, and Lee Ranger District were omitted from the PWA inventory despite the fact that a number of areas in these districts appear to meet the roadless criteria for areas east of the Mississippi River. And a disproportionately low number of areas in the James River District, Warm Springs District, Pedlar District, and Lee Ranger District were recommended for wilderness or national scenic area status. Additional areas in these districts should be recommended. See the attachment at the bottom of this section (from SELC, Sierra Club et al. comments on the GWNF Plan submitted June 8, '09) regarding the FS's bias against areas 5,000 acres or smaller that meet the roadless criteria. [Or is it 6000 acres? If one examines the areas selected, the FS's scale has appeared to slide upward from that of the JNF Plan Revision. This is arbitrary and capricious.] Based on conversations with FS personnel in 2009, I learned that smaller roadless areas in these districts were not as high a priority as roadless areas in other portions of the GWNF. This is inappropriate. The FS should consider other factors as well, such as the distribution (and underrepresentation) of protected roadless areas across the GWNF, biological diversity, presence of rich forests or unique biological communities that may be enhance by wilderness or roadless area protection, proximity to natural heritage resources, and other factors.

Just as importantly, many of these other areas of the GW are very worthy of WSA designation. No wilderness exists in the Lee Ranger District, and part of the Big Schloss PWA should become WSA. Several other PWAs in the North River Ranger District should become WSA, including Beech Lick Knob, High Knob, Gum Run, Hone Quarry-Oak Knob, and Jerkemtight. Laurel Fork PWA in Warm Springs Ranger District is a truly unique and special place also deserving to be WSA.

If these de facto roadless areas are not protected, then Forest Service logging, roadbuilding and development will increase in these unacknowledged (uninventoried) areas. The de facto roadless area base will still continue to shrink in spite of the policy. Opportunities for new/existing biological corridor and landscape protection will be foregone.

Because of the increasing scarcity of roadless land in the Appalachians and the East, the ever-increasing awareness of the importance that these areas have for the conservation of biological diversity, any management action within a roadless area is unwise and neither well-reasoned nor well-informed.

A bioregional and ecosystem approach to wilderness protection reflecting the best science available (conservation biology) shows that further degradation of roadless areas is scientifically, ethically, biologically, and socially unacceptable.

The current roadless area "inventory" for the GWNF is inaccurate, unreasonable, ommissive, and illegal. Areas that qualify as inventoried "roadless areas" (e.g. areas listed above) are not included in the inventory. In addition, neither the DEIS nor proposed LRMP clearly and

specifically identify and analyse all the "unroaded" areas on the GWNF; as a result the public can not meaningfully participate and the proposed Plan's rationale is not disclosed.

Roadless area boundaries should be fairly validated in the Plan Revision and NEPA process. Often only arbitrary Forest Service designation, outside of any NEPA analysis & public participation process or appeal opportunity, has set roadless boundaries. This is addressed clearly by the California v. Block decision and others.

Some of the largest and most significant roadless areas in the east have already been whittled down significantly by logging, development or arbitrary boundary changes. For example, the 36,526 acre Big Schloss RARE II area in the G. Washington NF was reduced by 43% to 20,755 acres. Roadless areas in high timber districts in the James River RD have been arbitrarily dropped. It is critical that we save all of these roadless areas and the rest of the unprotected roadless areas regardless of size.

The average size of roadless areas in the GWNF is 8067 ac. This is far smaller than the national or western average. See Table 2-11, for example. It is therefore critical that the FS recommend many of the larger roadless areas on the GWNF as wilderness, recommended NSA, or backcountry prescription.

The Need for Change notes that ―the most primitive class in the ROS system is Primitive (P). This class is characterized as being essentially unmodified; at least 5000 acres in size and at least 3 miles from all roads, railroads of utility corridors. There are no Primitive (P) ROS class areas inventoried on the forest and there is little or none of it known to exist anywhere in the East‖ (AMS-163)

The Plan notes that ―the demand for outdoor recreation opportunities…outweighs the forests supply.‖ (2-22)

―While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences‖ (emphasis ours). By managing the natural resource, and the activities that occur within it, the manager is providing the opportunities for recreation experiences to take place. "(USFS ROS Users Guide -1982)

Eastern forests are so heavily roaded that there is not a single primitive recreation area available in any eastern National Forest. Given this, the opportunity to create a large, unfragmented area in the forest which meets the criteria for Primitive ROS class would be highly desired and highly valued. The GWNF has the most and best potential in the east to provide primitive recreational opportunities.

In addition to the comments by Ernie Reed on this subject we would like to state:

There is current lack of areas with a primitive ROS status throughout most of the eastern US and throughout the Central Appalachian region in particular. As part of this DEIS, the FS should have conducted an analysis of how much demand there is for such an area, including an examination of (1.) the degree to which people living in the eastern United States have to travel to the western US or other parts of the world for such an experience, (2.) the degree to which the presence of such an area would benefit people who do not have the ability to do so or for some other reason do not travel to such areas, (3.) the benefits of such an area to wildlife, native plants, and ecological health (including benefits that cannot be transplanted from other regions because they are associated with the wildlife, native plants, and natural communities that are indigenous to this region and not to the western US or other parts of the world) and the experience of people associated with (or coming in contact with or learning from) this phenomenon, and (3.) landscape, geologic, watershed values, challenging remote game hunting opportunities, world class fishing opportunities, and other values (including carbon sequestration/climate values).

It is clear that the Draft Plan and its DEIS has the responsibility to consider to fulfill its requirement to at least consider ways that would create or that would come as close as possible to creating and protecting an area which meets the Primitive ROS designation in the GWNF.

Even in the absence of the ability to create such an area (or the ability to create an area of considerable size (say 100,000-200,000 acres or more)), the FS should develop a land management plan for creating and protecting an area that would offer an experience as close as possible to a primitive area experience as a surrogate.

We note that the central part of the GWNF possessed a number of unroaded areas that adjoin one another or connect with one another at one or more points:

Area North of Rt. 33
Little Cow Knob 5335 ac
Hogpen Mtn 9229 ac
Kretchie Mtn 6677 ac
Dunkle Knob 8398 ac
Wildcat Ridge 8522 ac
Subtotal ~38161 ac

Area between Rt 33 and Rt 250
Gum Run 14665 ac
Oak Knob 10866 ac
Skidmore Fk 5703 ac
Dry Run 12939 ac
Broad Run 5047 ac
Hankey Mtn 11281 ac
Bald Ridge/Lynn Hollow 17933 ac
Ramsey Draft 6518 ac
Subtotal ~84892 ac

Area south of Rt 250 – Shenandoah Mtn
Signal Corps Knob 4044 ac
Jerkemtight-BensonRun 31908 ac
Subtotal ~36032

Area south of Rt 250 – Great North Mtn
Crawford Mtn 15000 ac
Eliiot Knob 16657 ac
Archer Knob 7220 ac
Subtotal ~38877

Total ~197962 ac

There are approximately four large areas divided by major roads. Most of the areas within the four areas are divided only by light gravel roads. We recommend that the FS develop a unified plan for the entire area. The FS should manage the entire area consistent with the goal of creating an experience that is as close as possible to that of a large primitive area. The above Virginia Mountain Treasure areas within the area should be protected from logging, roadbuilding, gas leasing, and OHV use. Where trails exist, landscape architecture planning would be used around road crossings to make the road crossings as unnoticeable as possible, similar to the way the Appalachian Trail Conservancy and other trail organizations protect the primitive trail experience along their trails (such as the so-called Maine 100-mile wilderness, and other areas). Trails would not parallel roads except where necessary. Selected, limited road closure and decommissioning would be used on unneeded roads or roads with excessive environmental

impacts, as determined by roads analysis. Changes in seasonal road closures should be examined, too. The FS would also minimize the impacts of any roads in the area on wildlife, especially those that are sensitive to roads or road traffic. Wildlife tunnels should be considered at critical locations along the two major roads that bisect the area. But the greatest emphasis would be on managing the area as a series of linked areas divided (for the most part) only by light, gravel roads.

At least one of the alternatives within the range of alternatives should establish a management plan for this area that is consistent with this model.

There is no area of this size between the Great Smoky Mountains National Park and the Adirondack Park. There is no area of this size within the Central Appalachians. The wilderness areas within Shenandoah National Park are long and narrow. Skyline Drive bisects the narrow park, decreasing its value as a wildlands.
In addition, the combined size of the areas is four times as large as Cranberry Wilderness (47741 ac), the largest wilderness in the Central Appalachians.

See also (from SELC, Sierra Club et al. comments June 8, '09):

Comments on Roadless ("Potential Wilderness") Inventory, Protection of All Roadless Areas, and Wilderness Evaluations and Recommendations

I. Virginia Mountain Treasure Areas Which Should Be Included in Roadless (or "Potential Wilderness") Inventory.

We thank the GW for reviewing all 63 Virginia Mountain Treasure (―VMT‖) areas for their roadless characteristics. See Final Working Paper, GWNF Forest Plan Revision, Review of Wilderness Society's *Virginia Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest* (9/18/2008) (hereinafter ―VMT Review‖). A number of previously uninventoried areas were found to meet current roadless criteria and were added to the ―Potential Wilderness‖ inventory. We support and appreciate the recognition of these areas.

However, a large number of VMT areas that meet the current roadless criteria were excluded from the inventory. The factors that led to their exclusion, with examples of how those factors affected specific areas, are discussed further below. All areas affected by these factors should be reconsidered, including the specific areas listed here and discussed further below:

InventoriedRoadlessAreas(1993Planand2001RoadlessAreaConservationRule):

Southern Massanutten – 11,721 ac., Lee RD
The Friar – 3,976 ac., Pedlar RD

AreasForestServiceDeterminedMetRoadDensityButNotInventoriedForOther Reasons:

Mud Run Mtn. – 4,303 ac.,[1] James River Ranger District (RD)
Johnnies Knob – 2,499 ac., Lee RD
Cove Mtn. – 2,572 ac., Lee RD
Short Mtn. – 4,647 ac., Warm Springs RD
Broad Run – 5,047 ac., North River RD
Wildcat Ridge – 8,521 ac., North River RD
Little Cow Knob – 5,305 ac., North River RD
Dunkle Knob – 8,398 ac., North River RD
Kretchie Mtn.– 6,677 ac., North River RD
Hogpen Mtn. – 9,211 ac. in VMT Review (9,229 ac. in VMT), North River RD

OtherAreas:

Great North Mtn. – 6,662 ac., Lee RD
Falls Ridge – 7,737 ac., Lee RD
Church Mtn. – 11,995 ac., Lee RD
Long Mtn. – 10,503 ac., Lee RD
Signal Knob – 5,471 ac., Lee RD
Warm Springs Mtn. – 6,127 ac. with boundary adjustment, Warm Springs RD
Sidling Hill – 7,155 ac., North River RD
Jerkemtight/Benson Run combined – 31,984 ac., North River RD
White‘s Peak – 4,614 ac., Pedlar RD
Snake Run Ridge – 6,283 ac. in VMT Review, 8,166 ac. in VMT, James River RD

A. Areas That Forest Service Determined Met Road Density Criteria But Excluded From Inventory For Other Reasons.

The Forest Service (―FS‖) excluded from the inventory a number of VMT areas that the agency determined met the current road density criteria, based on other factors. The most frequently cited factors were the claim that areas lacked outstanding opportunities for solitude or primitive and unconfined recreation, size (less than 5,000 acres), existence of private subsurface mineral rights, and presence of improvements which easily could have been excluded from the area‘s boundaries.

1. Solitude

Two areas were excluded from the inventory solely because the FS claimed they lacked ―outstanding opportunities for solitude or a primitive and unconfined type of recreation‖: Broad Run (5,047 ac.) and Mud Run (4,393 ac.).

The Wilderness Act defines wilderness, in part, as areas which have ―outstanding opportunities for solitude or a primitive and unconfined type of recreation.‖ 16 U.S.C. § 1131(c)(2) (emphasis added). The FS attempted to use the recreation opportunity spectrum (ROS) to measure those opportunities, deeming a 2,500-acre semi-primitive (―SP‖) core necessary to provide them. See Final Process Paper of Aug. 21, 2008, GWNF Potential Wilderness Area Guidance (hereinafter ―Inventory Guidance‖). Neither The Wilderness Act nor the Forest Service Handbook (―FSH‖) make any reference to SP cores, that criteria came from the Regional Forester's May 1995 guidance letter. The SP core requirement is a major problem with roadless inventories throughout the Southern Appalachians, including the GW inventory.

First, the focus on SP cores lead planners to focus on solitude, without adequately considering outstanding opportunities for primitive and unconfined recreation and other wilderness values, an arbitrary and capricious interpretation of The Wilderness Act. See, e.g., The Wilderness Act, 16 U.S.C. § 1131(a) (policy); (c) (definition); § 1133(b) (direction to land management agencies); seegenerally Doug Scott, Campaign for American Wilderness, Solitude, Sights&Sounds'andTheWildernessAct:WhatCan Qualify forDesignationasWilderness? at 2-5 (April 2003) (previously submitted).

Second, planners should not have treated the SP core as an absolute requirement. Although the Inventory Guidance suggested that areas without SP cores could ―otherwise provide solitude,‖ Inventory Guidance at 19, in practice, planners required an SP core. No VMT area without an SP core was added to the inventory.

In fact, the Regional Forester's May 1995 guidance letter itself explained that the SP core is not an absolute requirement and directed an analysis of each area's individual attributes:

> However, it is important to recognize that this 2,500-acre semi-primitive "core" size is not an absolute minimum. It is only a screen and as such shouldbeusedonlyasaguide.
>
> Someareasaboveorbelowthissize,mayormaynotprovidesolitude.For these areas,oneneedstolookcloselyattopography,proximitytotypeand useofroads, populationcentersandothersightsandsoundsofhuman activitytodetermineif solitudeandprimitiveandunconfinedrecreation

> couldbeexperienced. This is going to be a professional judgment based on your knowledge of the area.
>
> Two specific areas related to this issue of "solitude" will require close consideration, 1) unaltered RARE II areas with ROS core areas less than 2,500 acres, and 2) areaslargerthan5,000acreswithROScoreareasless than 2,500acres. As referenced above, these areas need to be reviewed based on using the 2,500 acre ROS core as a coarse screen rather than an acreage requirement.

Letter from Robert C. Joslin, Regional Forester, to Forest Supervisors re Inventories for Forest Plan Revisions, at 6 (May 19, 1995) (emphasis added).

As that guidance letter recognized, some unroaded areas without SP cores do provide outstanding opportunities for solitude. Also, it has never been demonstrated that a ½ mile pullback from roads is necessary to provide a semi-primitive experience in the Appalachian mountains, where areas of the national forest often are secluded by thick deciduous forests, rugged topography, and deeply incised drainages.

It is particularly important to reconsider areas over 5,000 acres that meet road density criteria but were excluded because or partly because they lacked 2,500-acre SP cores, for example, Broad Run, Little Cow Knob and Kretchie Mtn. (all of which the FS determined to meet current road density criteria), Great North Mtn. and Warm Springs Mtn. (which our calculations show to meet current road density criteria) and Snake Run Ridge (which would meet prior ―improved‖ road density criteria).

A third problem with the SP core is that it is interwoven with the consideration of modern ―sights and sounds‖ outside areas. See Inventory Guidance at 10, 14, 17-18. As discussed in detail in our August 2008 comments, Congress does not intend for the Forest Service to consider ―sights and sounds‖ from outside areas when deciding whether to recommend them for Wilderness designation. See Comments of SELC, The Wilderness Society, the Southern Appalachian Forest Coalition, the Virginia Wilderness Committee and Wild Virginia Re: Need for Change and Draft CER, at 15-16 (8/8/08). Therefore, ―sights and sounds‖ should not be considered at the roadless inventory stage either.

It is particularly objectionable that the section of the Inventory Guidance supposedly devoted to considering Congress‘ intent for Wilderness in Virginia, based on existing Wilderness designations, discussed sights, sounds and SP cores, see Inventory Guidance at17-18, when in fact Congress has directed the Forest Service NOT to consider ―sights and sounds‖ and itself does not consider sights, sounds or SP cores. For example, the designated Thunder Ridge and Brush Mountain Wilderness areas in Virginia do not have SP cores. Inventory Guidance at 17. Brush Mountain was designated in part because of its proximity to the city of Blacksburg, a population center in south-western Virginia.

Congress repeatedly has emphasized its desire to designate Wilderness areas in the eastern United States and in proximity to population centers, to provide an ―enduring resource of Wilderness‖ to the American people. See,e.g., Eastern Wilderness Areas Act of 1975, Pub. L. No. 93-622, § 2, 88 Stat. 2096, 2096 (1975) (finding that ―in the more populous eastern half of the United States there is an urgent need to identify, study, designate, and preserve areas for addition to the National Wilderness Preservation System‖); Endangered American Wilderness Act of 1978, Pub L. No. 95-237, § 1, 92 Stat. 40, 40 (1978) (finding that many areas of national forest land meet the statutory criteria for wilderness but are immediately threatened by growth and development and are ―not being adequately protected or fully studied for wilderness suitability by the agency responsible for their administration‖).

In 1977, during the Senate hearings on the Endangered American Wilderness Act, then-Assistant Secretary of Agriculture Rupert Cutler testified about sights and sounds before a subcommittee, explaining:

> Senator, with specific reference to the Sandia [area], thereisnoreference in theWildernessActtocriteriaforwildernessthatincludessuchthingsas the sights,sounds,andsmellsofcivilizationwhichisasetofcriteria whichhasbeen misappliedtowildernessareas.

Hearing on S. 1180 Before the Subcomm. on Parks and Recreation of the S. Comm. on Energy and Natural Resources, 95th Cong. 41 (1977) (statement of M. Rupert Cutler, Assistant Secretary of Agriculture) (emphasis added).

Subsequently, the Endangered American Wilderness Act implicitly rejected the use of ―sights and sounds‖ by designating a number of Wilderness areas near major cities. See Pub. L. No. 95-237, 92 Stat. 40 (1978). The House Committee on Interior and Insular Affairs, chaired by Rep. Udall, who was involved in the passage of The Wilderness Act, reported the bill with a reprimand for the use of ―sights and sounds‖:

> "Further, many areas, including the Lone Peak [U.T.] and Sandia Mountain [N.M.] proposals in H.R. 3454 [the Endangered American Wilderness Act which designated those areas and others], received lower wilderness quality ratings because the Forest Service implemented a ―sights and sounds‘ doctrine that subtracted points in areas where the sights and sounds of nearby cities (often many miles away) could be perceived from anywhere within the area. This eliminated many areas near population centers and has denied a potential nearby high-quality wilderness experience to many metropolitan residents, and is inconsistent

> with Congress‘ goal of creating parks and locating wilderness areas near population centers. Thecommitteeisthereforeinemphaticsupportofthe Administration‘sdecisiontoimmediatelydiscontinuethis_sightsand sounds‘ doctrine.‖

The Wilderness Society, WildernessActHandbook at 26 (2004) (quoting H.R. Rep. No. 95-540, at 5 (1977)) (emphasis added). For all these reasons, the 2,500-acre SP core is not an adequate surrogate for The Wilderness Act‘s solitude or recreation factor.

- Mud Run Mtn. – 4,303 ac., James River Ranger District (RD). VMT Review claimed lack of outstanding opportunities for solitude or primitive and unconfined recreation.

Mud Run has 2,928 SP acres, therefore, it possesses a 2,500-acre SP core. The VMT Review treated other areas with 2,500 SP acres as satisfying the solitude or recreation criteria. There is no stated or logical rationale for why the agency concluded that Mud Run does not possess adequate solitude, when it contains the amount of SP required by the FS.

Moreover, the VMT Review documented that, of those SP acres, 2,240 acres are semi-primitive non-motorized (–SPNM‖), further demonstrating that, by the Forest Service‘s own measure, Mud Run offers opportunities for solitude and remote recreation. SPNM is the most remote forest in the GW and comprises only about 19% of the forest (see SPNM acreage in GWNF, Chart of Objectives, available at www.fs.fed.us/r8/gwj/forestplan/revision/meetings.shtml (Jan. 2009)). Other areas with no SPNM at all were added to the inventory, including Duncan Knob (Catback) and Archer Knob.

Mud Run is among the large, important, unprotected SPNM areas identified by the GW‘s recreation staff. At the April 8, 2009 Plan Revision IDT meeting, recreation staff distributed a chart listing 12 of the large, important SPNM areas on the forest that are not currently within Management Areas 4, 8 or 9 and recommended various protections (chart attached; see further discussion below re these large SPNM areas). Staff recommended most SPNM areas and a ½ mile buffer around them, including Mud Run, be identified as unsuitable for permanent road-building and timber production, and three were recommended for the backcountry recreation special area.

The VMT Review does not indicate that Mud Run was excluded from the inventory because of its size. However, we are aware that Mud Run is slightly less than 5,000 acres, so see below discussion of the size factor.

- Broad Run – 5,047 ac., North River RD. VMT Review claimed lack of outstanding opportunities for solitude or primitive and unconfined recreation.

Broad Run is a 5,000-acre area with only 0.109 miles of road in it. VMT Review at 7. Yet the Forest Service assigned the entire area a Roaded Natural ROS. Broad Run is located along the crest and western slope of Shenandoah Mountain, adjoining Reddish Knob and separated from the Little River Roadless Area only by FSR 85. There is one trail in the area, the Little Stony Trail, which is used by hikers, equestrians and mountain bikers. The area is steep and rugged, deeply incised by numerous small streams, and very sheltered from sights and sounds (see attached topo map showing the ruggedness of most of the area, opportunities for solitude, and proximity to Reddish Knob). The area is very remote with designated roadless areas to the east and national forest land to the west, although it is surrounded by Forest Service roads. This 5,000-acre area should not be excluded simply because it lacks a 2,500-acre SP core.

- Johnnies Knob – 2,499 ac., Lee RD. VMT Review excluded because it is less than 5,000 ac. and claimed no outstanding opportunities for solitude or recreation.

There are a number of problems with the claim that Johnnies Knob lacks ―outstanding opportunities for solitude or a primitive and unconfined type of recreation.‖ The area has 1,109 acres of SPNM, according to the VMT Review. It is located on the summit of Paddy Mountain and is similar in size and shape to the designated Thunder Ridge Wilderness area. It was part of the Big Schloss RARE II roadless area and, under the 1993 Plan, was managed under MA 9 Remote Highlands which ―provide older vegetation in remote and isolated areas where recreationists can obtain a degree of solitude and the environment can be maintained in a near-natural state where only light-on-the-land management activities occur.‖ 1993 GW Plan at 3-43. It would not be logical to conclude that the area does not provide outstanding opportunities for solitude or primitive and unconfined recreation, when the area was once part of an inventoried roadless area that provided those opportunities and, since 1993, has been identified as an area that provides them and managed for that purpose.

2. Size

Johnnies Knob also was excluded because of its size. Although less than 5,000 acres, Johnnies Knob is a steep and rugged area which can be preserved due to its terrain and natural conditions. See VMT at 22.

Even in The Wilderness Act itself, the size of a wilderness area is described as ―at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition.‖ 16 U.S.C. § 1131(c)(3). The Forest Service Handbook provides examples of how smaller areas can be preserved: ―(a) Areas can be preserved due to physical terrain and natural conditions.‖ FSH 1909.12, Ch.71.1 (2007). Mud Run, Johnnies Knob and other smaller areas discussed below meet this criteria. Mud Run is a fairly large area (well over 4,000 acres) and is a mountain ridge standing by

itself. See VMT at 83. Therefore we believe it can be preserved and used in an unimpaired condition.

While large areas may be ideal, we disagree with the GW's Inventory Guidance regarding areas less than 5,000 acres in size. The GW Guidance stated that areas less than 5,000 acres ―need to have very compelling rationale to be included in the inventory‖ and set the following factors for considering smaller areas for the inventory: ―the shape of the area, the type of land adjoining the area, and where the area lays on the landscape.‖ Inventory Guidance at 11. These criteria disfavored ―long, narrow areas,‖ areas with ―irregular borders,‖ long boundaries with private land (especially flat private land), and areas along the side of a ridge. These criteria all seem more stringent than the criteria in the FSH.

Additionally, excluding areas because they have the wrong shape or have boundaries with private land would exclude much of the GW based on the immutable characteristics of the national forest land. The GW land ownership is located primarily along mountain ridges, which were purchased and pieced together from private owners early in the last century, while adjoining land in the more flat and fertile valleys is held in multiple, small private parcels. Therefore, the topography and the very nature of national forest land acquisition in the Eastern United States resulted in many areas which consist of mountains and ridges with many private land boundaries, although these areas themselves are very remote and rugged and meet the road density and naturalness criteria.

These stringent criteria for smaller areas also conflict with congressional intent regarding areas that are suitable for Wilderness designation, as evidenced by the designated Wilderness areas in Virginia. As the Inventory Guidance admitted, of the 23 Wilderness Areas and one Wilderness Study Area in Virginia, 12 are less than 5,000 acres. Inventory Guidance at 17. The Thunder Ridge Wilderness, for example, is a narrow, 2,344-acre area primarily on a ridge. The 3,270-acre Stone Mountain area is almost completely surrounded by private land. Clearly, Congress believes that areas less than 5,000 acres surrounded by private land may be suitable for Wilderness designation.

- Cove Mtn. – 2,572 ac., Lee RD. VMT Review cited size (less than 5,000 acres), privately owned mineral rights, and claimed lack of outstanding opportunities for solitude or recreation. VMT Review at 12.

The size and solitude factors were addressed above. According to the VMT Review, Cove Mtn. has 1,520 acres of SPNM land. It was one of the areas on the recreation staff's chart. None of the SPNM area is currently suitable for timber production (see chart).

Regarding mineral rights, a factual error seems to have been made. According to the VMT Review and appended maps, the area has zero privately owned mineral rights and zero private land within its boundaries.

- Short Mtn. – 4,647 ac., Warm Springs RD. VMT Review cited size and claimed no outstanding opportunities for solitude or recreation.

The area lies between the Rough Mountain and Rich Hole Wilderness areas, separated only by the railroad and a road.

3. Mineral Rights

Two areas were excluded solely because of private mineral rights: Wildcat Ridge and the Southern Massanutten Inventoried Roadless Area.

The roadless criteria specifically allow for areas to be included in the inventory if they have outstanding mineral leases or subsurface rights. FSH 1909.12, Ch.71.11(4) provides that roadless areas may include mineral leases having a ―no surface occupancy‖ stipulation or leases that have not been exercised for development or occupancy. It further provides ―and when these rights are exercised, remove the area, or portion affected, from the inventory unless it is possible to establish specific occupancy provisions that would maintain the area in a condition suitable for wilderness.‖ Id.

FSH Chapter 71.12(3), regarding roadless areas in the East, provides that areas qualify for the inventory if ―the area has existing or attainable National Forest System ownership patterns, both surface and subsurface, that could insure perpetuation of identified wilderness values.‖ Reading these two provisions together to ensure that the criteria for Eastern roadless areas are not more strict than the national criteria demonstrates that, if an area with private mineral rights meets the other roadless criteria, it should be included in the roadless inventory.

Also, as the GW Inventory Guidance recognized, all minerals are attainable if the seller and buyer are willing. We see no reason why unexercised private mineral rights should not be viewed as ―attainable.‖

The Inventory Guidance quoted from a 1984 GAO report on privately-owned minerals in Wilderness, then concluded that ―subsurface rights lend themselves better to being avoided in any consideration of potential wilderness areas,‖ and stated that areas with less than 70% federal mineral ownership would not be included in the inventory.

That report, however, clearly placed the final decision whether to designate areas with private mineral rights squarely in Congress‘ hands:

> Forest Service officials familiar with the RARE II evaluation told us that they considered dropping areas from wilderness consideration that contained private mineral rights. However, the idea was rejected by the then Assistant Secretary of Agriculture because it would have sharply reduced the number of areas available in the east for inclusion in the wilderness system. Furthermore, it was believed a wholesale exclusion of these areas would negate the purposes of a wilderness study program and

> that the Congress should have the opportunity to study as many areas as possible despite the mixed ownership problem.

. . .

> We believe that the Congress should have the opportunity to consider as many areas as possible for inclusion in the wilderness system including areas with private mineral rights. However, we also believe that the Congress must have all the information necessary to make an informed decision; therefore, we believe that the Forest Service should have provided information regarding private mineral rights with its RARE II wilderness recommendations.

See U.S. General Accounting Office, Report to the Congress by the Comptroller General, Private Mineral Rights Complicate the Management of Eastern Wilderness Areas, GAO/RCED-84-101, at 22-25 (July 26, 1984).

The Inventory Guidance suggested that mineral rights ―may be used to evaluate areas rather than to identify areas on the inventory.‖ Inventory Guidance at 13. Considering this factor at the second, evaluation stage would be much more appropriate.

- Wildcat Ridge - 8,521 ac., North River RD. VMT Review excluded because of private mineral rights.
- Little Cow Knob – 5,305 ac., North River RD. VMT Review claimed no outstanding opportunities for solitude or recreation and cited mineral rights.

4. Improvements Which Are Outside Areas Or Can Be Excluded With Reasonable Boundary Adjustments.

- Dunkle Knob – 8,398 ac., North River RD. VMT Review cited mineral rights and developed recreation area (shooting range).

Neither factor should prevent inclusion in roadless inventory, protection of roadless characteristics, and special consideration in the planning process, even if those factors make the area not an ideal candidate for Wilderness designation. Moreover, the

shooting range is near the edge of the area and easily could be excluded from the area's boundaries.

- Kretchie Mtn.– 6,677 ac., North River RD. VMT Review claimed no outstanding opportunities for solitude or recreation, mineral rights, and presence of cleared utility right-of-way.

The utility right of way is not within the boundaries of the VMT area. See VMT at 35 (attached). Mineral rights are discussed above. Kretchie Mtn. has an ROS of Roaded Natural. We question whether this is the correct ROS for this area. Further, the area is over 5,000 acres and the FS agrees it meets road density criteria. Therefore, the potential for solitude OR recreation should be reconsidered.

- Hogpen Mtn. – 9,211 ac. considered by FS (9,229 in VMT), North River RD. VMT Review cited mineral rights, the Slate Lick Dam, and utility right-of-way.

Neither the utility right of way nor the dam is within the boundaries of the VMT area. See VMT at 34 (attached). It would seem reasonable to draw the boundaries of the roadless area around these improvements.

Hogpen Mtn. has 2,635 acres of SPNM. According to the chart distributed by the recreation staff at the April 8, 2009 IDT meeting, none of the SPNM area is currently suitable for timber production. At that meeting, the GW's recreation staff recommended this area be designated as a special area—backcountry recreation. It should be included in the roadless inventory and so designated.

B. Inventoried Roadless Areas Excluded from Potential Wilderness Inventory

Two Inventoried Roadless Areas (IRAs), Southern Massanutten and The Friar, were excluded from the "potential Wilderness" inventory. We strongly believe these areas should be returned to the inventory.

- Southern Massanutten IRA – 11,721 ac., Lee RD. VMT Review excluded because of private mineral rights. This area has 3,871 ac. SPNM.
- The Friar IRA – 3,976 ac., Pedlar RD. VMT Review excluded because of size and claimed no outstanding opportunities for solitude or recreation.

The size and mineral rights issues are addressed above. The agency previously determined these areas meet roadless criteria. As far as we know, no road construction or timber harvesting has occurred in these areas since the 1993 inventory. Therefore, there is no rationale for excluding them this time around.

Regarding The Friar, the evaluation of this area for the 1993 plan revision documented that ―The Friars area is extremely steep and rugged. The interior is relatively inaccessible and remote for its small size.‖ 1993 FEIS for Revised LRMP, App. C-51.

C. Areas Excluded For Road Density.

According to the current version of the Handbook, roadless areas in the East must have ―no more than a half mile of forest roads (36 CFR 212.1) under Forest Service jurisdiction for each 1,000 acres.‖ FSH 1909.12, Ch.71.1(5) (2007).

We continue to believe, however, that only ―improved‖ roads should be counted towards road density, as was the case for decades until the Handbook was revised in 2007. See Comments of SELC, et al. at 10-11 (8/8/08) for further discussion. In many cases, we believe the GW counted roads which are not ―improved‖ because they are not ―roads maintained for travel by standard passenger-type vehicles,‖ per the previous version of the Handbook, FSH 1909.12, Ch.7.11(3) (1992). Therefore, Maintenance Level 1 and 2 roads, roads closed to the public year-round, roads open only for administrative use (not public use), and roads not physically passable by standard passenger vehicles are not ―improved‖ roads. The GW apparently counted many unimproved roads towards road density.

Nevertheless, a number of areas excluded from the inventory because of road density actually appear to meet the current ―forest road‖ density criteria. Sherman Bamford of Virginia ForestWatch examined the GW's most recent GIS layers for roads, potential wilderness area review ("pwr"), recreational opportunity spectrum (ROS), and other GIS layers and Forest Service documents. He looked at each area thoroughly, one by one, and found that a number of excluded areas appear to meet the current road density requirements, or could meet density requirements with boundary adjustments.

In this examination, Bamford discovered a number of discrepancies, for example, differences in the size of areas in the Forest Service's ―pwr‖ GIS layer and the size given in the Forest Service's VMT Review document. It often was difficult to understand exactly how the Forest Service analyzed these areas and to replicate that analysis. The calculations presented below are the result of Bamford's best efforts accurately to identify the largest possible areas that meet the current road density and other criteria. Perhaps most importantly, his examination and the information presented below demonstrate the need for the Forest Service staff themselves to reanalyze and reconsider

these areas, making that same effort to identify the largest possible area that meets criteria, and to explain their analysis and conclusions more fully.

- Great North Mtn. – 6,662 ac. in VMT Review, Lee RD. VMT Review cited road density, cleared utility right-of-way, and claimed no outstanding opportunities for solitude or recreation.

Bamford considered a boundary adjustment and analyzed a smaller, 4,383 ac. area north of Gardner Rocks Road with 0.47 mi. road per 1,000 acres, which would meet the road density requirement.

Additionally, most of the roads within the larger area are not ―improved‖ roads because most of them are not open to the public. Motor Vehicle Use Map (MVUM) Map 4; GWNF GIS Roads Layer (2007) (showing only two tiny spurs of open road).

Both the larger VMT area and the smaller area examined by Bamford do possess outstanding opportunities for solitude or recreation. As discussed above, the FS use of this criterion is seriously flawed. Moreover, the area may possess an SP core. The Forest Service has provided inconsistent information on this point.

According to VMT Review, there are 2,142 ac. SPM in the larger area. The chart handed out at the April 8, 2009 IDT meeting, however, lists 2,120 ac. SPNM and 1,726 ac. SPM, for a total of 3,846 acres of SP land. Yet a third figure is found in the GW's previous ROS, which showed a long, 1,692-acre SPM2 area and a total of 3,215 ac. of SPM1 and SPM2 in Great North Mountain.

At the April 8 IDT meeting, the recreation staff recommended the SPNM portion of Great North Mountain be designated as a special area—backcountry recreation. Great North Mountain was one of the three SPNM areas recommended for allocation to the backcountry special area. To keep the area intact, the entire area should be added to the inventory and designated for backcountry recreation.

Great North Mountain and Jonnies Knob were part of the Big Schloss RARE II roadless area. Great North Mountain inexplicably was dropped from the inventoried Big Schloss roadless area between the draft and final revised plan in 1993, see FEIS for 1993 Plan at C-15, and should be returned to the inventory. The 1993 plan designated the long SP2 area as MA 9 Remote Highlands, which provide and are managed for older forests in remote and isolated areas where recreationists can obtain a degree of solitude.

Regardless of whether Great North Mountain has an SP core, the area clearly offers significant and important opportunities for solitude and backcountry-type recreation.

The FS should consider whether the boundaries could be adjusted to exclude the utility line.

- Falls Ridge – 7,737 ac. in VMT Review, Lee RD. VMT Review excluded because of road density, subsurface mineral rights, and cleared utility right of way.

Bamford examined an 7,609-acre area that appears to meet road density criteria, with 0.38 mi. road per 1,000 ac.

According to the MVUM, there are no roads open to the public in this area.

Also, the boundary of the area easily could be drawn around the utility right of way, which is very close to the area‘s southern boundary.

In this area, about 53% of the subsurface mineral rights are privately owned. VMT Review at 4. However, as discussed above, areas should not be excluded from the inventory based on private mineral rights. Falls Ridge is a good-sized area (well over 5,000 acres) with a large SPNM area.

- Church Mtn. – 11,995 ac. in VMT Review, Lee RD. VMT Review cited road density and cleared utility right of way.

The GIS data analyzed by Bamford showed this area as 9,994 ac. in size, although it was not clear why the acreage was less than in VMT Review. Bamford‘s examination indicates that the road density of the 9,994 acre area is 0.44 mi./1,000 ac.

The only roads open to the public, moreover, are a small, seasonally open section of FSR 1628 and the WV 1684 road to the inholding. MVUM Maps 6 & 8.

The FS should consider whether the boundaries could be adjusted to exclude the utility line.

Note that Church Mtn. has a very large, 6,457-acre SP area, including 2,199 acres of SPNM.

- Long Mtn. – 10,503 ac. in VMT Review, Lee RD. VMT Review cited road density, subsurface mineral rights (70%), and cleared utility right of way.

Bamford considered boundary adjustments and examined two slightly smaller areas: a 8,698-acre area, which excluded about 2/3 of a mile of the Long Mtn. Road (which was close to the original boundary), with 0.48 mi. of road/1,000 ac.; and a 9,477-acre area, which excluded Rockland Road, with about 0.49 mi. of road/1,000 ac.

Additionally, the MVUM Map 5 shows only a small spur of open road running into seasonally open road on WV side of area.

It appears that the utility lines easily could be excluded with very slight boundary adjustments.

The third issue, mineral rights, is discussed above.

Long Mtn. is a relatively large area (over 10,000 ac. in VMT Review) with a large SPNM area (2,425 ac.), plus 1,915 ac. SPM. Its SPNM area was recommended by the recreation staff at the April 8, 2009 IDT meeting for designation as unsuitable for permanent road-construction and timber production. Only about half of the SPNM area is currently suitable for timber production.

- Sidling Hill – 7,155 ac. in VMT, North River RD. VMT Review excluded because of road density.

Bamford examined a smaller 5,154-acre area with about 0.46 mi. of road/1,000 ac.

According to the MVUM, there are no roads open to the public in this area. MVUM Map 14.

This is a good-sized area (greater than 5,000 acres) with, according to VMT Review, no subsurface mineral rights or inholdings and 3,389 ac. SPM.

- Jerkemtight/ Benson Run combined – 31,984 ac. in VMT Review, North River RD. The FS added part of Benson Run to the Jerkemtight area, for a combined Jerkemtight/ Benson Run area of about 26,304 ac., but about 5,467 ac. of Benson Run was excluded because of road density.

Bamford considered adjusting the boundaries of Benson Run to exclude several roads. He examined an about 30,820-acre combined area that would allow most of Benson Run to be inventoried. His examination indicated that this combined area has only 0.49 mi. road/1,000 ac.

Further, the FS apparently counted the old road FSR 173 in the road density calculation. This road should not have been counted. It is closed, essentially no longer exists on the ground, and should be removed from the road system.

There is no map of the combined area attached to the VMT Review, so it is difficult for us to see how the FS assessed this area.

- Signal Knob – 5,471 ac. in VMT Review, Lee RD. VMT Review cited road density, cleared utility right-of-way, and electronic installations.

The area Bamford examined was slightly smaller, a 4,872-acre area with 0.32 mi. road/1,000 ac. It was not clear why the GIS acreage was smaller than the acreage listed in the VMT Review.

The MVUM Map 1 shows there are no roads open to the public within the area.

Unfortunately there is no map for Signal Knob in the FS maps of the areas in the Massanutten Mountain Cluster that were appended to the VMT Review, so we cannot see how the FS evaluated this area. The VMT Review maps of the Massanutten Mountain Cluster contain a map for Signal Corps Knob, an entirely different area in the North River RD. It looks like Signal Corps Knob was mapped instead of Signal Knob.

We believe, however, that the electronic installations on Signal Knob and the tower utility right-of-way northwest of the towers easily could be excluded from the boundaries of the area.

Signal Knob contains 2,512 ac. SPM according to VMT Review, and has no outstanding private mineral rights. This area was one of the priority SPM areas on the forest identified in the recreation staff‘s chart distributed at the April 8 IDT meeting. Only 15% of the SP area (listed as 3,400 ac. in that chart) is suitable for timber production.

- Warm Springs Mountain – 7,832 ac. in VMT Review, Warm Springs RD. VMT Review cited road density and claimed lack of opportunities for solitude or recreation.

We ask the FS to consider drawing the boundary of this area along FSR 358. Based on Bamford‘s examination of the area west and north of FSR 358, that area is about 6,127 ac. and appears to meet road density criteria (has about 0.44 mi. road/1,000 ac.).

Regarding solitude and recreation opportunities, Warm Springs Mountain is over 5,000 acres, so the 2,500-acre SP core should not be a requirement. See Regional Forester‘s May 19, 1995 Guidance Letter at 6. The larger Warm Springs Mountain area considered in the VMT Review did contain 1,668 ac. of SPNM. This large SPNM area was one of those identified as important by the recreation staff at the April 8, 2009 IDT meeting. Moreover, according to VMT Review, the area contained a total of 2,219 semi-primitive acres – very close to 2,500 acres. We cannot see how this area does not provide excellent opportunities for solitude or remote, backcountry-type recreation.

- White‘s Peak – 4,614 ac., Pedlar RD. VMT Review excluded because of size, road density and claimed lack of opportunities for solitude or recreation.

Although less than 5,000 acres, White‘s Peak is a 4,614 acre area that we believe can be preserved in an unimpaired condition, due to its topography and mountainous

surroundings. For these reasons, we also believe the area offers excellent opportunities for solitude and a remote recreation experience. The area‘s ROS classification of Roaded Natural does not seem to correspond well to the area‘s attributes and to the actual experience within the area. The area appears to meet road density criteria.

- Snake Run Ridge – 6,283 ac. examined in VMT Review, James River RD. Final VMT area has 8,166 ac. VMT at 88 (attached). VMT Review cited road density and claimed lack of opportunities for solitude or recreation.

The area has no roads open to the public. MVUM Map 22. It seems clear that the agency counted closed and administrative-use only roads, which we believe should not be counted towards road density.

In an alternative, FSR 277 could be used as a boundary, thereby eliminating this road from the area and achieving an area that still is greater than 5,000 acres in size and probably would meet the current road density criteria, even if the remaining administrative and closed roads were counted.

The VMT Review claims the entire area is Roaded Natural. This appears erroneous, since the area was ―semi-primitive natural appearing‖ in the recreation analysis for the Southern Appalachian Assessment, ca. 1995, and still has no roads open to the public within it. In ―Roaded Natural‖ areas, as defined in the FEIS for the 1993 Revised GW Forest Plan, ―Full access is provided, primarily by Traffic Service Level B and C roads.‖ 1993 FEIS at G-6. The closed and administrative-use only roads in this area do not seem to meet the definition of Traffic Service Level B and C roads.

D. Areas Containing Large, Important Semi-Primitive Non-Motorized Areas Should Be Added To Roadless Inventory And Protected Accordingly.

As mentioned above, at the April 8, 2009 IDT meeting, the GW recreation staff distributed and discussed a chart listing 12 areas with relatively large SPNM cores which are currently not in Management Areas 4, 8 or 9, i.e., not currently protected. Staff recommended that three of these SPNM areas and a ½ mile buffer around them (Hog Pen/Slate Lick, Beech Lick Knob, and Great North Mtn.) be designated as special areas—backcountry recreation. Staff recommended the remaining SPNM areas with ½ mile buffer be designated as unsuitable for permanent road construction and timber production.

Of the areas on the chart, those areas already in the ―potential Wilderness inventory‖ (Beech Lick Knob, Shaws Ridge, Little Mare Mtn., Galford Gap and Paddy Knob) clearly should be placed into the backcountry special areas and managed consistently with the 2001 Roadless Rule. The FS already has recognized that these areas meet roadless criteria. Most of the other areas are discussed in detail above; those areas

meeting roadless criteria should be added to the inventory and managed consistently with the 2001 Roadless Rule.

At the IDT meeting, there was discussion about whether temporary road-building should be permitted in these SPNM areas and their ½ mile buffers. The 2001 Roadless Rule does not permit temporary road-building. We are concerned that temporary road-building could jeopardize the roadless status of these areas. On the Jefferson National Forest, past timber harvesting, closed temporary roads and linear wildlife strips (probably on temporary roads) were cited among the reasons for excluding several areas from the inventory, including Ewing Mountain, Wilson Mountain and the James River Face Additions. See 1997 JNF Roadless Inventory Process Paper at 13-14; 1999 Process Paper at 17.

Additionally, temporary roads can detract from the natural, undisturbed setting in these areas and create avenues for illegal motorized use and for introduction/spread of non-native invasive species. ―Temporary‖ roads may not actually be temporary, because the land can take a long time to regain a natural appearance, particularly if the road was cut into the slope, and because old temporary road-beds often are used by the FS to justify future timber sales on the theory that the road-beds already exist.

II. Protection of All Roadless Areas Consistent with the 2001 Roadless Rule

The inventoried roadless areas and the newly identified areas that meet roadless criteria (the new ―potential Wilderness areas‖ and all qualifying areas, including those discussed above) should be managed consistent with the 2001 Roadless Area Conservation Rule.

Our August 2008 comments outlined the strong support for the 2001 Rule and the multiple reasons for managing the GW's roadless areas consistent with it, so we will not repeat them all here. See Comments of SELC, et al. at 6-8 (8/8/08). We do want to emphasize the changes in the administration's roadless policy since we filed those comments. As a senator, Barack Obama co-sponsored the Roadless Area Conservation Act of 2007, which would essentially codify the 2001 Rule. During the presidential campaign, then candidate-Obama announced his support of the 2001 Rule.

Last week the Obama Administration took a strong step towards protecting roadless areas when Secretary of Agriculture Tom Vilsack issued an interim directive requiring Secretary-level approval of road construction and timber harvest in the inventoried roadless areas. See Secretary's Memorandum 1042-154, Authority to Approve Road Construction and Timber Harvesting in Certain Lands Administered by the Forest Service (May 28, 2009). The Secretary stated that the interim directive would protect roadless areas while the Administration develops a long-term roadless policy. USDA News Release No. 0185.09, available at www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2009/05/0185.xml (May 28, 2009). Therefore, the revised GW plan should manage roadless areas consistently with the Rule, in order to comport with the new administration's views and expected long-term policies.

Further, it is appropriate to manage the newly identified roadless areas consistently with the previously inventoried areas. These additional areas are important and should not be roaded and degraded simply because they were not recognized by the Forest Service until now.

In a November 2008 letter to the GW Forest Supervisor (attached), Governor Kaine reiterated his support for the 2001 Rule and voiced his support for protecting these new areas:

> I am pleased that the Forest Service has been implementing the 2001 Rule, and it remains my firm belief that the agency should continue to do so for the long term in Virginia and across the nation.

> I urge you to make certain that the new plan's management requirements for inventoried roadless areas are as protective as the provisions of the 2001 Roadless Rule. I also understand that, in revising the plan, you are updating the inventory of roadless areas and have identified over 100,000 more acres than were in the previous inventory. These newly-identified acres also should receive the level of protection consistent with the provisions of the 2001 Roadless Rule.

The GW seems reluctant to protect the new areas, asserting concerns about reducing the suitable timber base. We do not find this persuasive reason for not protecting roadless areas. We also believe that part of the reason these areas remain roadless, despite having been unrecognized and unprotected, is because most of them are far from open roads, on steep slopes, etc. and not readily accessible for logging.

III. Wilderness Evaluations and Recommendations

The GW has the most roadless acreage of any national forest east of the Mississippi River. The GW planners have an enormous pool of areas to consider for recommendation for Wilderness designation: 378,229 acres in 37 areas (including areas partly on the Jefferson). Yet the January 2009 summary indicated the GW is likely to recommend only about 24,300 acres for Wilderness designation. This would not be adequate, particularly in light of that summary‘s recognition that some Wilderness areas are overused, of the public desire for more Wilderness, and of the fact that only 4% of the GW is Wilderness, much less than the average across the nation, Region 8 or Region 9. Additional, extensive information about the need and support for significant additional Wilderness also was submitted by SELC and many other organizations and individuals at the public meetings and in written comments. See,e.g., Comments of SELC, et al., at 16-19 (8/8/08).

A. Incomplete and Inadequate Wilderness Evaluations

The Forest Service Handbook for Wilderness Evaluation, FSH 1909.12, Ch.70 (2007), requires detailed evaluation and documentation of the decision whether to recommend Wilderness areas. See Ch.72.4 & 74. The GW Wilderness evaluations so far (i.e. the Potential Wilderness Area Evaluation Tables DRAFT Sept 2008, at www.fs.fed.us/r8/gwj/forestplan/revision/plan-home.shtml (hereinafter the ―Capability‖ chart) and the draft list of ―Availability‖ factors) are insufficient. We appreciate the GW posting these preliminary drafts to the plan revision website, and we assume the Wilderness evaluations are still a work in progress, but we do want to point out some of the specific gaps and missing pieces.

Moreover, the information developed to date appears biased against Wilderness, consisting of checklists that appear aimed at listing any factor that possibly could weigh against Wilderness designation, with very little or no recognition of the factors or reasons that would support Wilderness designation. Other factors are unexplained, leaving us to guess at whether the FS viewed the factor as supporting or detracting from the area's suitability for Wilderness designation.

Key problems with the Wilderness evaluations so far include:

There is no overview of the areas as required by Ch.74(1), including the acreage of the area and its location, uses and key attractions.

The ―Capability‖ Evaluation consists only of a spreadsheet listing factors and corresponding yes, no or list-type answers for the areas. Without any narrative discussion, the spreadsheet is oversimplified and inadequate. It does not describe ―the basic characteristics that make the area appropriate and valuable for wilderness. . .,‖ as required by Ch.74(2).

The ―Capability‖ Evaluation does not explain how the listed factors were considered by the FS. For example, the spreadsheet does not indicate whether the FS viewed the factor as supporting a Wilderness recommendation, detracting from it or neutral, or how important the factor was to the agency (what role the factor played in the decision). We should not have to guess at the agency's rationale.

The analysis of the ―availability‖ of areas has not yet been performed or has not been provided to the public. The list of availability factors that will be considered, dated 8/27/2008, consists entirely of factors that would, in the FS eyes, weigh against Wilderness recommendation. We are concerned that these factors will constrain the analysis and prevent a true comparison of ―the value of and need for the wilderness resource compared to the value of and need for other resources,‖ Ch.72.2.

The analysis of need for more Wilderness either has not been done or has not been provided to the public.

The effects of a Wilderness recommendation compared to a nonwilderness designation and to other management options must be analyzed and described, per Ch.74(5). The effects analysis also has not been done or has not been provided to the public.

B. Improper Factors Considered in Wilderness Evaluations

We are concerned about a number of the ―Capability‖ and ―Availability‖ factors. It is unclear how some were used, and others are improper, were used improperly or are unimportant to Congress. Perhaps the most problematic and reoccurring factor is ―sights and sounds‖ from adjacent land, which appears in different ways throughout the FSH and the GW's capability factors. For example:

"Presence of private land, existing subdivisions or other high density housing immediately adjacent to boundary of area‖ and ―Presence of semi-primitive ROS area not adjacent to private land so there is isolation from existing or future sights and sounds outside the area.‖ See ―Capability‖ chart. As discussed above regarding the roadless inventory, sights and sounds from outside potential Wilderness area are usually irrelevant to Congress. It is even more improper to use the risk of future sights and sounds as a reason not to recommend Wilderness areas. In looking at the degree of development in a potential Wilderness area, only development actually within that area should be considered.

Presence of trails. The charts do not indicate whether this weighs for or against Wilderness recommendation. Potential Wilderness areas should not be penalized for possessing maintained trails and being popular.

"Area is greater than the average GW designated wildernesses at about 7,300 acres.‖ See ―Capability‖ chart. As defined by The Wilderness Act, wilderness areas are 5,000 acres in size, not 7,300 acres, or can be preserved for reasons other than sheer size. The average size of the new stand-alone areas designated in the 2009 Virginia Ridge and Valley Act[2] is 4,434 acres, less than even 5,000 acres, much less 7,300 acres.

Boundary factors, such as the irregularity of boundaries (counting the number of corners) and length of boundary on private land. These factors also were discussed above. Congress has designated a number of Wilderness areas with private land boundaries in Virginia, including in the Ridge and Valley Act.

Natural barriers to illegal use. Wilderness candidates should not be disqualified because they do not have steep slopes or natural barriers to illegal use. It is the Forest Service's responsibility to protect and manage Wilderness areas so as to preserve their natural conditions, 16 U.S.C. § 1131(c), and the agency's obligation to enforce the laws for ATV and other motorized use. It is not reasonable to require areas to provide their own barriers in order to qualify for Wilderness designation and heightened protection.

C. Areas That Should Be Recommended for Wilderness or Other Congressional Designation.

The Forest Service should recommend at least the following excellent candidates for congressional designation as Wilderness, National Scenic Area or National Recreation Area. Most of these areas are described in detail in Friends of Shenandoah Mountain‘s proposal for a Shenandoah Mountain National Scenic Area, with imbedded Wilderness areas, dated October 2008, and in the Virginia Wilderness Committee‘s (VWC) letter dated January 2009.

Shenandoah Mountain National Scenic Area (approx. 115,000 ac.), based on the proposal by Friends of Shenandoah Mountain, containing recommended Wilderness areas for Skidmore Fork (5,228 ac.), Little River (12,490 ac.), Bald Ridge (a.k.a. Ramseys Draft addition, 6,550 ac.) and Lynn Hollow (6,168 ac.).

The January summary indicated the FS is likely to recommend Little River and Bald Ridge (the east side of Ramseys Draft Addition) for Wilderness designation. We strongly support those recommendations.

Recommended Wilderness for Beech Lick Knob (11,111 ac.), Laurel Fork (10,153 ac.), Whites Peak (4,614 ac., see VMT at 101) and Three Sisters (6,327 ac.).

Additions to the existing Rich Hole (9,908 ac.), Saint Marys West Addition (277 ac.), Three Ridges (500 ac.) and Rough Mountain (2,196 ac.) Wilderness areas.

The January summary indicated that the FS is likely to recommend 5,000 acres of the Rich Hole Addition and the St. Marys West Addition (300 ac.).

Big Schloss National Scenic Area (30,129 ac.), containing a recommended Wilderness for Three High Heads (5,224 acres).

National Scenic Areas for Kelley Mountain (12,895 ac.) and Adams Peak (7,283 ac.).

National Recreation Areas for North Massanutten Mountain (9,410 ac.), Signal Knob (5,471 ac.) and Duncan Knob (aka Catback Mtn or Waterfall, 6,386 ac.).

1.NationalScenicAreas(NSA)andNationalRecreationAreas(NRA) – The January summary claimed that many of the areas proposed for NSAs do not have scenic characteristics that rise above the rest of the forest and argued there is no advantage to ―permanent protection.‖ To the contrary, we believe the proposed NSAs and NRAs do have exceptional scenic qualities and recreational opportunities compared to the rest of the forest. We also believe there is a distinct benefit to applying deserved, appropriate designations to special areas and managing them accordingly to ensure those values are protected for future generations.

In the past, the Forest Service has administratively designated Scenic Areas, such as the Coopers Creek Scenic Area in the Chattahoochee National Forest and scenic area management prescriptions. The GW should consider placing these areas in plan-designated special recreation or scenic areas and supporting these proposals.

2.SomeAreasNotYetEvaluatedByForestService – Three High Heads (in Big Schloss), Skidmore Fork (in the new High Knob roadless area), and Whites Peak have not yet been evaluated as separate areas. Other areas have not been considered with the particular boundaries proposed by VWC and Friends of Shenandoah Mountain. The GW should consider and evaluate these areas as proposed by VWC and Friends of Shenandoah Mountain.

3.DiscussionofSpecificAreas

SkidmoreFork – Skidmore Fork is part of the new High Knob area. The January summary indicates that the IDT viewed High Knob as among the best areas to consider for Wilderness recommendation. The only reason given in the summary for not recommending High Knob is that the West Virginia DNR has reservations about Wilderness designation. The Skidmore Fork portion, however, is in Virginia and should be considered separately.

LynnHollow – Lynn Hollow is the west side of Ramseys Draft Addition. The January summary stated a concern about underlying private mineral rights. However, the Forest Service could recommend the area for Wilderness or Wilderness Study and manage the area accordingly under the revised plan, thereby ensuring that the agency does all within its power to maintain the wilderness character of the area.

BeechLickKnob – As the January summary recognized, this area is an excellent candidate for Wilderness designation. The only reason cited in the January summary for not recommending it is that the area is currently suitable for timber management. We do not find this a compelling reason not to designate as Wilderness one of the largest and more remote and intact areas on the GW.

Moreover, most of Beech Lick Knob is steep and far from open roads, so most of it is not readily accessible for logging. This may be the reason why little logging has occurred in this area in recent decades (except for the sales in the north-eastern corner of the area) and why the area is still roadless despite being totally unrecognized by the Forest Service until now. Designating this area as Recommended Wilderness would remove only a small fraction of the desired timber base.

A comparison of the ―capability‖ analysis for Beech Lick Knob and three areas identified in the January summary as likely to be recommended for Wilderness, Little River, Ramsey‘s Draft Addition and Rich Hole Addition, reveals few differences between the areas. Some differences appear to be inconsequential. Many differences actually seem to be factors that should support Wilderness recommendation for Beech Lick Knob, based on how the FS seems to view these factors. For example, Beech Lick Knob has no trails designed and maintained for mountain bikes, so it has no potential conflicts with mountain bikers; is not considered high use, so there is a low probability of meeting another party; has no ―northern‖ vegetation, SBAs or TES species, which the FS may wish to actively manage; has no adjacent private land subdivisions; generally has no low slopes along boundary with private land to provide illegal ATV/OHV access points;

topography within the area makes illegal use, such as ATV use, difficult; and portions of its boundary provide a topographical barrier to illegal activity.

LaurelFork – Laurel Fork was on the January list of the best Wilderness candidates. The only reason cited for not recommending Laurel Fork is that GW staff believe some species in Laurel Fork need active management, particularly the ―northern‖ species, in light of pressure from climate change.

We are exceedingly disappointed that the only reference to climate change in the entire GW planning process appears here, as a reason not to recommend this area for Wilderness designation. The Forest Service should explain which particular species the agency believes require active management, where they are located, what specific management activities are needed and why. Because recognized (including by the Forest Service) strategies to improve species‘ resilience and adaptation to climate change include reducing other stressors (such as forest fragmentation and threats from invasive species) and protecting high-elevation refuges,[3] if the primary goal for Laurel Fork is to help its species survive climate change, then Wilderness designation may be the best way to accomplish that goal.

ThreeSisters – It is not clear why Three Sisters did not make the January list of ideal candidates. The area seemed to meet the GW‘s criteria in the ―Capability‖ Evaluation; the mine mentioned in the evaluation is outside the area. The smaller 6,327-acre area proposed by VWC uses the Appalachian Trail as a boundary, avoiding any potential trail maintenance conflict. Wilderness designation for Three Sisters would protect the northern side of the James River Gorge.

ThreeRidgesAdditionsandRoughMountainAddition – The Three Ridges Additions consist of four small additions (about 300 acres total) to the existing Wilderness. It is not apparent why the additions to Three Ridges and to Rough Mountain were not on the January list of areas likely to be recommended.

LIST OF ATTACHMENTS PROVIDED WITH ORIGINAL DOCUMENT, already in your possession

1. Secretary‘s Memorandum 1042-154, Authority to Approve Road Construction and Timber Harvesting in Certain Lands Administered by the Forest Service (May 28, 2009).

2. USFS Southern Region, Southern Appalachian Ecosystem Restoration Focus Areas (Feb. 2008).

3. Chart and recommendations for large semi-primitive areas which are not currently in Management Areas 4, 8 or 9, distributed by GWNF recreation staff at the April 8, 2009, meeting of the GW Plan Revision Interdisciplinary Team.

4. National Geographic Topographical Map showing Broad Run area.

5. Excerpts from Virginia‘s Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest, a report by Mark Miller for The Wilderness Society (pp. 34, 35, 88).

6. Letter from Governor Timothy M. Kaine to Maureen Hyzer (Nov. 23, 2008).

1 Acreage figures for each area usually refer to the acreage analyzed in the VMT Review.

2 Garden Mountain (3,291 acres), Hunting Camp Creek (8,470 acres), and Lynn Camp Creek (3,226 acres); Brush Mountain (4,794 acres); Stone Mountain (3,270); Raccoon Branch (4,223 acres); and Brush Mountain East (3,769 acres).

3 See,e.g., U.S. Climate Change Science Program (CCSP), Preliminary review of adaptation options for climate-sensitive ecosystems and resources, Product 4.4, pp. 1-3 and 3-4 (June 2008) (USDA and Forest Service are participants in the CCSP).

We request that the FS review the issues raised and follow the recommendations in the report entitled: ―Our Land, Our Water, Our Home: Ensuring a Healthy Future For Our George Washington National Forest‖ (see http://www.virginiaforestwatch.org/docs/ourland.pdf, incorporated by reference infull into this letter).

Among other recommendations in the report, we call upon our Forest Service public servants entrusted with the stewardship of our George Washington National Forest, to:

Ø Manage our GWNF, which are public lands, for values and resources that are not ordinarily available or protected on private lands.

Ø Emphasize backcountry recreation such as hiking, camping, bird-watching, horseback riding, mountain biking, hunting and fishing.

Ø Ensure that all watersheds, sources of clean water, and native Brook Trout streams are fu lly protected.

Ø Fully protect all ―inventoried‖ roadless areas. Identify and fully protect all other remaining roadless tracts.

Ø Fully protect all areas identified in the forthcoming publication ―Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest.‖ These areas provide the last, best places for outstanding recreation in the backcountry, and intact habitat for migratory songbirds, Black Bear and other wild life.

Ø Respond to the threat of climate change by restoring and protecting wildlife migration corridors.

Ø Fully protect all existing old growth and maintain sizeable uncut buffers and natural linkages around these areas.

Ø Fully protect all areas recommended by the Virginia Division of Natural Heritage for designation as Special Bio logical Areas. Also thoroughly survey West Virginia lands of the GW for special sites. Fully protect all rare, threatened and endangered species listed by the U.S. Fish and Wild life Service and the Virginia Division of Natural Heritage.

Ø Fully protect and buffer rare and sensitive habitat conditions such as springs, seeps, rocky slopes and outcrops, steep slopes, sensitive soils, nutrient poor sites, and rare forest types.

Ø Create recovery and reintroduction plans for native species no longer found on the GW, for example, potentially the blight-resistant American Chestnut when fully developed. Make a Plan priority the aggressive combating of the loss of Hemlocks to the Wooly Adelgid.

Ø Halt below-cost logging that loses millions of American taxpayers' dollars.

Ø Identify and recommend all areas that qualify for Wilderness Study Area and Wild & Scenic River designation.

Ø Use *A Citizens' Call for Ecological Rest oration: Forest Restoration Principles and Criteria* (Ecological Restorat ion, Vol. 21, No.1, 2003) to guide management objectives.

Ø Aggressively address the encroachment of non-native invasive species. Restore remote interior forests to help stop the influx of invasive species by closing unneeded roads that cannot be properly maintained and that act as corridors for many of these invasive species.

Ø Only when absolutely necessary, use logging to open cleared, shrubby areas used by certain wild life, and locate any such areas, called ―early successional habitat,‖ close to existing roads and existing open areas on privat e or public lands to lessen the impacts of forest fragmentation across the landscape. If early successional forest must be maintained for some species, then re-cut sites that have been recent ly logged.

Ø Avoid using ―prescribed‖ burns in moist areas and other areas where they are not appropriate, and allow lightning ignitions to burn in a contained manner.

Ø Fully recognize the vital role lightning ignitions and other natural disturbances play in promoting biological diversity and new growth and maintaining forest health.

Ø Prepare a full Environmental Impact Statement in support of the Plan revision.
A wide spectrum of the public demands these changes.

We also recommend that the FS follow the recommendations in the publication ―Forests For the Future‖: http://www.virginiaforestwatch.org/docs/GWNF-Vision-2.pdf, , incorporated by reference in full into this letter and the recommendations of ―Virginia's Mountain Treasures: The Unprotected Wildlands of the George Washington National Forest‖, submitted to the FS, already in the FS's possession.

Forest Service Strategic Plan

―The six goals are:

1. Reduce the risk from catastrophic wildland fire.

2. Reduce the impacts from invasive species.

3. Provide outdoor recreational opportunities.

4. Help meet energy resource needs.

5. Improve watershed condition.

6. Conduct mission-related work in addition to that which supports the above agency goals.‖ - 4

Shenandoah Mountain (*Plethodon virginia*) and **Big Levels (*P. sherando*) Salamanders**. Both have limited ranges, with the BLS being virtually endemic to the GWNF. **<u>These species' habitats need to be strictly protected</u>**.

‖The Shenandoah Mountain Salamander occurs in mixed deciduous forest interspersed with Virginia pine and hemlock in which there are numerous rock outcrops.‖ (WV Wildlife Plan 5E – 31) It has been found on South Branch and Shenandoah Mountains. It ‖coexists with the Cow Knob Salamander.‖ (id. at 32)

Pine Snake (*Pituophis melanoleucas*). This snake should be recognized as a species of concern. The Pine Snake may occur at various sites in this planning area, including potential cutting and roading sites as they contain suitable habitat. (See Mitchell, J.C., 1994. TheReptilesofVirginia. Smithsonian Institution Press, Washington D.C. 352 pp. incorporated by reference) Virginia and this project area are within the known range of this species. They are recorded from Augusta, Bath, Botetourt, Rockingham, Highland, and Allegheny counties (*id*. and Mitchell and Reay 1999). This species is one of the most rarely encountered reptiles in Virginia (see VDGIF at http://www.dgif.virginia.gov/pinesnake/pinesnake-observation.asp). Intensive ground disturbing activities (*e.g.,* logging and road building) commonly occur in the Snake's suitable habitat on the Forest: ‖the habitat is dry, open, and on mountain slopes, ridges, or hills, sometimes with abundant rock cover.‖ (Mitchell 1994) Such management operations may harm Pine Snakes or their habitat; for example, by compressing the substrate the Snakes burrow into.

This species' habitats need to be strictly protected. **The revised Plan must explicitly address 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**. **The revised Plan must ensure that special aquatic surveys needed to detect the Pine Snake occur at project areas where there is suitable habitat.**

Coal Skink (*Eumeces anthracinus*).
The Coal Skink may occur at various sites in this planning area, including proposed cutting and roading sites as they contain suitable habitat. (See Mitchell, J.C., 1994. The ReptilesofVirginia. Smithsonian Institution Press, Washington D.C. 352 pp. incorporated by reference)
Virginia and this project area are within the known range of this species. The VDNH records their presence in Rockingham and Allegheny counties and the Forest Service has found them on National Forest lands in Augusta county (see, e.g., GWNF Deerfield RD Farrow Hollow and Chestnut Oak Knob timber sale EAs, incorporated by reference).

Coal Skinks are listed as a ‖Sensitive‖ species in the 1993 GWNF LRMP and FEIS; they are also considered ‖Locally Rare‖. In fact, they are considered to be ‖very rare and imperiled‖ in Virginia (see GWNF Deerfield RD Farrow Hollow EA-40, incorporated by reference). They have only been found occurring at a very limited number of places in the state, and Forest. Therefore, given these facts and their known presence here, their viability should be a relevant, even significant, concern for the planners here.

It is not apparent that the Skink are actively and sufficiently searched for at project sites, nor that the agency adequately consider impacts to them.

The Forest Service's claim that negative impacts to the tiny lizard would not result due to their ‖general mobility of the species‖ (see GWNF Chestnut Oak Knob EA-35) is objectionable. There is no evidence or substantiation of this assertion. In fact, it runs counter to known herpetological research. Such creatures can be expected to have tiny

home ranges. And they cannot reasonably be expected to vacate a site of ongoing logging disturbance and run to a nearby stand.

Their life history requirements and characteristics greatly restrict their abilities to avoid disturbance activities or "recolonize" areas. So the MIS (*viz.*, black bears, white-tailed deer, turkeys, pileated woodpeckers, ovenbirds, and worm-eating warblers) and other birds referred to in EAs are of limited, even misleading, use for gauging impacts to site-sensitive salamander or coal skink populations (and because of their limited distributions, the current salamander MIS apply to only a small portion of the Forest).

Operations could severely harm them on site by altering habitat. This alteration may result in higher ground floor temperatures, or change in the moisture regime, or mortality to or diminishment of their prey. Such changes could result in presently occupied sites becoming unsuitable. This could significantly effect their distribution or viability. There is no full and fair analysis of this. Logging operations would severely harm them on site by resulting in direct mortality. These are very small creatures that are extremely vulnerable to being mortally injured or maimed by heavy machinery or falling trees. Hiding under leaves or bark or small rocks does not provide protection from the overwhelming weight of machinery or trees.

The Skinks are very small ectotherms. They are not endotherms such as birds or deer that can swiftly move long distances. They are not physically or physiologically capable of very much mobility. The speed or distances with which they are capable of moving are in no way allows them to avoid logging operations spread over many acres or to avoid the speed of motorized equipment or falling trees. And the Skinks ability to exhibit mobility by hiding under leaf litter and debris on the ground does not protect them from the crushing weight of machinery or trees.

This concern is particularly important given the intent to destroy, degrade, or fragment Skink habitat on the Forest (such as the mature forest, ground floor, and rocky areas) and this species‘ low dispersal abilities. Populations could be centered, perhaps even be only found at, the particular places targeted for intense manipulation. They have very small home ranges with limited abilities of mobility and dispersal. They are susceptible and vulnerable to severe site-specific harm.

This species’ habitats need to be strictly protected.

Cerulean Warbler.

The Cerulean Warbler (*Dendroica cerulea*) is known to occur in the Appalachians of Virginia and on the GWNF, including Shenandoah Mountain. Populations of the Warbler have declined precipitously. The latest Breeding Bird Survey data and analysis show a continued and serious decline in Cerulean Warbler populations throughout its range. According to the most recent BBS numbers, since 1966 Ceruleans have declined by 90% or more in Virginia. Populations on the GWNF are not in the core of the species range, thus are more vulnerable to extirpation.

This neotropical migrant is an area-sensitive species associated with large tracts of mature and old-growth deciduous forest. Many tracts allowed for cutting on the

Forest are mixed mesic and oak forests of the forest types where Cerulean Warblers are known to occur.

Old growth supplies conditions favored by Cerulean Warblers. These include relatively open ground-floor conditions and multiple canopy layers, as well as large-diameter tall trees forming a high percent of crown closure and canopy openings from natural disturbance. They are destroyed, removed or modified by logging operations. **Old growth is the condition that should be promoted on the Forest in the Warblers' range**, not logging schemes that are of no proven benefit to the Warblers, as well as to a host of other species.

Rattlesnakes (*Crotalus horridus*). This is a species of viability concern on this Forest and elsewhere throughout its range (see, *e.g.*, 2003 JNF DEIS at Appendix E). See ReptilesofVirginia by Joseph Mitchell, and ―The Timber Rattlesnake: Its Distribution and Natural History‖ by W.H. Martin in *Conservation of the Timber Rattlesnake in the Northeast* published by the Massachusetts Audubon Society, incorporated by reference. The Timber Rattlesnake should be a ―species of concern‖.

The proposed logging operations could significantly affect their distribution and mortality (road kills and crushing, increased motorized use, draw more people to area, habitat displacement, etc.). Road construction/reconstruction or opening/improvement would be a very bad idea for them and may significantly worsen their security and viability. Projects commonly occur at the time (Spring and Fall) of the denning season, when the Rattlers are closeby their overwintering den sites. Den sites are known to occur at elevations such as those at project sites (see, e.g., ―2200-2700 feet‖ BE-2 for the WSRD Open Trail TS).

Den sites are ecologically critical areas, like bird rookeries or Indiana Bat hibernacula. The snakes are even more vulnerable because unlike birds and bats they cannot fly away. There is a clear need to establish the locations of hibernacula and what the species' status is on the Forest. Harm to a relatively small area could actually affect an area or population for miles around. If entire cutting units are not dropped, then the den areas should have a 1/4-mile radius no-disturbance buffer.

This species uses ―rock outcrops and cliffs‖ and is a species of concern in the new JNF Plan (see JNF DEIS at E-1 & 4). There are large rock outcrops and scree slopes at numerous project areas. Trees in cutting units are often marked w/ paint right in the scree and all around the rocks; see, *e.g.*, the Lee RD Laurel Road TS and WSRD Open Trail TS. A Rattlesnake den may be closeby or in ―unit‖ 2 that may be used by many snakes for miles around.

Individuals of this species congregate in concentrated areas (*i.e.*, den sites) during the winter and immediately pre- and post-hibernation. Many snakes may travel from a wide area (from 2.5 miles away and more) when migrating to one of these overwintering sites. Populations and individuals are especially vulnerable to direct and indirect disturbance during these denning times. Because of their concentrated distribution at these times, disturbance to a relatively small area can thus have impacts to population viability reaching far beyond the size of the ―project footprint‖ itself. And destruction of an ancestral den sight or disturbance to its surroundings, even if the snakes are not there or are not directly killed, could affect their future survival as another suitable site in the surrounding area might not be known to or available to them.

Specific project sites, and ―cutting units‖ themselves, may even harbor den sites or be part of a ―den colony‖.

The Forest Service should consult with Timber Rattlesnake researcher W.H. Martin of Harpers Ferry, WV (304-876-3219) for expert input about this aspect of the Plan.

Population Inventory Data:

―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." SeeStd.240atGWNFLRMP3-149.

To maintain the Forest's diversity, communities, and sustainability, the Forest Service/revised Plan must adhere to this directive to collect population inventory data on sensitive plant and animal species. This standard/guideline should be revised to read ―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, sensitive, or locally rare species, or species of concern."

Contrary to the Plan, however, the Forest Service has failed in the past to collect and maintain adequate population inventory data on PETSLR species in proposed project areas. The DCER and DLRMP fail to adequately, properly, and clearly address this issue/concern.

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Many GWNF Mountain Treasures are excellent potential Wilderness Areas. The FS must evaluate in detail as potential Wilderness all the Treasures during this revision. I particularly want to bring to your attention ScaffoldRun,BigRidge, Paddy Lick,WestBackCreekMountain, Back Creek Mountain, LittleMareMountain, WarmSprings Mountain, ShortMountain,Longdale,ForeMountain,TomsKnob,Snake RunRidge,Slatey Mountain,JerrysRun,AdamsPeak,WhitesPeak, Signal Corps Knob, BensonRun,ArcherKnob,SidelingHill, Walker Mountain, Hankey Mountain/Trimble Mtn.,ShawsRidge,BeechLickKnob,HogpenMountain,LittleCow Knob, WildcatRidge,FeedstoneMountain, Dunkle Knob, KretchieMountain,Jonnies Knob, Big Schloss (such as at Little North Mountain and north of Halfmoon Mountain), Great North Mountain (on Lee RD), Falls Ridge, Church Mountain, Catback Mountain, and SignalKnob, as well as all of the roadless areas inventoried in the 1993 Plan EIS.

In addition, please examine the **Big Ridge** area on the WSRD. It is found south of FDR 258 (Ruckman Draft road), west of rt. 600, north of rt. 84, and east of the stateline (or FDR 55 on the MNF). This area's hydrologic unit is Back Creek of the James; see the USGS quad map ―Paddy Knob‖. The Mourning Warbler, Yellow-bellied Sapsucker, and Red Raspberry are known from this HU/Q. It includes Little Ridge and Sorrel Pt. Ridge, with elevations from 2000' to 4000' asl. Some contiguous unroaded

lands (~ 1000 acres) are in the Monongahela NF. Due to the rugged terrain of the steep narrow drainages, small pockets of old growth have been protected from resource extraction. This tract is currently allocated to MA 14. Big Ridge includes significant amounts of SPM2 acreage.

In addition, please examine the **Bear Wallow** area on the JRRD. This area is northeast of Rich Patch, west of rt. 633, and is mostly in Botetourt county. It is the northern extension of the Rich Patch Mountains and includes Shirkey Mill Branch.

The **Scaffold Run** area would make an excellent Wilderness. It is located in one of the most remote areas in the East (based on distance from 4-lane roads, the low population density of the surrounding counties, and the high proportion of public lands nearby); also see the map ―Earth at Night‖ produced by the National Geographic Maps for National Geographic Magazine, November 2004. Scaffold Run lies at the heart of the Central Appalachians with rugged mountainous terrain all around. The Mountain Treasure is of substantial size (6611 acres) and there is large tract of contiguous unroaded lands (*ca*. 3000 acres) on the adjacent Monongahela NF in West Virginia.

Toms Knob is an excellent Wilderness candidate. It is adjacent to Barbours Creek Wilderness on the JNF and is well away from major roads and communities. It is of large size (7879 acres) and has a large area of what should be considered SPNM lands. Along with the two adjacent JNF WAs, protection of Toms Knob would provide an excellent complex and draw for recreational visitation to Allegheny and Craig Counties.

Dry River is another Treasure that would make an excellent Wilderness Area. This very large area (12,939 acres) occupies the steep western slopes of Shenandoah Mountain in West Virginia adjacent to the stateline. Together with the contiguous 5,703 acre Skidmore Roadless Area in Rockingham co., Virginia, a Wilderness Area of almost 20,000 acres is possible here. Dry River contains significant tracts of old growth. Two rare amphibian species occur here, the Cow Knob and Shenandoah Mountain Salamanders. Black Bears also find remote habitat here.

The Dry River Roadless Area currently inventoried by the Forest Service is *ca.* 7300 acres in size. However, the Dry River Roadless Area was 16,135 acres in the 1978 RARE II inventory. **So over the years, the FS has diminished the area by 55%.** The Forest Service has conducted multiple road building and logging projects on the lower elevations. A full 52 % of the present Roadless Area (around 3800 acres) is currently ―available for development‖. The Forest Plan allocates the upper portion of Dry River to Management Area 4 "Shenandoah Crest Special Interest Area" ("unsuitable" for timber production), with the lower slopes in Management Area 15, "Mosaics of Wildlife Habitat". The great majority of this MA 15 acreage is considered to be ―suitable for timber production using even-aged management‖, *i.e*., clearcutting and its variants. The diminishment and degradation of Dry River need to stop under the revised Plan.

Little Mare Mountain is another Treasure that would make an excellent Wilderness Area, particularly the northern portion above road 125-5. This is a very large area (12,587 acres in total) that is buffered by a large TNC preserve and other GWNF lands. It is located away from major communities, but closeby a State Park (Douthat). Its environs of Bath County are heavily forested and have a low human population.

Big Schloss/Great North Mountain is certainly an excellent wilderness candidate. This is one of the largest roadless areas in the east (the two contiguous Mountain Treasures total 37,885 acres). This Treasure epitomizes the Forest Service's failure to protect roadless areas administratively. Roadless Areas on the GWNF

previously inventoried in 1978 as part of the "RARE II" analysis have been significantly diminished in size or damaged to the point that the Forest Service no longer considers them to be roadless. The Big Schloss area of the GWNF was 36,526 acres in RARE II, including the contiguous Great North Mountain area. But according to the 1993 inventory for the GWNF FEIS, its acreage has been whittled down to 20,755 (a decrease of over 40%). This area contains outstanding recreational opportunities as well as outstanding and diverse ecological attributes. It is at the far north of the GWNF so is within closer driving distance of Eastern metropolitan areas.

Dunkle Knob is another excellent Wilderness candidate. The DK Mountain Treasure encompasses a series of knobs on the west flank of Shenandoah Mountain north of US Rt. 33. Includes Dug, Whetmiller, Round, Dunkle, and Brushy Knobs; also Dice, Wagner, Stony, and Hawes Runs. Elevations range from 1900‘ on the west to 3500‘asl on eastern boundary. Beautiful waterfalls and tracts of old growth can be found. The area is characterized by a diversity of vegetation with a variety of forest types, some very rare on the Forest (unfortunately cut when the Forest Service decided to implement the Dice Run timber sale here in 2003). Most of this area is allocated to MA 14, with some upper elevations in MA 4 (Shenandoah Crest Special Biological Area). Excellent remote habitat for Bears is available here, as well as habitat for the rare Cow Knob (or White Spotted) and Shenandoah Mountain Salamanders.

Other excellent Mountain treasure areas to recommend as Wilderness include Laurel Fork, Beech Lick Knob, Skidmore Fork, Little River, Ramseys Draft Addition/Lynn Hollow, Crawford Mountain, Benson Run/Jerkemtight, Little Allegheny, Rough Mountain Addition, Rich Hole Addition, Snake Run Ridge, Oliver Mountain, St. Marys Addition, Adams Peak, and Three Sisters.

[Some wilderness recommendations above are amended by the list on pp. 5-6 above]

Congress has strongly and clearly expressed that the Forest Service should not use this ―sights and sounds‖ criteria to identify potential Wilderness areas.

In recent years, scientists, land managers, and policy makers have become more aware of the importance of landscape"representation" to conserving biodiversity. One way to examine the adequacy of representation is the inclusion of representative samples of naturally occurring ecosystems in the National Wilderness Preservation System. Only about 2% of the land area in the continental United States is protected as Wilderness; thesituationinVirginiaisevenworse,withamere0.8%ofthestaterepresentedas Wilderness.

Under the Bailey ecosystem classification regime, the GWJNF is part of the ecoregion called the "Central Appalachian Broadleaf Forest - Coniferous Forest - Meadow Province". The area of this province is approximately 43,600,000 acres, which is 2.3% of the conterminous U.S. land area. Only 0.6% of the province is presently protected as Wilderness. And though the province represents 2.3% of the U.S. land area, it only contains 0.6% of the National Wilderness Preservation System. The Wilderness-to-province-area ratio of less than 1 (*viz.*, 0.26) indicates that thisecoregion isunder-representedintheNationalWildernessPreservationSystem and not well protected (see Loomis and Richardson at pp. 20-23 [TWS, 2000]; also Cordell).

The majority of the GWJNF can also be described as part of the "Ridgeand

Valley"physiographicorgeomorphicProvinceoftheAppalachians. This region, stretching from Pennsylvania to Alabama, is approximately 29 million acres in size. At present only around 73,000 acres, or lessthan0.3%,ofthisareaisprotectedas Wilderness.

And of the entire 37 million acre "Southern Appalachian" region, only 1.1% (428,000 acres) is currently designated as Wilderness, with another 3.3% as roadless acreage (see SAMAB SAA Social Technical Report at 178-82).

The GWNF planners must fully and fairly, qualitatively and quantitatively evaluate this issue of landscape representation and Wilderness recommendations.

Protecting roadless areas also furthers the goals of Virginia's2005wildlifeplan, which identified habitat destruction and fragmentation among the top 10 threats to terrestrial species and recommended conserving mature forests, maintaining large patches of habitat, and improving links between habitats. Va. Dept. Game & Inland Fisheries, Virginia's Comprehensive Wildlife Conservation Strategy (CWCS), pp. 3-27-28, 10-2-3, available at www.bewildvirginia.org/wildlifeplan/virginia-wildlife-action-plan.pdf .

Wilderness

Onlyaround 5%oftheGWNF land base (about 55,000 acres) is currently designated as Wilderness - 84.

The FS must clearly and positively respond to the vast public support for and desire for more Wilderness Areas on the Forest by recommending a significant amount of acreage as Wilderness.

ZOGBY POLL ON WILDERNESS

From The Campaign for America's Wilderness

For Immediate Release: July 21, 2008
Contact: Susan Whitmore (202) 266-0435
See summary of the polls at http://www.leaveitwild.org/news/releases/1124 (July 2008)

Vast Majority of Americans Believe Protecting Wilderness is Important

More than seven in ten likely to vote for presidential candidate who supports wilderness protection

Washington, DC – Nearly nine in ten Americans believe that protecting public land as part of the National Wilderness Preservation System is important, according to a new

Zogby International poll of 1039 likely voters across the country. These voters view as ―very important‖ (57 percent) or ―somewhat important‖ (30 percent) the protection of publicly owned land as wilderness, leaving it just as it is. The support cuts across political parties, regions, age groups, and ethnic and religious backgrounds. Twelve percent said it was not important to protect the nation's wilderness.

When likely voters were asked whether they would vote for a presidential candidate who strongly supported wilderness protection of public lands, 71 percent said they were ―likely‖ to do so. Less than two in ten (19 percent) said they were ―not likely to.‖ A clear majority of Democrats (93 percent), Republicans (81 percent) and those who identified themselves as Independents (88 percent) say they think protecting public land as part of the National Wilderness Preservation System is important to them.

―What this polling confirms is that support for protecting public land as part of the National Wilderness Preservation System is broad and deep across every region of the country,‖ said Mike Matz, executive director of the Campaign for America's Wilderness, a public-interest organization that commissioned the poll. ―Americans understand that some places are irreplaceable and their value for wildlife habitat, importance for clean air and water, and opportunity as recreation sites are too important to sacrifice to development.‖

A Zogby International poll of 1001 likely voters across the country in 2003 found that a strong majority (65 percent) of Americans favor designating more land as wilderness in their own state, support that also cut across party lines.

Congress is currently considering more than a dozen wilderness bills which could yet be enacted this year, adding a significant amount of permanently protected land to the National Wilderness Preservation System – from Oregon to Idaho to West Virginia.

These new wilderness questions were asked as part of a Zogby International omnibus telephone poll of 1039 likely voters conducted from July 9-13, 2008, when gas prices averaged $4.10 a gallon nationally. The margin of error was +/- 3.1 percent. For methodology, contact: Zogby International's Fritz Wenzel, 315-624-0200 ext. 229, or 419-205-0287 or fritz@zogby.com.

# # #

Wild & Scenic Rivers

Thereare some additional waterways, all of which have sections on the GWNF, that the Forest Service needs to evaluate for inclusion as Wild, Scenic, or Recreational Rivers: **Trout Run, Waites Run, German River, Wilson Creek, Mill Creek (of Maury River), Mill Creek (of Cowpasture River), Potts Creek, Stony Creek (north of Bayse impoundment), Benson Run, Big Marys Creek, Stuart Run (with Buck Lick and Bolshers Runs), Jim Dave Run, Little Back Creek, Crow Run (with Little Crow Run), and perhaps others**.

The revised Plan needs to have clear guidelines and objectives for the FS to gain WSR

protectivestatusforallthesuitablewaterwaysbymakingrecommendationsto Congress. All of the stream segments found eligible in 1993, as well as any new additions, should be formally recommended for WSR designation when the revised Plan is adopted. The GWNF planners must also redo the WSR evaluations so as to recognize the ―outstandingly remarkable values‖ possessed by Passage Creek Seg. B, Cowpasture River Seg. C, the upper part of Cedar Creek, and St. Marys River Seg. B and recommend these also.

Important scenic and recreational areas

ShenandoahMountain

Shenandoah Mountain is perhaps the most important single ―special area‖ on the Forest; it is certainly the largest. Stretching 60 miles in length and 15 miles in width, Shenandoah Mountain occupies almost 400,000 acres of public lands on the North River Ranger District in Augusta, Bath, Highland, Rockbridge, and Rockingham Counties, Virginia and Pendleton County, West Virginia.

The crown jewel of the Central Appalachians, Shenandoah Mountain constitutes the largest single contiguous tract of National Forest in the eastern United States. As such it is of national significance as one of the largest relatively intact wildlands of any kind in the entire East.

Here are Wild Trout streams and quality Black Bear habitat, as well as endemic species such as the Cow Knob Salamander and Shenandoah Mountain Millipede. Here too are tracts of old growth forest and rare habitats such as shale barrens. In addition to these ecological benefits, the complex of roadless lands that exists on Shenandoah Mountain is an unparalleled backcountry recreational resource in the region. Dazzling beauty abounds.
Shenandoah Mountain possesses probably the greatest amount of roadless areas and back-country recreational lands to be found in any single area between the Great Smoky Mountains National Park and the Adirondacks. Here are four clusters of Mountain Treasures with twenty-four individual Treasures totaling around 260,000 acres. Included in these Treasures are 112,000 acres in nine roadless areas ―inventoried‖ by the Forest Service. Here too is the glorious Ramseys Draft Wilderness Area, as well as eight Forest Plan designated Special Interest Areas – Biological and the Laurel Run Research Natural Area.

Shenandoah Mountain contains the greatest concentration of oldgrowth on the George Washington National Forest and in the Central Appalachians, with perhaps around 75,000 acres in this condition (see maps at pp. 210-11 of Southern Appalachian Assessment Terrestrial Technical Report and USDA FS "Stands 150 Years And Older CISC" map and CISC ―old growth trend‖ at App. G-58 of 2004 GW-JNFs Monitoring Report).

On Shenandoah Mountain are headwaters of the James and Potomac Rivers, and of the legendary and beloved Shenandoah River. Segments of the North River and Cowpasture River qualify for inclusion into the National Wild and Scenic River System. Watersheds and impoundments on the Mountain supply the drinking water for

tens of thousands of people in Staunton and Harrisonburg.

Over 200 miles of hiking trails traverse the area. The 20 mile North Mountain Trail, the 25 mile Wild Oak Trail, a component of the National Trails System, and the 40 mile long Shenandoah Mountain Trail provide outstanding recreational opportunities.

Problem:

Shenandoah Mountain is managed under a hodgepodge of differing management area prescriptions with conflicting emphases that do not adequately conserve the special values and conditions found here. The Forest Service does not recognize the significance of the Mountain. Management decisions and actions damage the Mountain's significant ecological, social, and recreational values. We do not want this majestic mountain to change and become more and more like everywhere else. But that undesirable trajectory is a constant threat under present management regimes.

Resolution:

Shenandoah Mountain is a natural cathedral of ever-growing importance for the rejuvenation and inspiration of the human spirit. The entirety of Shenandoah Mountain must be allocated to management prescriptions that fully and consistently preserve and restore the special values and conditions found here.

EcosystemDiversity

In order to manage the Forest the Forest Service often alters the composition, structure, and processes of terrestrial and aquatic ecosystems through such activities as timber sales and associated road building. Through these and other projects the agency affects ‖ecosystem diversity‖ on the GWNF. Ecosystem diversity is the variety and relative extent of ecosystem types including their composition, structure, and processes (36 CFR 219.16).

Factors such as elevation, slope, aspect, topographic position, slope configuration, moisture availability, and disturbance history are primary influences on forest composition (Lawrence et al.). The historical landscape of the East was characterized by a complex mosaic of habitats structured by natural disturbance and dominated by old stands with early successional habitat in naturally created gaps and openings of various sizes. The National Biological Survey estimates a 98-percent declineinold-growth and other virgin stands across the eastern deciduous biome (Noss et al. 1995).

For planning purposes the area of analysis should be large enough to consider broad scale trends and to capture the range of variation in disturbance frequencies and the aerial extent of disturbances. The FS must analyse non-National Forest land (such as private lands) in order to understand the context, opportunities and limitations for the Forest to contribute to the sustainability of ecological systems. During the revision process the FS will develop Plan components (desired conditions, guidelines, and objectives) for such things as major vegetation types and their successional stages, ecosystems and specialized habitats that are rare or at risk, and dominant disturbance

processes in the plan area.

The FS planning process should be consistent with the following sections of NFMA:
(National Forest Management Act Of 1976 Sec. 6)

inventories of the applicable resources of the forest (National Forest Management Act Of 1976 Sec.6)

identification of the suitability of lands for resource management (National Forest Management Act Of 1976 Sec. 6)

obtaining inventory data on the various renewable resources, and soil and water, including pertinent maps, graphic material, and explanatory aids; (National Forest Management Act Of 1976 Sec. 6)

methods to identify special conditions or situations involving hazards to the various resources and their relationship to alternate activities (National Forest Management Act Of 1976 Sec. 6)

insure consideration of the economic and environmental aspects of various systems of renewable resource management, including the related systems of silviculture and protection of forest resources, to provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish; (National Forest Management Act Of 1976 Sec. 6)

provide for diversity of plant and animal communities (National Forest Management Act Of 1976 Sec. 6)

provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan; (National Forest Management Act Of 1976 Sec. 6)

insure research on and (based on continuous monitoring and assessment in the field evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land; (National Forest Management Act Of 1976 Sec. 6)

(E) insure that timber will be harvested from National Forest System lands only where- "(i) soil, slope, or other watershed conditions will not not be irreversibly damaged; "(ii) there is assurance that such lands can be adequately restocked within five years after harvest; (National Forest Management Act Of 1976 Sec. 6)

protection is provided for streams, stream-banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat (National Forest Management Act Of 1976 Sec. 6)

(F) insure that clearcutting, seed tree cutting, shelterwood cutting, and other cuts designed to regenerate and even-aged stand of timber will be used as a cutting method on National Forest System lands only where- "(i) for clearcutting, it is determined to be the optimum method, and for other such cuts it is determined to be appropriate, to meet the objectives and requirements of the relevant land management plan; "(ii) the interdisciplinary review as determined by the Secretary has been completed and the potential environmental, biological, esthetic, engineering, and economic impacts on each advertised sale area have been assessed, as well as the consistency of the sale with the multiple use of the general area; "(iii) cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain; "(iv) there are established according to geographic areas, forest types, or other suitable classifications the maximum size limits for areas to be cut in one harvest operation, including provision to exceed the established limits after appropriate public notice and review by the responsible Forest Service officer one level above the Forest Service officer who normally would approve the harvest proposal: Provided, That such limits shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm; and "(v) such cuts are carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and esthetic resources, and the regeneration of the timber resource. (National Forest Management Act Of 1976 Sec. 6)

identify lands within the management area which are not suited for timber production, considering physical, economic, and other pertinent factors to the extent feasible (National Forest Management Act Of 1976 Sec. 6)

Specifically, how will the above be achieved and conducted, consistent with NFMA?

Freshwater Mussels

- According to a study commissioned by the American Fisheries Society Endangered Species Committee, there are ―297 native freshwater mussels [in the U.S. and Canada], of which 213 taxa (71.7%) are considered endangered, threatened, or of special concern... and only 70 (23.6%) as currently stable... Freshwater mussels (also called naiads, unionids or clams) of the families Margaritiferidae and Unionidae are worldwide in distribution but reach their greatest diversity in North America with about 297 recognized taxa... During the past 30 years, numbers both of individual and species diversity of native mussels have declined throughout the United States and Canada. Freshwater mussels (as well as other aquatic species) are emperiled disproportionately relative to terrestrial species... This alarming decline, the severity of which was not recognized until recently, is primarily the result of habitat destruction and degradation associated with adverse anthropogenic activities.‖ (Williams, Warren, Cummings, Harris and Neves, 1993
- At its peak, the James spinymussel (Pleurobema collina) was distributed from a location a few miles upstream of Richmond, Va. and throughout the James River basin upstream. Since that time, its range has been reduced by approximately 90% (Clarke and Neves, 1984) The James spinymussel now survives in a few tributaries of the James. (Terwilliger, 1990
- Water quality can greatly affect the suitability of mussel habitat. Road construction is one of the most detrimental activities impacting mussels (Hove and Neves, 1994, see enclosure) A section of Virginia'sEndangeredSpecies edited by Dr. Neves acknowledged poor logging and roadbuilding practices within the national forest are a threat to the spinymussel in one watershed. He stated that ―activities in Jefferson National Forest likely to affect the streams in which Pleurobema collina lives should be monitored by the United States Forest Service.‖ (Terwilliger, 1990).
- The James spinymussel depends on fish species such as the bluehead chub (Nocomus leptocephalus), rosyside dace (Clinostomus funduloides), satinfin shiner (Cyprinella analostana), rosefin shiner (Lythurus ardens), central stoneroller (Camptostoma anomalum), blacknose dace (Rhinichthys atralulus) and mountain redbelly dace (Phoxinus oreas) in order to reproduce, so potential impacts to these fish species should have been considered as well. These fish serve as the prime fish hosts for young developing mussel larvae, called glochidia (Terwilliger, 1990, p. 254; Hove and Neves, 1994) See also George Washington and Jefferson National Forest T & E Mussel and Fish Conservation Plan, in your possession, incorporated by reference (Mussel and Fish Conservation Plan), 6 & 31: ―The decline of fish host species may present a problem in mussel reproduction.‖ There is no monitoring or analysis of impacts to host fish.
- James spinymussel females usually produce significantly fewer glochidia than other mussels. Female mussels release glochidia during a short period from early June to through late July. Water temperature and springtime water flows are believed to be important factors as far as James spinymussel reproduction is concerned. (Hove and Neves, 1994, p. 34 & 37) The timing of activities and longevity of impacts should be of concern. There is no attempt to mitigate such effects or monitor such effects over the long term.
- Pesticides and contaminants have long been recognized as a threat to mussels (Williams et al 1993; see also EPA, "Protecting Endangered Species," EPA Rpt. #21T-3055, June 1992, for example, for the adjacent county in Va., Craig County) There is no information in the EA on what contaminants from the sites might flow into waterways inhabited by mussels or the impacts of herbicide release necessitated by this project, or cumulative impacts. (EA)
The FS should follow all provisions of GWJNFs T&E Mussel and Fish Conservation

Plan, the ESA, and James spinymussel recovery plan regarding the protection and monitoring of freshwater mussels. The FS is required to ." "Maintain a stable and/or increasing population trend for Blackside dace and James spinymussel."(Conservation Plan) but there are serious doubts evident as to whether this is occurring. The '99-'00 GWJNFs M&E Rpt states "Throughout the Craig Creek drainage, P. collina numbers are declining (Pers. Comm. Neves 12/5/00)" (p. G-75) (incorporated by reference, already in your possession, enclosed as an attachment our previous (2nd) Little Mountain timber sale appeal). See also '01-'03 GWJNFs M&E Rpt G-67, already in your possession, incorporated by reference. See also the email from Dawn Kirk (GW&JNFs Staff Fisheries Biologist) regarding her conversation with Dr. Neves. It appears that Dr. Neves believes that sediment is the probable cause of the decline. According to the e-mail, [Neves] "said it is a downward trend in Johns Creek and the whole Craig Creek drainage." Kirk also states that based on the conversation, she does not believe that there is a viable population of James spinymussels on the Forest or that there ever will be one without "massive augmentation." (incorporated by reference, already in your possession, enclosed as an attachment our previous (2nd) Little Mountain timber sale appeal).
The yellow lance, is a G2G3 S2S3 species in Va., and the roughhead shiner, is a G2G3 and S2S3 species. The roughhead shiner is confined to the Ridge and Valley province of the upper James drainage, Virginia…The contiguity within subpopulations and the sharp limits of the range of the species indicate that high gradient and small size of stream, turbidity, and siltation variously combine to effect the tight distribution of the roughhead shiner (Jenkins and Burkhead, 1975a)" Terwilliger (1991). The roughhead shiner is a sensitive species (R-8 sensitive species list).
- The past and current state of biotic populations and water quality of perennial streams, and intermittent and ephemeral tributaries, even if a "fishery" may be absent, are important.
- "The effects of sediment delivered to a stream channel diminish as watershed size increases. Most vulnerable are small sensitive headwaters catchments where concentrated timber harvest activity can have profound results. . . . After four years, sediment rates are normally back to predisturbance levels. However, once sediment is deposited in a stream channel, its effects can persist for decades or even centuries (Frissel, 1996)." (JNF Enterprise TS EA-42; incorporated by reference) So this project may result in significant impacts to channel condition and population viability or distribution.

- TESLR Freshwater mussels and other TESLR aquatic species, or impacts to these species, are not adequately analyzed; these species are not protected.

Karst :

The possible presence of karst resources necessitates a high level of NEPA analysis and protective measures. For example, in the Hagan Hall project, a project in karst in the Jefferson NF, Tom Collins, JNF SO Geologist recommended that the following mitigating measures be considered in one or more of the action Alternatives: -no landings or roads in the karst area, no timber ... harvested in the karst area, [and] no

helicopter service area ... in the karst area.‖ due to the sensitivity and rarity of these terrains on FS land (Hagan Hall EA Geol. Ex. Cond.-1, already in your possession, this volume is incorporated by reference in its entirety) Collins says ―Karst and karst ecosystems are unusual, involving a complex interaction of surface and subsurface processes.‖ Collins describes how easy it is for surface water, including sediment and contaminants, to enter ground water in karst terrain. Ground surface also has the potential to collapse, creating new sinkholes. (Geol. Ex. Cond.-2-3) The mitigation methods do not avoid all the problems Collins refers to: increased trash at the logging sites, risk of contaminants from helicopters, chainsaws, etc., damage to the subterranean groundwater system, etc. (Geol. Ex. Cond.-5 and throughout) Logging and skidding in these areas, esp. near sinkholes, will have long-term negative impacts to karst. We are concerned that after the project is complete, skid trails and other logging infrastructure will remain a long-term source of sediment and contaminants that cannot be mitigated. And there is the potential for sinkhole expansion and new sinkholes near roads, skid trails, and landings and other disrupted areas. (Geol. Ex. Cond. bottom of p. 2 and top 1/3 of p. 3. Collins defines karst as ―a type of topography formed in limestone and dolomite (carbonate bedrock) by the desolving of bedrock, eroding of underground spaces, and collapsing of the ground surface. Karst terrane is characterized by sinkholes, caves and underground drainage. Karst lands are unusual, involving a complex interactionof surface and subsurface process...)‖ (Geol. Ex. Cond.-2)

-The DNH's 11/13/98 letter regarding this same karst area in the Hagan Hall raises other concerns about karst that should be fully considered in the EIS, since there are numerous areas with karst in the GWNF as well: ―The springs which feed the fisheries-supporting tributaries to Stony and Staunton Cr. should be monitored for visual turbidity and temperature over time by Forest Service staff familiar with the historical range of flow conditions associated with these streams. Thesestreamsaremostlikelyconnected to thecaveenvironmentsinsomeway and should be assessed during pre-planning, harvest and post-harvest stages of this project. Field reconnaissance for springs should be focused along the branches of the Hunter Valley Fault which pass through the project, and concentrate on the groundwater flows from the surrounding recharge area (see geology map, DMR Publication 80) Theintegrityofkarstgroundwaterisvitaltothe viabilityofthevariousaquatichabitatsdiscussedintheEA. Thesesprings,aswellas well as those on down gradient private lands, could exhibit adverse adverse impacts even thoughthedocumentedsinkholesarebufferedfromlanddisturbingactivities.‖ (underlining for emphasis)

And in its 11/18/98 comments on the Little Mtn. project, New Castle RD, JNF, another project with a down-gradient karst/cave environment, the DNH recommended ―that the pre-harvest site evaluation include an inventory of sinkholes, springs, and other karst features on both public and private properties below the 2400 ft. contour elevation... [to be] accomplished through aerial photographic analysis and field reconnaisance.... A thorough evaluation of the karst areas on and adjacent to the proposed harvest sites will facilitate the design of effective BMPs and minimize damage to karst and water supplies.‖

―Caves and springs many miles away can be affected by logging 20 or more miles away and in different watersheds. For example, a timber sale could result in increased water entering a cave and in a major storm event, the increased water could result in a flood large enough to kill (i.e., drown) or harm creatures in the cave. Or it could kill someone exploring the cave. It could also adversely affect or kill creatures living in a cave or a spring by changing the temperature or increasing the sediment.

The analysis of effects must also consider groundwater and subsurface water flow.‖ 10/27/98 Heartwood comments on the Hagan Hall project, p. 8. These issues should be considered in the EIS and appropriate standards and monitoring should be required.

Cerulean Warbler:

- The cerulean warbler, is an area-sensitive bird (Southern Appalachian Assessment, Terrestrial Report); the cerulean warbler is experiencing the greatest annual decline of any of the warbler species and this significant decline is continuing. Studies have found cerulean warblers chiefly in ‖large tracts of mature, semi-open deciduous forest.‖ Robbins, Fitzpatrick and Hamel, 1992. The authors of one study, affirm that there is a ‖need to protect extensive tracts of mature deciduous forest,‖ especially on publicly owned land. See also excerpts from the Maple Springs Branch BE on the cerulean warbler (Clinch RD, GWJNFs, already in the agency's possession, incorporated by reference).
- Studies have found cerulean warblers in ‖large tracts, tall trees, and mature forest.‖ ." (Cerulean Warbler Status Assessment April 2000). This habitat and adjacent tracts of mature forest may provide habitat for the cerulean warbler.
- The Southern Appalachian Assessment Terrestrial Report lists the cerulean warbler among ‖area sensitive, mid- to late-successional deciduous forest species‖ (SAA/TR-70, in the agency's possession, incorporated by reference). It predicts that ‖based on past trends in land use, it is expected that, over the next 15 years, suitable acreage [for these area sensitive species] and associated forest interior habitats will continue to decrease due to loss of forestland to other uses such as agricultural pasture and development.‖(SAA/TR-72) The cerulean warbler is found in a variety of deciduous forest types, usually in extensive woods. (Brandt, 1947; Peterjohn and Rice, 1991; Andrle and Carroll, 1988; Brooks, 1908; Mengel, 1965; Cadman et al., 1987; Torrey, 1896; Kirkwood, 1901; Maxon, 1903; Hann, 1937) Mostoften,itsoccurrenceis recordedin forestswithlarge,talltrees. (Lynch,1991; Robbins et al, 1989; Wilson, 1811; Oliarnyk, 1996; Mengel, 1965; Andrle and Carroll, 1988; Robinson, 1996; Torrey, 1896; Schorger, 1927) ‖A change to shorter rotation periods and even-aged management,‖ one of the 6 ‖chief constraints on the breeding ground‖ listed in Robbins et al., 1989.

According to USF&WS, "Ceruleans are routinely identified with large tracts, tall trees, and mature forest. For example, Lynch (1981) indicates minimum habitat requirements of the birds along the Roanoke River of North Carolina "to include: (1.) a closed canopy, (2.) presence of scattered, very tall old-growth canopy trees, and (3) good development of vegetation strata, i.e. distinct zonation of canopy, subcanopy, shrub, and ground-cover layers." (Cerulean Warbler Status Assessment April 2000). This project has the potential to alter or degrade these habitat characteristics in the project area through shelterwood logging, removal of large, old trees that are potential cerulean warbler nest trees in the course of thinning operations, and through other actions.

‖Over the last 40 years, the Cerulean warbler population has dropped almost 82 percent throughout its U.S. range, making it the fastest declining warbler in the country. To put the decline in perspective, imagine the current U.S. population, which currently stands at 300 million, plummeting to 54 million by 2047. While 54 million peo

still constitute a sizeable population, the fast plummet in numbers would be an alarming sign that our population was in danger.

―[N]ew information has come to light about the increasing loss and fragmentation of the Cerulean's eastern forest habitat from mountaintop removal mining [which takes place a short distance from this project, located in the Virginia coalfields region, ed.]. The Cerulean has declined an average of 6 percent per year over the last eight years, compared to an annual average of 4.3 percent from 1966 to 2004.

―The Partners in Flight program has identified 15 songbirds with habitat in these forests as priority species for conservation, with the Cerulean receiving the highest priority.‖

(http://www.southernappalachianbiodiversityproject.com/index.php?option=com_content&task=view&id=218&Itemid=72)

Because logging and development projects are known to destroy or degrade the habitat of this exceedingly rare, declining warbler species. Adequate protective measures must be established.

These issues should be considered in the EIS and appropriate standards and monitoring should be required.

Compliance with Old Growth Guidance:

Documents provided as Scoping Background Materials at: http://www.fs.fed.us/r8/gwj/forestplan/revision/plan-home.shtml

(e.g. Forest Wide Standards and Forest Objectives) refer to Regional Old Growth Guidance (*Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region* (Forestry Report R8-FR 62, June 1997)). However, there is little rationale or justification for how or why the specific objectives or standards listed implement the R8 OG policy. Rather, standards and objectives appear plucked from the R8 guidance without proper context or discussion.

Further, while the standards and objectives in background materials address some of the requirements for OG contained in the Regional Guidance, there is a fundamental disconnect between these items and any process to develop these approaches. As pointed out elsewhere in comments submitted in the section **Environmental Analysis and Planning Process, Significant Issues and Alternatives,** the background materials essentially make up a highly detailed draft revised forest plan, complete with: forest-wide desired conditions, standards and guidelines. The materials appear to provide materials appropriate to later stages in the planning process without adequately

engaging these issues with the public. This is in contrast to the R8 OG Guidance that outlines a process for seeking public involvement in addressing the old growth issue.

> The protection, restoration, and management of old-growth forests through an ecological approach is an important issue to many public interests and is a major concern to national forest managers. National forests should actively seek public input and participation while addressing this issue. During this involvement, national forest managers should begin to understand the public's perception of old-growth forests and their values. Other Federal agencies, State agencies, non-governmental organizations, and academia must be included when developing issues and strategies for old-growth forests. After the public scoping process and following the issuance of the notice of intent (NOI) to revise forest plans, the national forests will clarify and define the old-growth issues for each forest plan. The clarification should include land allocation concerns, biological values and requirements, and social values. Public involvement will be important in determining the areas to be allocated to old growth in the forest plan alternatives and in developing the desired future conditions and objectives.[5]

Developing a Network of Old Growth Areas

Elements of an old growth network are mentioned throughout the scoping background materials. However, the old growth network suggested in these references is inadequate under the R8 Guidance, fails to discuss and disclose issues where choices seem to have already been made, and has fundamentally left the public out of any process of developing an old growth network.

The old growth network suggested in the background materials consists of large, medium, and small patches as directed in the Guidance. However, there is no rationale for how and why the elements of this network are chosen or how the network addresses old growth issues or public concerns. The reliance on wilderness and recommended wilderness as the large patches seems arbitrary. It is flatly stated that the old growth network addresses distribution and representation issues, but no analysis is presented to substantiate this assertion. It is also unclear how medium and small old growth patches are to be selected during plan implementation to complement large patches and create an old growth network. There seems to be conflation of existing old growth with the initial inventory of potential old growth in discussing old growth patches.

Confusion of the concepts of Old Growth and mature forest

The background materials frequently use the concept of mature forest as virtually synonymous with old growth. Mature forest, variously described in the background materials as forest greater than 60 years and forest greater than 80 years is

fundamentally different than old growth. But the background materials promote a conflation of these concepts. For instance the background document describing ―Desired Conditions‖ makes this statement: ―Mature or late seral forests are considered to be those forests that are in the later stages of succession and are generally synonymous with old growth. ―[6] However, it is clear from the old growth guidance and associated literature that most mature forest does not and will not qualify as old growth for long periods of time. Age, structural, and other criteria distinguish old growth from ―mature forest‖. Even much of the preliminary inventory of potential old growth will likely not qualify as existing old growth.

The literature cited in the old growth guidance makers it clear that most Southern Appalachian old growth forest is all-age forest as opposed to the even-aged mature forest typical of current national forest lands.

This is an important distinction for a number of reasons. Foremost is the fact that most mature forest is not quality ―existing old growth‖ and will not be for many decades or centuries until it has substantially recovered not only age characteristics but structural diversity and an all-age composition. Treating mature forest in general as recovering old growth inflates what will qualify as existing old growth under R8 OG criteria. Secondly, this conflation ignores the fact that true quality existing old growth is one of the most under-represented forest components while mature forest 60 years and older is among the most abundant. Lumping and conflating mature forest with old growth forest hides this rarity of quality old growth and masks the need to conserve existing old growth.

Existing Old Growth

The background materials give acreage objectives for different old growth types. [7] These figures are apparently based on preliminary inventory of old growth based on stand age. There are inherent problems in this approach as detailed in Section C above. The background materials also detail Forest-wide standards for existing old growth.[8] This standard specifies:―Consider the contribution of identified patches to the distribution and abundance of the old growth community type and to the desired condition of the appropriate prescription during project analysis.‖ However, it is not at all clear how the distribution and abundance of old growth community types would be assessed since most of the data that would be used is stand age derived potential old growth. It is also not clear how patches of existing old growth identified at the project level would necessarily complement the large patch old growth consisting of wilderness and recommended wilderness to create an old growth network. There is no analysis or justification to lead the public to have confidence that this scheme would have the representation or distribution to satisfy R8 OG Guidance. The standard (FW-77) further strains public credulity by stating that: ―For purposes of project planning, the following forest types are considered well-represented in the current inventory of existing old growth for the George Washington National Forest: the Dry Mesic Oak Type and Dry & Dry-mesic Oak-pine Forests and may by cut through resource management activities.‖[9] This statement despite being followed by this statement in FW-78: ―NOTE:

Because there is no current old growth inventory on the GWNF that has been field verified…..‖.[10] Clearly the standard is being based on the assumption that possible old growth derived from stand age is equivalent to existing old growth. This would likely lead to the cutting of good quality existing old growth because of the unwarranted assumption that old growth of these forest types is well represented. This assumption is almost certainly incorrect for much of the initial inventory of potential old growth for the reasons detailed above. At this point the rationale for the forest's old growth network and the approach to existing old growth is circular and based on faulty assumptions and information.

Invasive Species

Researchers have found that logging, roadbuilding, and other similar activities create the conditions in which invasives can thrive. For example, logging simplifies structural diversity and eliminates microhabitats, thus decreasing species richness. As a result, communities are more prone to invasion by one or a few dominant species (Elton 1958). Habitats most likely to have an invasive species presence have been correlated with the following attributes: ~~v~~acant niches, lack of biotic constraints (predation, parasitism and disease), lack of community richness (biodiversity & structure), and disturbance.‖ Logging is known to cause all four factors in forest ecosystems (Mack *et al.* (2000)). The introduction and spread of invasive species is linked to poor logging practices (poor replanting practices, road construction, & movement via machinery and tools) (Aber *et al.* 2000). Invasives, and vectors for the spread and introduction of invasives, must be fully considered. Mitigation measures must be established to reduce invasives. Additional alternatives with less disturbance should have been considered to reduce the introduction and spread of invasives.

Researchers have found that logging, roadbuilding, and other similar activities create the conditions in which invasives can thrive. For example, Mack *et al.* (2000) found that the habitats that invasive species have successfully invaded in the past were qualified to as to their characteristics by Mack *et al.* (2000). Positive correlations were found between susceptibility to invasion and:

1. vacant niches
2. lack of biotic constraints (predation, parasitism and disease)
3. lack of community richness (biodiversity & architecture)
4. disturbance

All of these phenomena are created in extreme fashion by logging practices.

References:

Elton, 1958. The Ecology of Invasions by animals and plants. London, Methuen.

Mack *et al* 2000. Biot ic Invasions: causes, epidemiology, global consequences, and

control. Ecol. Applicat ions 10(3):689-710

The FS should consider the full impacts of invasive plants in theGWNF, the degree to which activities (by themselves and cumulatively) will contribute to the spread of invasive plants. The FS has not demonstrated that the mitigation measures effectively eliminate the causes of noxious weed spread. logging, roadbuilding, and skid trail use and heavy vehicle traffic spread existing weeds, and probably introduce new species of weeds

The Forest Service should have considered all reasonable measures that could reduce the potential spread of noxious weeds. Failure to consider strong mitigation measures violates NEPA requirements to minimize adverse effects:

Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment. (40 CFR 1500.2(f))

A mere listing of mitigation measures is insufficient to qualify as a reasoned discussion by NEPA. EISs must analyze mitigation measures in detail and explain the effectiveness of such measures [Northwest Indian Cemetery Protective Ass'n v/. Peterson 795 F.2d 688 (9th Cir. 1986)]. Forest Service NEPA documents describe possible mitigation measures but do not discuss them in adequate detail nor do they discuss or disclose the costs, effectiveness or efficacy of the mitigation measures. The long-term effectiveness of herbicides and other noxious weed treatments are still seriously questionable.

NFMA regulations relevant to noxious weeds include:

"Management prescriptions, where appropriate and to the extent practicable, shall preserve and enhance the diversity of plant and animal communities, including endemic and desirable naturalized plant and animal species, so that it is at least as great as that which would be expected in a natural forest . . ." (36 CFR 219.27(g))

"Provide for and maintain diversity of plant and animal communities to meet overall multiple-use objectives, as provided in paragraph (g)" (36 CFR 219.27 (a)(5)) "[D]iversity shall be considered throughout the planning process. Inventories shall include quantitative data making possible the evaluation of diversity in terms of its prior and present condition." (36 CFR 219.26)

"[V]egetative manipulation of tree cover shall" "[p]rovide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired tree species, forage production, recreation uses, aesthetic values, and other resource yields." [36 CFR 219.27 (b)(6)]

The FS is required to comply with presidential Executive Order13112.:

Section 5: (b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species.

Or,

Sec. 2. Federal Agency Duties. (a) Each Federal agency whose actions may affect the status of i

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1asive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and th
e means to address them; and

(3) not authorize, fund, or carry o
ut actions that it believes are
likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Cutting units and bulldozed skid traills appear to play a role in the known occurrences of noxious weeds and may play a further role in the presence of yet uninventoried infestations that are out there. We challenge the FS to give an accurate percentage of the miles of roads on the FS that have never had noxious weeds.

Likewise, these infestations on the roads readily expand into cutting units, especially the more intensive the logging done in the particular units. The FS just throws up its hands and accepts that they will be carrying out management activities that inevitably cause more spread of weeds. Instead, a genuine prevention strategy is needed and this needs to be incorporated into the Plan Revision.

The premier tool of prevention of new noxious weed invaders deserves the highest priority. Instead, all prevention strategies assume weeds will invade, then prescribe expensive control methods of unknown efficacy after the fact.

Without first significantly reducing the type of soil disturbing activities that facilitate noxious weed invasion, the proposed treatment effects may be negated, indeed, overwhelmed by the spread of weeds caused by more of the same road building and logging. By arbitrarily not considering these measures, the FS must show a genuine, pressing need to risk the ecosystems by applying poisons.

The FS should address the potential spread of invasives (& noxious weeds) from the activities contemplated in the Plan. We feel that the introduction and spread of invasives are some of the greatest threats to our public lands. In addition to addressing current weed infestations foreseeable, the FS should be focused on stemming the increasing infestation and spread of noxious weeds in the project area. The FS should include measures to limit future ground disturbing and weed spreading activities. For example, all livestock that use the trail should be required to use certified weed-free hay. The NEPA document should examine and address the most prevalent ways that soil disturbances are created which lead to weed invasions. This should be recognized in terms of costs to the taxpayer, impacts on biodiversity, and the likely need for doing even more weed control in the future. It makes absolutely no sense to analyze controlling weed invasions that exist now without taking a full and honest look at how to prevent new sites from being invaded. While limiting future land disturbance should be the foremost priority, prevention measures associated with land disturbing activities that do occur should also be outlined in the NEPA document. The past effectiveness of the proposed prevention activities should be discussed. Roads and trails likely have the greatest potential for spreading noxious weed seeds.

Road- work, logging, and open woodland creations and other major activitiescontribute to the spread of invasives & should be fully examined. A comprehensive, integrated policy that specifically includes the halting or significant curtailment of logging, roadbuilding, road construction, grazing allotments, mineral development, ORV riding and other activities that contribute to the spread of noxious weeds should have been considered. The premier tool of prevention of new noxious weed invaders deserves the highest priority. Too often the Forest Service has relied on ineffective stop-gap measures - at the same time it has allowed some of the worst ground disturbing activities to continue.

The NEPA document must meet NEPA's requirements that a reasonable range of

alternatives be fully analyzed. The Forest Service Handbook, chapter 20, section 23.2 states that the purpose and intent of alternatives are to "ensure that the range of alternatives does not foreclose prematurely any option that might protect, restore and enhance the environment." Under NEPA, an environmental impact statement must contain a discussion of "alternatives to the proposed action" [42 U.S.C. 4332(2)(D)]. As interpreted by binding regulations of the CEQ, an environmental impact statement must "(r)igorously explore and objectively evaluate all reasonable alternatives" [40 C.F.R. 1502.14(a)]. The importance of this mandate cannot be downplayed; under NEPA, a rigorous review of alternatives is "the heart of the environmental impact statement." 40 C.F.R. 1502.14. Similarly, case law has established that consideration of alternatives that lead to similar results is not sufficient to meet the intent of NEPA. [Citizens for Environmental Quality v. United States, 731 F.Supp. 970, 989 (D.Colo. 1989); State of California v. Block, 690 F.2d 753 (9th Cir. 1982).]

NEPA regulations at 40 CFR ß 1502.4(a) state:

Agencies shall make sure the proposal which is the subject of an environmental impact statement is properly defined.

And at 40 CFR ß 1508.25, NEPA regulations state:

Scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement. . . To determine the scope of environmental impact statements, agencies shall consider:

(a) Actions (other than unconnected single actions) which may be:

(1) Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.

The FS is required to comply with presidential

Executive Order 13112. The FS does not assure the public that the proposal is consistent with the following sections of Executive Order 13112:

Section 5: (b) The first edition of the Management Plan shall include a review

of existing and prospective approaches and authorities for preventing

the introduction and spread of invasive species, including those for

identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species.

Or,

Sec. 2. Federal Agency Duties. (a) Each Federal agency whose actions may affect the status of inv
1asive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally

sound control of invasive species; and (vi) promote public education on

invasive species and th

e means to address them; and

(3) not authorize, fund, or carry out actions that it believes are

likely to cause or promote the introduction or spread of invasive

species in the United States or elsewhere unless, pursuant to guidelines

that it has prescribed, the agency has determined and made public its

determination that the benefits of such actions clearly outweigh the

potential harm caused by invasive species; and that all feasible and

prudent measures to minimize risk of harm will be taken in conjunction

with the actions.

Researchers have found that logging, roadbuilding, and other similar activities create the conditions in which invasives can thrive. For example, logging simplifies structural diversity and eliminates microhabitats, thus decreasing species richness. As a result, communities are more prone to invasion by one or a few dominant species (Elton 1958). Habitats most likely to have an invasive species presence have been correlated with the following attributes: ~~v~~acant niches, lack of biotic constraints (predation, parasitism and disease), lack of community richness (biodiversity & structure), and disturbance.‖ Logging is known to cause all four factors in forest ecosystems (Mack *et al.* (2000)). The introduction and spread of invasive species is linked to poor logging practices (poor replanting practices, road construction, & movement via machinery and tools) (Aber *et al.* 2000). Invasives, and vectors for the spread and introduction of invasives, must be fully considered. Mitigation measures must be established to reduce invasives. Additional alternatives with less disturbance should have been considered to reduce the introduction and spread of invasives.

The FS should consider the possibility that applications of herbicides and other biocides may increase resistence to these substances. For example, The Weed Science Society of America confirms that known cases of herbicide resistance continue to climb exponentially.

How does the FS ensure that spray drift will be adequately controlled, and will not adversely affect non-target resources, based on the stds. in the Draft Plan? A number of research papers show that sprayed chemicals, including many of those being considered for use here, can drift long distances, even under the measures and conditions proposed. See, for example, Teschke et al. Jan. 2001 'Spatial & Temporal Distribution of Airborne Bacillus thurungentius...' Env. Health Perspectives:109:47-52;

Ntl. Academy of Sciences/National Research Council/Board on Agriculture/Committee on Long-Range Soil and Water Conservation 1993 "Soil & Water quality: an agenda for agriculture" Wash. DC: Ntl. Academy Press. p 323-4. U.S. Congress Office of Technology Assessment 1990 "Beneath the bottom line: agricultural approaches to reduce agrichemical contamination of groundwater" Report No. OTA-4-418. Washington DC: U.S. Government Printing Office.

[See references from our Aug.8, '08 comment letter, incorporated by reference.]

These issues should be considered in the EIS and appropriate standards and monitoring should be required.

Sincerely yours,

Sherman Bamford Forests
Committee Chair Virginia
Chapter – Sierra Club
Roanoke, Va. 24015-1102
(540) 343-6359

John Cruickshank
Chair
Virginia Chapter – Sierra Club
422 East Franklin St., Rm. 302
Richmond, Va. 23219

[i] Lawler, J. and B. Stein. 2009. Safeguarding Wildlife from Climate Change: Quick Guide to Vulnerability Assessment. National Wildlife Federation. Washington, DC.
[ii] See http://www.fws.gov/wetlands/

i See http://www.fws.gov/wetlands/

ii See http://www.wildlifeactionplans.org/about/action_plans_text.html for a complete list

iii See http://www.pwrc.usgs.gov/pif/pifbcps.htm for a complete list

iv See http://fishhabitat.org/ for a complete list

v See http://www.fws.gov/birdhabitat/nawmp/Planstrategy.shtm

vi See http://www.invasivespeciesinfo.gov/council/nmp.shtml

From:
To: "comments-southern-georgewashington-jefferson@fs.fed.us."
Subject: Comments on George Washington Plan
Attachments: image001.png
gwplan101711.doc
ourlandfinal071207.doc

October 17, 2011
3575 Dismal Creek Rd
Bland, VA 24315

Maureen Hyzer, Forest Supervisor
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear Supervisor Hyzer,

Below are my comments on the draft Land and Resource Management Plan and draft Environmental Impact Statement for the George Washington National Forest, issued in May, 2011. I also attach and incorporate by reference as a basis for these comments a document prepared by a small team of us in the conservation community in July, 2007, at the time of the issuance of the first iterations of this Plan. I ask that this attached document (ourlandfinal071207.doc), also known as *The Citizen's Plan. Our Land, Our Water, Our Home: Ensuring a Healthy Future for Our George Washington National Forest* be incorporated as part of my formal comments.

Energy:

Biomass Incineration – Using our standing forests as a fuel source for biomass incinerators and electricity generation is a terrible idea. Because of the huge volumes of fuel—trees—and water necessary and the large amount of air pollution—fine particulates and CO2—that accompany biomass incineration, the George Washington National Forest should not allow timber sales that fuel biomass incinerators.

Wind Energy – The mountain ridges of the George Washington National Forest are flyways for birds and bats and are home to many rare species and Special Biological Areas. The huge surface areas—clearings, platforms, roads, and transmission lines—necessarily cleared and developed for industrial scale wind generation would irreparably fragment and destroy sensitive habitats and our beautiful mountain vistas.

Gas and Oil Extraction – I strongly support the prohibition on horizontal drilling in the draft plan. This will reduce the risk of serious water quality degradation and other environmental concerns associated with hydraulic fracturing. Please keep this prohibition in place.

Making more oil and gas leases available in the George Washington National Forest would lead to dangerous impacts to water quality on the forest. Hydraulic fracturing is a common practice on vertical as well as horizontal wells. The draft plan allows standard oil and gas leasing, at least in some form, on roughly 994,000 acres, or 93% of the forest. The development accompanying wells, platforms and wellheads would compromise recreation,

scenic and biological resources. The forest should not make any further leases available and existing leases should be removed from lease availability when they expire.

In dealing with the effects of climate change, standing forests and soils are more valuable as carbon sinks than in using forest resources as fuel or as a source of renewable energy. Please make necessary changes so that the Final Land and Resource Management Plan for The George Washington National Forest does not allow for fuel for biomass incineration, industrial wind energy in sensitive/unroaded areas or further gas and oil leases on the forest.

Roadless, Wilderness, and Special Biological Areas:

The GW is one of the very few places in the eastern United States where large areas of relatively undisturbed, mature forest still exist. These forests and the remote settings they provide must be protected. In addition to the public benefits they provide (clean air & water, unique recreation opportunities, etc.), many wildlife species that need large geographic areas (e.g., black bears, bobcats, raptors) or habitat conditions found here (e.g., forest breeding birds, salamanders) depend upon these special habitat areas.

The draft plan identifies 372,000 acres of "potential wilderness area", or PWA. Prohibiting timber sales and new roads in the 242,000 acres of the PWA (the inventoried roadless areas) is a very positive and important step. However, the draft plan does not give the same protection to 80,000 or more acres of PWA. The entirety of all the PWA should be protected from timber sales and road construction.

Creating wilderness study areas (WSA) is an excellent means for protecting these large, remote forests. I am disappointed in the meager recommendations for WSA in the draft plan. Each of the four areas recommended are important, but three need to be increased in size. The 9000 acre recommendation for Little River is a fraction of the 30,200 acres in its PWA. Similarly, the 5000 acre recommendation for Rich Hole Addition should be increased to protect the 12,165 acre PWA, and the 6000 acre recommendation for Ramsey's Draft Addition should be increased to protect the 19,072 acre PWA.

Just as importantly, many other areas of the GW are very worthy of WSA designation. No wilderness exists in the Lee RD, and part of the Big Schloss PWA should become WSA. Several other areas in the North River RD should become WSA, including Beech Lick Knob PWA and many PWA on Shenandoah Mountain. Laurel Fork in Warm Springs RD is a truly unique and special place deserving to be WSA.

I am also concerned about rare and uncommon species and natural communities in the GW. Special Biological Areas or similar designations should be assigned to all areas, in their entirety, that have been recommended for protection or special management by the Virginia Division of Natural Heritage.

Timber Harvest - Annual timber harvest levels in the GW have generally declined since the current plan was completed in 1993. This is a welcome trend. I believe the draft plan's objective for annual timber harvest should reflect the most recent harvest levels (approximately 610 acres in 2010), and be lowered considerably from the recommended range of 1800-3000 acres/year.

Water Resources:

I am glad to see the increased attention on public drinking watersheds and water resources in the draft plan when compared to the current plan. I believe more protective measures are needed though. There should be specific management objectives for watersheds that provide drinking water to cities and communities near the forest. The desired conditions for these watersheds in the draft plan are too general to be useful.

Identifying priority watersheds seems to be a good concept, but the draft plan does not describe how or why the watersheds were selected. Less than a third of the acreage in local drinking watersheds are included in the priority watersheds. This seems to lessen the importance of protecting these drinking watersheds.

Riparian areas in the priority and drinking watersheds deserve special attention. Riparian zones in these areas should be wider than 100 feet along perennial streams and 50 feet along intermittent streams specified by the draft plan forest-wide (on level and gently sloping ground). These widths should be tripled to improve water quality and aquatic habitat and provide riparian habitat for many species (e.g., salamanders, turtles) that use these special areas.

On sloping lands, the draft plan requirements are less stringent than the Virginia Best Management Practices. State BMPs call for streamside management zones along Municipal Water Supplies (including both perennial and intermittent streams) to be 150 feet wide where the slope of the ground is 11-45%, and 200 feet wide where the slope exceeds 45%. At a minimum, the riparian area widths in priority and drinking watersheds of the GW should meet these state BMPs.

Sedimentation is a big threat to water quality everywhere, including the GW. Yet, sedimentation is not directly measured or monitored under the draft plan. Measuring sedimentation in strategic locations and waterways will complement the macroinvertebrate sampling in streams and should be part of forest management.

I am very glad to see that road decommissioning is included in the draft plan. Road closures will help decrease sedimentation while improving water quality, aquatic and terrestrial habitat, and restoring forest health. I believe the 160 mile target for road decommissioning during the first decade of the draft plan should be increased.

Economic Analysis:

Budget – The current timber program on the George Washington National Forest is costly because of the large expense in administering the program. Virtually all timber sales are "below cost", costing the US taxpayers more money that the sales recoup. The George Washington National Forest Plan should be as cost effective as possible and have the lowest possible budget while maintaining existing ecological and recreational resource values.

Ecosystem Services – The economic analysis on the George Washington National Forest should include a full cost/benefit analysis of ecosystem services. Economic benefits should include clean water, improved air quality, soil stabilization, carbon sequestration, and improved recreational value. Costs should include impairments to air quality and visual quality, acres of species habitat degraded, soil compacted, land infested with non-native invasive species and water quality diminished. All forest plan alternatives should have this valuation and net public benefits should be compared at both the beginning and over the full

15 year life of the plan.

Alternative C - As presented in the Draft Environmental Impact Statement, Alternative C has the lowest budget cost of all alternatives. It maximizes net public benefits and protects all resource values in the long term instead of liquidating them in the short term. For this reason, I request that you adopt Alternative C as the Preferred Alternative and as the Final Land and Resource Management Plan for the George Washington National Forest.

In conclusion, though there are many areas that could yet be strengthened and improved, I support Alternative C as the Preferred Alternative, with the addition of the Shenandoah Mountain National Recreation Area as proposed by the conservation community.

Thank you for the opportunity to comment on the draft plan.

Sincerely,

David Muhly

Dave Muhly
Senior Field Organizing Manager
Sierra Club - Eastern Region
10501 E Blue Grass Trail
Bland, VA 24315
(276) 688-2190 (office)
(276) 688-2179 (fax, call first)
(276) 620-0717 (cell)

September 23, 2011

Maureen Hyzr
Forest Supervision
George Washington Plan Revision
GWJNF, 5162 Valleypoint Parkway
Roanoke,Va.24019

Dear Supervisor Hyzer:

The Skyline Chapter of the Society of American Foresters (SAF) has reviewed the draft management plan for the George Washington National Forest. As practicing land managers, we have a professional forestry concern for the future of this important forest. The SAF believes the George Washington National Forest (GWNF) must be managed under the multiple-use mandates described in the Organic Administration Act of 1897 and the Multiple-Use Sustained Yield Act of 1960. In recent years the George Washington N.F. has moved away from multiple-use toward a more preservation style management direction. We reject this shift and recommend that scientifically based management strategies be incorporated in your plans and the current vision statement be your future guide.

The Forest personnel has worked tireless and diligently through many interruptions to finally complete this extremely complex draft. We salute them for their hard work and completing this portion of the task.

We believe that the vision statement in the plan is generally a correct vision that best fits the health and well-being of the forest and society's needs, while meeting the various mandates of law. We believe that with the plans proposed, Alternative G comes the closest to meeting the vision for the forest. Vet, we also believe Alternative G still does not meet the requirements of the future conditions because of budget constraints, restrictive or needless regulations, and too much of the land base in preservation status. Here are our concerns and recommendations:

Timber Management-The vision for the GWNF is to restore and maintain the key characteristics, conditions, and functionality of the native ecosystem to the extent possible.

You will not meet this vision without an accelerated effort to bring the mature to over mature forest into a better age balance over a diverse landscape.

The plan recognizes the need to increase lands suitable for timber management to 430M acres. We believe, more acres can and should be added to this total. These additions can provide for greater dispersion of regeneration cuts to benefit early succession habitat and provide diversity to large blocks of over-mature stands.

Roadless Areas-The RARE 11 process that inventoried Roadless areas was flawed from the beginning. Many areas contain suitable stands, especially along traveled roads. Some boundaries were drawn that reduced or eliminated suitable land for timber and wildlife that lacked access. We believe these errors have not been corrected and should be during this planning period. This correction should add to the suitable base.

Special Biological Areas-5% of the forest is designated for this purpose. While the special feature should be restricted and managed for its value, we believe some areas have suitable land that is excessive to the need. Here is an example: 4Cl Hawk Cave, Lee RD.-The area allocated for a simple cave seems excessive. Some very productive land is removed from the suitable land base by this large boundary. Some amount of early successional habitat (ESH) should be maintained. In the past when there was some ESH present, the area supported a good grouse population and woodcock habitat. Is there any data that indicates the bat population of Hawk Cave was negatively impacted in those days {1950-1999}?

Wilderness Study Areas-It is remarkable the amount of land that was considered for wilderness study (37 areas for 370M acres). You have done an adequate analysis of each of these areas and show why most are unsuited to be recommended for Wilderness. We agree with the decision to recommend Uttle River (9,300 acres). We believe this will meet the total amount of congressionally designated Wilderness that will meet the needs for quality and manageability. We are troubled by how the remaining areas are proposed for management.

You state that one of the main conflicting uses for Wilderness designation is mountain bike use and you are cautious in the amount of areas to recommend and allow for more flexibility in adaptive management for the forest ecosystem. We believe that mountain bike use should not be the main concern for this large land allocation but its value toward contributing to ecological restoration and the balance of forest age classes. We recommend that lands within this designation be identified to be returned to multiple-use. Some lands will become suitable for timber management others will remain remote for that experience. To keep these large areas as potential and de-facto Wilderness after they have been rejected is unreasonable. The Wilderness Act allows the Sec. of Agriculture to carry out management programs, developments, and activities in accordance with the Multiple Use Act. This is the time to change their designation.

Prescribed Fire-You have described the role that fire will take with its value as well as its drawbacks. We support the planned use of fire for the stated goals. We believe you are relying far too much on fire to change the condition of this maturing forest. The goal to burn 8 to 20 thousand acres a year is excessive. Most prescribed burning to date has been conducted during the spring fire season with high intensity fires resulting in much stand conversion. Research suggests a series of prescribed fires at low to moderate intensity is favorable to oak regeneration as well as forbs. Stands located on south and southwest aspects will burn with stand replacing intensities under conditions that are moderate on better aspects and soils. The majority of burning should be in conjunction with a timber harvest to regenerate primarily oak forests. We believe the forest can save considerable funds by transferring some of these fire funds to timber sales.

Old Growth Forests-We understand the importance of old growth stands for their ecological and social values. We believe, with the aging of the forest stands, vast acres will move into this category. This factor, along with the acreage in Wilderness and special areas, should satisfy much of the need for old growth. The plan calls for a careful analysis of the need for old growth in suitable stands to determine if they are essential or will be lost to the elements if not harvested. We support this analysis.

12D Remote Backcountry-There is no provision for ESH in these areas. In fact, there was historically some ESH in some of these areas-certainly in Big Schloss areas-- some due to timber harvest and most recently due to gypsy moth mortality in the 1980's. It appears from the "Desired condition" that only natural fire will be allowed to create ESH. The boundaries of these areas utilizes many miles of existing roads there by mandating all land within the 12D area as unsuitable with no opportunity to utilize the timber resources that in reality lie on some productive sites and immediately adjacent to an existing road. It appears that most of the road boundaries are used to limit timber harvest and are not based on soils, topography, or any biological reason.

Timber Sales Program-The program should strive to meet a sale of at least 27mmbf annually, including non-scheduled volume. Between 1,800 and 3,000 acres per year must be attained to provide for younger age stands in the mature forest condition. Sales should be distributed over a wide area to meet wildlife habitat needs and meet market opportunities. Adding additional acres to the suitable base should help in this distribution.

The country has been stuck in a recession for some years now. It seems that the time has come when the Forest Service nationwide, needs to increase income it can produce for F.S. programs, local counties, and for the treasury. Direct income can be increased by meeting the ASQ A 2006 report by the Virginia Department of Forestry shows that for every $1 received by forest landowners for their standing timber, $41.87 is added to the economy as value added to the raw product. That is a tremendous multiplier and the nation needs the income and jobs during these trying times. Besides the direct financial gain from utilizing this renewable resource, there is a huge indirect payoff in balance of payments by decreasing timber imports, saving of energy in transportation of timber products from foreign sources, and the assurance that forest products are sustainably harvested. Presently there is interest in Congress to increase the sale of Federal timber as a job creator as well as funds for counties and KV projects.

While funding for timber sales is presently limited, emphasis should be on cost savings in administration to make these sales happen. The role of outside expertise through stewardship programs can help in the sales program and should be expedited.

The condition of the GWNF has made great progress in its biological and social values for the nation in the 100 years since the enactment of the Weeks Act. While the vision statement for the forest is hopeful, large segments of this mature forest are set aside as de-facto Wilderness restricting this vision.

The Society of American Foresters will continue to testify before Congress and state legislatures on the value of managing the National Forests through scientifically-based forest management to meet environmental, economic and social values and to encourage adequate budgets to carry out the plan. The Skyline Chapter will continue to support the Forest with our expertise and ability to educate the public on certain forest issues. We look forward to this mutual cooperation.

Sincerely,

Terrance J. sher
Chair Skyline Chapter
Society of American Foresters

Lynne C. Euse

September 27, 2011

Maureen Hyzer
Forest Supervisor
U.S. National Forest Service
5162 Valleypointe Parkway
Roanoke, VA 24019-3050

Dear Supervisor Hyzer:

Thank you for the opportunity to comment on the draft Land and Resource Management Plan and draft Environmental Impact Statement for the George Washington National Forest (GW).

This is of personal interest to my husband and myself. We live in Stuarts Draft, on Gerties Lane. Our 'back yard' is Big Levels and the George Washington National Forest, and we're about 1 mile from Coles R.un Reservoir walking through the woods back of our home. I am a hiker and backpacker. The forest behind us as well as that in the Ramsey's Draft area and St. Mary's Wilderess, is a source of joy. We have deer and bear visit our yard.

The GW is one of the very few places in the eastern United States where large areas of relatively undisturbed, mature forest still exist These forests and the remote settings they provide must be protected. In addition to the public benefits they provide (clean air & water, unique recreation opportunities, etc.), many wildlife species that need large geographic areas (e.g., black bears, bobcats, raptors) or habitat conditions found here (e.g., forest breeding birds, salamanders) depend upon these special habitat areas.

The draft plan identifies 372,000 acres of "potential wilderness area", or PWA. Prohibiting timber sales and new roads in the 242,000 acres of the PWA (the inventoried roadless areas) is a very positive and important step. However, the draft plan does not give the same protection to 80,000 or more acres of PWA The entirety of all the PWA should be protected from timber sales and road construction.

Creating wilderness study areas (WSA) is an excellent means for protecting these large, remote forests. I am disappointed in the meager recommendations for WSA in the draft plan. Each of the four areas recommended are important, but three need to be increased in size. The 9000 acre recommendation for Little River is a fraction of the 30,200 acres in its PWA. Similarly, the 5000 acre recommendation for Rich Hole Addition should be increased to protect the 12,165 acre PWA, and the 6000 acre recommendation for Ramsey's Draft Addition should be increased to protect the 19,072 acre PWA.

Just as importantly, many other areas of the GW are very worthy of WSA designation. No wilderness exists in the Lee RD, and part of the Big Schloss PWA should be become WSA Several other areas in the North River RD should become WSA, including Beech Lick Knob PWA and many PWA on Shenandoah Mountain. Laurel Fork in Warm Springs RD is a truly unique and special place deserving to be WSA

I am also concerned about rare and uncommon species and natural communities in the GW. Special Biological Areas or similar designations should be assigned to all areas, in their entirety, that have been recommended for protection or special management by the Virginia Division of Natural Heritage.

Lastly, annual timber harvest levels in the GW have generally declined since the current plan was completed in 1993. This is a welcome trend. I believe the draft plan's objective for annual timber harvest should reflect the most recent harvest levels (approximately 610 acres in 2010), and be lowered considerably from the recommended range of 1800-3000 acres/year.

Thank you for considering my comments.

Sincerely,

Lynne C. Euse

ynne C. Euse
(Mrs. Albert A Euse, Jr.)

October 3, 2011

George Washington Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear U.S. Forest Service Personnel:

The Draft EIS associated with the Draft Plan for the George Washington National Forest makes it evident that the Forest Service has failed to adequately address Virginia's need for early successional habitat going forward. Over the past several decades, the amount of early successional habitat in the forest has steadily declined. As the vast majority of the timber has matured, important species like the ruffed grouse have suffered significant declines in population.

The Forest Service needs to outline a plan to increase the amount of early successional habitat over the next several years. However, the Draft E1S disappointingly reveals that early successional habitat will experience a negligible increase under Alternative D, or worse, suffer decreases in acreage under all other Alternatives A, B, C, E, F, and G. (Draft EIS, April2011, Ch. 3, p. 3-116). The EIS states that the GWNF currently has about 30,000 acres of early successional forest out of 1,035,000 forested acres, which equals 2.9%. The "highest projected" acreage of early successional habitat (Alternative D) only provides for 4-5% at 10 years. All other Alternatives provide for a dismal 1-3%.

These numbers are simply unacceptable. The Forest Service should strive for at least 10% early successional forest over the next decade. As a grouse hunter, I spend significant portions of my free time searching specifically for early successional habitat in the GWNF. I am not surprised that only 2.9% of the GWNF is currently in early successional stages. Good early successional habitat is scattered and there is very little of it, as proven by the percentages above.

The Forest Service seriously needs to modify its approach to early successional habitat. Maintaining the currently very low density of early successional forest cannot continue.

Thank you for the opportunity to comment on this issue. Please do not hesitate to contact me if you have any questions or concerns.

Sincerely,

W. Hall Carter, Jr.
Roanoke, VA

September 17,2011

George Washington National Forest

Forest Plan Revision
5162 Valley Point Parkway
Roanoke, VA 24019

Comments regarding Forest Plan Revision:

We have reviewed Draft Environmental Impact Statement and Draft Revised Land and Resource Management Plan for the George Washington National Forest dated April, 2011. The plan does a good job of identifying all of the issues and concerns involved in managing the forest. We attended two of the GWNF public workshops and think the Forest service did a good job seeking public input on the proposed plan. We specifically want to address the preferred alternative "G".

We support the proposed moratorium on horizontal drilling or "hydrofracking" in the GWNF. Protection of water resources should be the number one priority of any Forest Plan and it is essential to take a wait and see approach to this method of natural gas extraction!

Alternative "G" allows road development and logging in parts of "Roadless" areas of the forest, including some potential wilderness areas identified in the publication *Virginia's Mountain Treasures.* We have lived adjacent to the National Forest for over 36 years, and in our experience the road building has the largest negative impact on the ecology of the forest than most of the other management techniques. We would prefer that Jogging and road development would not proceed in a designated " Potential Wilderness Area" of the Forest.

The photographs on the cover of the Forest Plan are a great example of how the forest can recover from clear cutting activities, however in the 21" century, we think such management techniques should only be used in very limited extreme circumstances.

In the preferred alternative "G" 48% of the GWNF is in the "Mosaics of Habitat" category which uses timber harvest and prescribed burn as primary management tools. We would prefer a Jess active management approach. We would prefer to see more effort go to analyzing what past forest service activities have achieved and if timber harvest should have priority over water resource protection.

We would like to see a ban on industrial wind projects in the GWNF.

Thank you for the opportunity to comment on the Forest Plan. The preferred alternative "G" emphasizes timber harvest and prescribed burning as primary management tools. We do not believe these activities are compatible with the long term, sustainable health of the GWNF and the protection of water resources that it provides.

Sincerely,

John Cunningham

Mary Ann Yarsinske

Dear Forest Supervisor and Rangers of the George Washington and Jefferson National Forest,

I'd like to take this opportunity to comment on the GWNF plan revision. I enjoy the forest nearly every week. I ride a fully licensed off-road motorcycle and access the forest via the BRP, the primitive forest roads and the (dwindling number of) ATV trail systems.

I noticed in the Plan Revision document that it was stated that there is increasing demand for motorized trail use and also that even currently there are not enough roads to accommodate all the proposed uses and thus the solution was multi use trails/ roads.
I also have noted throughout the documentation that there is a considerable increase in proposed decommissioning of current roads (fi'om I mile currently up to the TAP objective level of !60 miles).
The way I'm reading this is that there are not enough roads to accommodate current needs with eminent further shmicomings in the near and long term future, yet the plan is to close even more roads in the coming I0 years.

I also noticed that the Archer Run ATV area has been dropped. With the closing of the Patterson Mtn. ATV trail system the available areas for ATV use, and thus tighter smaller trails for dirtbikes and on-off road motorcycles, has been reduced.

Lastly I've always wondered why there are no "single track" motorcycle trails available in the GWNF, neither as separate trail.entities nor as part of the ATV trail systems.

I understand that the maintenance cost can be high for ATV trail systems and the sediment control is a conCern. However other National Forests seem to be able to accommodate these needs so there must be a feasible way to manage them. I have made some suggestions myself to the Glenwood-Pedlar Ranger District such as increasing fees, rounding up more community support and certainly some better maintenance practices for the ATV trail; the current techniques for constructing water breaks and speed bumps are very degrading to the trail riding experience and in some instances increase the risk of injury (I, personally, decided to quit riding there).

I also understand that there are those who feel that there should be no ATV trails whatsoever, nor even any primitive roads. I also know that those types are also inclined to believe that the only way you should ever have access to any forest area is by very limited foot paths and that they would like I00% of the forest to be wilderness area. Fortunately for the majority ofthe rest of us you guys understand the need for multiple types of access.

I've also heard the argument of how this type of recreation would best be left to the private sector. This is most unlikely for several reasons. For one, liability is a very different animal in the private sector. There are Virginia state laws that guard public entities fairly well; not so much a private one. The plethora of other reasons is not in the scope of this letter but I'll just suffice to say: logistics.

Of course it would seem to me that the strictest of the environmentalists would prefer such facilities to be located in the more EPA controlled environment of a national forest than on private land where certain things aren't attended to as closely.

Regardless, my comment boils down to simply this: if there are not enough roads/trails to accommodate the increasing recreational needs, then wouldn't it be a good idea to perhaps open some of the closed administrative use roads (that are already established) for recreational use. It may also be a good idea to plan on growth and to propose some new roads for development. Certainly it would be necessary to either figure out a new area(s) for ATV/ di1ibike use and to incorporate a "single track" venue in the existing ATV matrix. The TAP plan for minimal need seems to be below minimal need, especially considering current increasing demand. Likewise with the increase in ATV/dirtbike demand, it would make since to plan for that increase and refrain from eliminating these areas.
Here is an interesting link to a way that Oregon is handling single track. You may already be aware of this. http://www.kgw.com/news/Remote-control-machine-blazes-Oregon-trails-130887823.html I wouldn't expect Virginia to utilize such equipment but it is a very interesting miicle that perpetuates ideas and motive.

I mn very appreciative of our country's national forests and mn very grateful for the opportunities that the GWNF provides. I wm1t to see the forest protected and well managed for future generations. I know it is an arduous task that calls for much compromise and balance from all factions of users and managers. I hope that acceptable ways can be found to accommodate some of the pressures of demand that is placed on our forests and your staff. Good luck with the revision and thm1k you all for your continuing hard work.

Sincerely and Respectfully yours

Duane Brown

October 5, 2011

Maureen Hyzer, Forest Supervisor, and Planning Staff
George Washington & Jefferson National Forests&W3ii!
5162 Valleypointe Parkway ;
Roanoke, VA 24019

Dear Supervisor Hyzer:

I frequently hike and study nature in the mountains of western Virginia. The George Washington National Forest includes many areas that I greatly enjoy. Please consider the following comments while you develop and approve a final plan for the George Washington National Forest plan.  

The George Washington National Forest is one of the most important collections offederallands in the greater Chesapeake Bay watershed. It is not only incredibly important for the health of our planet but is also a treasured destination for many in Virginia and the surrounding region.

I applaud you for the ban on horizontal natural gas drilling proposed in Alternative G (the agency's preferred alternative) and other alternatives, and would like all hydrofracking banned on the Forest. In addition, I support the strongerforest-wide riparian standards in Alternative G that were developed as part of the Fish and Mussel Conservation Plan.   

Alternative C (the Conservation Alternative) is a well-crafted alternative proposed by Virginia citizens. Alternative C should have gotten the thorough analysis and attention that it deserves, but so far has not. I ask you to incorporate the following aspects of Alternative C into the final plan, regardless of which alternative is chosen.

Please plan for climate change by protecting core wilderness areas, reducing forest fragmentation and decreasing and eliminating non-climate stresses such as logging, road building and oil and gas leasing.

Protect all areas identified in the Virginia's Mountain Treasures publication to the degree possible by designating them as unsuitable for timber harvest, new road building, and surface-occupying oil and gas drilling.

Protect all roadless areas to the greatest extent possible. The Forest Service should identify all qualified roadless areas and protect all roadless areas, whether previously inventoried or recently identified, consistent with the provisions of the 2001Roadless Rule.  

Designate More Wilderness Areas. Only 4% of the George Washington National Forest is permanently protected Wilderness, far less than the national average of 18%. More wilderness (and national scenic area) acreage should be recommended  

Protect all existing Old Growth forest. Of particular importance are the sizeable old growth tracts at Peters Mountain North and Frozen Knob areas identified by the Virginia Division of Natural Heritage. All old growth areas should be designated as being unsuitable for logging and roadbuilding and protected as special areas (old growth protection)  or as research natural areas.

No Natural Gas Leasing and Hydrofracking. The full cycle of natural gas development and hydraulic tracking (or hydrofracking) brings roads, pipelines, and noise to national forest lands and disrupts groundwater. There should be no hydrofracking or federal natural gas leasing in the forest. Strong protective measures should be applied to ensure that privately-owned mineral developments do not destroy other values on the Forest

I support the Friends of Shenandoah Mountain proposal (www.friendsofshenandoahmountain.org/), which would protect roadless areas in the Shenandoah Mountain, Big Levels, and Laurel Fork areas under a combination of designations, including recommended wilderness and recommended national scenic area designation.

Sincerely yours,

John A. Cruickshank

JOSEPH S. PAXTON
County P.drninistrator

ROCKINGI--IAM COUNTY

September 30,2011

BOARD OF SUPERVISORS
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Eiectbn District No. ti

Kenneth Landgraf, Acting Forest Supervisor
George Washington National Forest
Forest Plan Revision
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear Mr. Landgraf:

The U.S. Forest Service is in the process of revising the George Washington National Forest (GWNF) Land and Resource Management Plan, commonly referred to as the Forest Management Plan; the Board of Supervisors reiterates its position regarding those lands located within Rockingham County.

Approximately one-third (1/3) of Rockingham County is comprised of public forest and park land, and it is our understanding that over 45,000 acres of national forest is being considered for wilderness designation in the new Plan. The Board does not wish to restrict access to the many people who use the Forest for recreation and it reaffirms its earlier actions from September 2008, January 2008 and May 1991, when the Board passed resolutions opposing the Wilderness Area designations.

As recent as its May 26, 2010 meeting, the Rockingham County Board of Supervisors once again opposed designating any portion of County land located within the Forest as "wilderness areas." The Board has also reviewed proposals for wind energy sites on the public and private lands located in this area of the County. While the County does not support the location of wind towers in the National Forest, it does not want to jeopardize the opportunity for private landowners to develop sites by restricting the location of transmission lines and other less obtrusive facilities.

The Forest Service has provided a means for wind energy to be evaluated on some suitable ridge tops of the GWNF, with the Plan also identifying areas where the Forest Service believes wind development is not compatible with management of other resources. In Rockingham County, the ridge top owned by private citizens is completely surrounded by the GWNF. These areas surrounding the ridge top have been designated in the draft Plan as not suitable for wind development.

POST OFFICE BOX 1252, HARRISONBURG, VIRGINIA 22803
TELEPHONE (540) 564-3027 • FAX (540) 564-3017
Website: www.rockinghamcountyva.gov

The County believes the draft Plan may adversely impact any future wind development in Rockingham County, since the Forest Service would have to allow for access to the ridge top through Forest Service roads. In some cases, these roads would have to be improved. Similarly, in order to connect a ridge top wind project to the utility grid, transmission lines would have to run through the GWNF. It is not clear in the proposed Plan if the United States Forest Service would approve a special use permit to allow a transmission line through the GWNF or road access to ridge tops if the project associated with the need to access the GWNF is a wind project adjacent to areas designated as not suitable for wind energy in the draft Management Plan. To that end, the draft Plan could jeopardize the development of wind projects on privately-owned ridge tops outside of the restricted areas.

The County maintains that land use decisions should rest with the local governing body, in this case the Board of Supervisors, and that the County should maintain the right to make the decisions regarding the development of wind projects on private lands. Rockingham County requests the Forest Service be sensitive to those areas where private land owners could have their rights infringed by stipulating that the Forest Service will allow access to ridge tops as well as transmission corridors through the GWNF as long as appropriate environmental studies are conducted to ensure environmental impacts are mitigated.

Thank you for your consideration of this matter. The County appreciates the close working relationship that is maintained with the local GWNF oftlce and the cooperation that exists.

Please contact me or JosephS. Paxton, County Administrator, if you have questions regarding this matter.

Very Truly Yours,

Michael A. Breeden
Chairman

C: Board of Supervisors
Elwood Burge, GWNF

October 7, 2011

George Washington Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

RE: Comments on George Washington Plan Revision and DEIS

Karen Overcash:

On behalf of Chesapeake Energy Corporation (CHK), we wish to take this opportunity to provide comments on the proposed Plan Revision for the George Washington National Forest (GWNF) and its associated Draft Environmental Impact Statement (DEIS). CHK is the number two leading producer of natural gas in the United States, a top 15 producer of oil, and the most active driller in the country, with 176 drill rigs currently operating. We are regarded as one of the most technically advanced companies in the use of horizontal drilling and hydraulic fracturing to unlock this nation's vast resources of natural gas, and now hydrocarbon liquids, from shale rock and other unconventional formations. We currently are the world's leader in horizontal drilling and hydraulic fracturing.

We wish to register our strong objection to the proposed moratorium and outright ban of the use of both horizontal drilling and hydraulic fracturing as proposed in the GWNF Draft Forest Plan and DEIS.

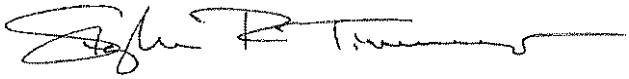
We are very concerned from a review of the DEIS that the recommendations do not take into account the highly specialized technologies and the environmental safeguards employed to protect groundwater, surface water, and other environmental parameters during the use of these technologies in the drilling and completion process. Moreover, the interdisciplinary team was lacking in representation of specialists from the petroleum

Chesapeake Energy Corporation
P.O. Box 6070 • Charleston, WV 25362 • 414 Summers St. • Charleston, WV 25301
304-353-5216 • fax 304-353-5231 •

engineering or petroleum geology disciplines, a critical flaw for such a key part of the document CHK recommends more input from industry experts before the GWNF Forest Plan and Final Environmental Impact Statement (FEIS) are approved.

Rather than provide detailed comments on specific sections of the DEIS, we wish to endorse and concur with the comments provided by Mr. Lee Fuller, Vice President for Government Relations, with the Independent Petroleum Association of America (IPAA), of which CHK is a member. The IPAA comments were presented in testimony before the Committee on Resources and Committee on Agriculture, U.S. House of Representatives, on July 8, 2011 (copy attached). That hearing, in part, addressed the proposed plan revision for the GWNF, and Mr. Fuller's testimony focused specifically on IPAA's objections to the proposed restrictions on hydraulic fracturing and horizontal drilling as proposed for the GWNF Forest Plan.

Best regards,



Stephanie R. Tirnmenneyer
Director, Regulatory Affairs
Eastern Division

CC: Lee Fuller, IPAA

Attachment -IPAA Testimony

America's Oil & Gas Producers

Testimony

Of

The

Independent Petroleum Association of America

Before Committee on

Resources And

Committee on Agriculture

U.S. House of Representatives

July 8, 2011

Independent Petroleum Association of America 1201 15th Street, N.W., Washington, DC 20005
(202) 857-4722 ∙ Fax (202) 857-4799 ∙ www.ipaa.org

Statement of The
Independent Petroleum Association of America

This testimony is submitted by the Independent Petroleum Association of America (IPAA). IPAA represents the thousands of independent natural gas and oil explorers and producers, as well as the service and supply industries that support their efforts. Independent producers drill about 95 percent of American oil and natural gas wells, produce over 56 percent of American oil, and more than 85 percent of American natural gas.

This hearing examines issues associated with the development of American oil and natural gas resources, principally with respect to access to federal lands. In part, the hearing addresses a proposed plan for the development of the George Washington National Forest. But, IPAA believes that this proposed plan presents a far larger issue- the reluctance of the current Administration to support the development of the full spectrum of American resources. More specifically, the issues that seem to represent the Administration's positions relate to its approach to technologies that are essential to develop these American resources -technologies that have been proven safe over years of operation but are now, without evidence, called into question. This tactic has been regularly used by various environmental groups that oppose the development of all fossil fuels as part of a strategy to create community anxiety over oil and natural gas development, demean the regulatory process and agencies that manage the environmental risk associated with these technologies, and demand a federalization of the regulatory process to inhibit resource development.

Most of this effort has been directed at the use of advanced hydraulic fracturing. Iu the George Washington National Forest proposal, the tactic has expanded to include the use of horizontal drilling. This testimony will address both technologies.

The Draft Environmental Impact Statement for the Revised Land and Resource Management Plan for the George Washington National Forest (DEIS) includes as its preferred alternative the prohibition of horizontal drilling for oil and natural gas. Astonishingly, it justifies this preference on the basis of limiting surface disruption and water demand. A fundamental benefit of horizontal drilling is it reduction of the surface footprint of oil and natural gas development. During the debates over the Arctic National Wildlife Refuge, it was the use of horizontal drilling to tap distant reservoirs that reduced the smface impact of oil development. Horizontal drilling technology allows the well bore to turn from its vertical orientation in order to develop resources that are inaccessible fi·om the well's surface site or that are deposited in horizontal formations such as shale gas and shale oil. Horizontal drilling rapidly increased in the mid-1970s to become a mainstay of drilling options to access a variety of different resource plays. Highlighted in the Department of Energy 1999 document, "ENVIRONMENTAL BENEFITS of ADVANCED OIL and GAS EXPLORATION and PRODUCTION TECHNOLOGY", horizontal drilling provides both more efficient drilling and less surface disruption.

IPAA believes that the DEIS follows a common pattern of overstating implications of oil and natural gas development on water demand. This pattern builds on two perceptions -the demand for water in oil and natural gas development is high and the demand for its use in fracturing in the context of horizontal drilling is particularly large. Significantly, the DEIS use of the water demand issue demonstrates that the real issue relates to hydraulic fracturing. But, by examining the issue in context, the perceived impact is overstated. Numerous assessments of the demand for water in oil and natural gas development demonstrate that it falls well below other water demands. For example, the FracFocus website, developed by the Ground Water Protection

Council (GWPC) and the Interstate Oil and Gas Compact Commission (IOGCC), provides a breakdown of water demand demonstrating that oil and natural gas development falls in the mining category approximately one percent of the total (http://fracfocus.org/water-protection/hydraulic-fracturing-usage). Certainly, specific areas will differ in the mix of demand, but clearly water use for oil and natural gas development is manageable. Similarly, the DEIS proposes to prohibit horizontal drilled wells while allowing vertical wells that would be hydraulically fractured. In part, it rationalizes this distinction by stating:

> Some level of hydrofracturing is used in nearly all gas well drilling. Conventional drilling has occmTed on the Jefferson NF for many years without incident. It is the unconventional drilling technique of horizontal drilling and its unconventional use of hydrofracturing that has raised concerns. Horizontal drilling uses repeated hydrofracturing at intervals throughout the horizontal shaft over long distances, and so, requires very large amounts of water and has the potential for affecting water quality that goes far beyond hydrofracturing associated with conventional (vertical) drilling. Rather than restricting all hydrofracturing, the Forest decided to prohibit horizontal drilling and its associated hydrofracturing.

Setting aside that neither horizontal drilling nor hydraulic fractming is an unconventional technology, the statement fails to recognize that horizontal drilling allows for the development of the same amount of resource that would require far more vertical wells. The 2009 Department of Energy document, *Modern Shale Gas Development in the United States: A Primer,* sets out the impact well:

> Modern shale gas development is a technologically driven process for the production of natural gas resources. Currently, the drilling and completion of shale gas wells includes both vertical and horizontal wells. In both kinds of wells, casing and cement are installed to protect fresh and treatable water aquifers. The emerging shale gas basins are expected to follow a trend similar to the Barnett Shale play with increasing numbers of hmizontal wells as the plays mature. Shale gas operators are increasingly relying on horizontal well completions to optimize recovery and well economics. Horizontal drilling provides more exposure to a fonnation than does a vertical well. This increase in reservoir exposure creates a number of advantages over vertical wells drilling. Six to eight horizontal wells drilled from only one well pad can access the same reservoir volume as sixteen vertical wells. Using multi-well pads can also significantly reduce the overall

> number of well pads, access roads, pipeline routes, and production facilities required, thus minimizing habitat disturbance, impacts to the public, and the overall environmental footprint.

The *Primer* explains the issue more precisely:

> Analysis performed in 2008 for the U.S. Department of the Interior estimated that a shallow vertical gas well completed in the Fayetteville Shale in Arkansas would have a 2.0-acre well pad, 0.10 miles of road and 0.55 miles of utility corridor, resulting in a total of 4.8 acres of disturbance per well. The same source identified a horizontal well pad in Arkansas as occupying approximately 3.5 acres plus roads and utilities, resulting in a total of 6.9 acres. If multiple horizontal wells are completed from a single well pad it may require the pad to be enlarged slightly. Estimating that this enlargement will result in a 0.5-acre increase, the 4- well horizontal pad with roads and utilities would disturb an estimated total of7.4 acres, while the 16 vertical wells would disturb approximately 77 acres. In this example, 16 ve1tical wells would disturb more than 10 times the area of 4 horizontal wells to produce the same resource volume. This difference in development footprint when considered in terms of both rural and urban development scenarios highlights the desire for operators to move toward horizontal development of gas shale plays.

From an environmental standpoint, the advantages are obvious. The surface impact is one-tenth or less than its historic impact. The amount of land used to manage drilling fluids and produced water is dramatically reduced. The environmental risks are more directly and easily managed. Moreover, as the use of advanced techniques like horizontal drilling techuology increases, fewer wells will be needed to generate the same amount of production. For example, prior to 2008, more than 31,000 anuual new gas wells were required to sustain 58 BCF/d of gas production; now it is possible to produce almost 63 BCF/d with the drilling of only 19,000 new gas wells per year.

As described above, the DEIS justifications suggest that the underlying issue associated with the preferred alternative of no horizontal drilling is the use of hydraulic fracturing. Clearly, the development of shale gas and shale oil resources hinges on the use of horizontal drilling and hydraulic fracturing. The DEIS supporting documents demonstrate that there are no indications that hydraulic fracturiug has caused any issues of environmental harm, that its regulated use

protects against its environmental risk. Consequently, it turns the other linchpin of shale gas development- horizontal drilling. In reality, these technologies and the attendant regulatory structures for their use are proven, effective controls, In reality, the environmental groups opposing the development of American fossil fuels are the driving force in creating anxieties about both technologies and the regulatory programs managing their use.

The history of the hydraulic fracturing issue is illustrative. Hydraulic fracturing is a technique used to allow natural gas and oil to move more freely from the rock pores where they are trapped to a producing well that can bring them to the surface, The technology was developed in the late 1940s aud has been continuously improved aud applied since that time, In a hydraulic fracturing job, the fluid pumped into the well contains a proppaut (usually sand) to keep the fracture open. This proppaut collects inside the created fracture, so when the fracture tries to close, it cannot The proppant holds it open,

State ground water regulation was developed long before hydraulic fracturing began. These regulations established well construction standards including steel casing and cementing requirements, They were designed to protect ground water from contamination by oil and its produced water. The environmental risks from oil and produced water are far more significant than those from a hydraulic fracturing solution that is 99.5 percent water and sand. These regulations created a control system that has effectively prevented contamination of drinking water, effective in the more than a million times that hydraulic fracturing has been nsed.

Years after state regulations protecting ground water were implemented, Congress enacted the Safe Drinking Water Act (SDWA) in 1974, By then, hydraulic fracturing had been nsed for 25 years with no environmental problems. Under the SDWA, states developed extensive Underground Injection Control (UIC) programs to manage liquid wastes and the

reinjection of produced waters. These programs addressed liquids intended to be injected- and to remain-in underground geologic formations. By 1980 Congress-recognizing the need for further state flexibility-modified the SDWA to give states federal "primacy" based on comparable state oil and gas *VIC* programs.

At no time during these debates was there any suggestion of including hydraulic fracturing in the VIC waste management requirements. In the mid-l990s the Legal Environmental Assistance Foundation (LEAF), after years of failing to make an environmental case against coalbed methane development, petitioned the Environmental Protection Agency (EPA) to require Alabama to regulate hydraulic fracturing under the *VIC* program. EPA rejected LEAF, arguing that Congress never intended VIC to cover hydraulic fracturing. LEAF appealed to the **11**th Circuit Court of Appeals.

In 1997, the ll'h Circuit Court decided the *LEAF v EPA* case. The Court never addressed the environmental risks of hydraulic fracturing; it merely decided that the plain language of the statute included hydraulic fracturing as underground injection.

Not an issue at the time the SDWA passed, Congress did not specifically exclude hydraulic fracturing. Two decades later, a court ignored the facts of the issue and changed the scope of the law on a technicality.

However, in response to public concerns, EPA initiated a study of coalbed methane hydraulic fracturing environmental risks because these formations are situated closest to ground water. EPA released the completed study in June 2004. No environmental risks of proper hydraulic fracturing were identified.

Analysis of the environmental risks of the technology showed it to be safe, but the nation's ability to develop its critical oil and natural gas was at risk because of the *LEAF* cases. Recognizing the need to provide legislative clarity and that the existing state regulatory system provided effective environmental protection, Congress addressed the issue of hydraulic fracturing under the SDWA in the Energy Policy Act of 2005.

The Energy Policy Act preserved the state regulatory system that has worked so effectively for the past half century. It clarified that the SDWA was not the appropriate regulatory law for hydraulic fracturing with one exception. During the analysis of environmental risk from hydraulic fracturing, EPA hypothesized that the use of diesel fuel as a solvent in the fracturing process of coalbeds might pose a risk. While no incidents of damage have occurred, Congress preserved the option for the application of the SDWA for regulation if diesel fuel was utilized. For five years following the 2005 SDWA amendments, EPA took no action under this new authority. Then, in 2010, without notice and comment, EPA posted on its website an interpretation that wells fractured using diesel fuel would be considered as Class II UIC wells-a position it had argued against in the *LEAF* cases. IPAA and others have challenged EPA's website rulemaking and court action is pending.

Meanwhile, in 2009, the Ground Water Protection Council reviewed state regulations designed to protect water resources. It again concluded that these regulations were adequately designed to protect water resources. Yet, later that year, Congress requested another EPA study of hydraulic fracturing; it is underway.

Emerging from the 2005 debate, a number of environmental groups initiated efforts throughout the country to create opposition to the use of hydraulic fracturing. Since no incidents of drinking water contamination have occurred from the use of hydraulic fracturing, these efforts

could not credibly raise arguments of unmanaged environmental risk. Instead, the focus became an aggressive three pronged strategy. First, communities were inundated with allegations about the chemicals in the fracturing solutions-not that exposure had occurred, just that chemicals were used. Second, the existing regulatory process and the regulators were demeaned. Third, federalization is presented as the only acceptable solution.

The most visible aspect of this strategy is the recurring focus on disclosure of the chemicals used in the fracturing process. Natural gas and oil producers do not oppose the disclosure of the chemicals used in fracturing. However, because the chemical mixtures involve confidential business information, the execution of disclosure is not straightforward. Several states have initiated disclosure requirements. Recently, the GWPC and IOGCC started FracFocus-a website that will provide detailed information on the chemicals used in the fracturing process on a well by well basis. IPAA aud other national oil and natural gas production trade associations have strongly endorsed FracFocus as the best approach to deal with a national registry on fracturing chemical disclosure. The primary issue, however, continues to be whether the regulatory process protects ground water resources since chemicals will always be a part of the production of oil and natural gas. With about one million operating oil and natural gas wells in the United States, teus of thousands of wells being drilled annually and only a small number of problem incidents, it is clear that the process is sound and effective.

Equally clear, the drumbeat of opposition to developing American oil and natural gas is takiug a toll. Faced with a history of effective regulation, the opposition's principal strategy remains distorting the risks, demeaning the regulators and demanding federalization. Despite a record of supporting the development of both horizontal drilling and hydraulic fracturing through the Department of Energy over the past several decades, the current Administration now sends

mixed and uncertain signals regarding the development of these American resources. Having primarily supported green energy paths that cannot grow fast enough to meet America's energy demand, it cannot now decide if it is willing to embrace the opportunities presented by American natural gas as a clean, abundant and affordable resource and the potential of expanding American oil production for the first time in decades. The George Washington National Forest Draft Environmental Impact Statement for the Revised Land and Resource Management Plan reflects this underlying Administration indecision.

Committee on Agriculture
U.S. House of Representatives
ln formation Required Prom Nongovernmental Witnesses

House rules require nongovernmental witnesses to provide their resume or biographical sketch prior to testifying. If you do not have a resume or biographical sketch available, please complete this form.

1. Name: Lee O. Fuller

2. Organization you represent: Independent Petroleum Association of America

3. Please list any occupational, employment, or work-related experience you have which add to your qualification to provide testimony before the Committee: Professional Staff Member (1978-1%4) and Minoritv Staff Director (!985-1986). Commi!tee on Environment and Public Works, U.S. Senate

4. Please list any special training, education, or professional experience you have which add to yonr qualifications to provide testimony before the Committee:

5. If you are appe,u·ing on behalf of an organization, please list the capacity in which you are representing that organization, including any offices or elected positions you hold: Vice President Government Relations

PL,EASE ATTACH THIS FORM OR YOUR BIOGRAPHY TO EACH COPY OF TESTIMONY.

Ray Plank
October 6, 2011

George Washington Plan Revision
George Washington & Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Dear George Washington Plan Revision Members,

Thank yon for allowing a public comment period on this issue. Since Aprill, 1995, I have lived in Rockingham County, Virginia in a thirty-five year old house on privately owued land bordered on two sides by the George Washington National Forest (GWNF). In the past few years, there have been at least eleven new homes added **just on my road alone. ſ have witnessed with distress, a decrease in our local deer and turkey population coming** across my land heading back into the GWNF. Even though the homes are on privately owned land, there has been a loss of wildlife habitat in this rural area. Along with the loss of habitat reducing the deer and turkey population, the resulting traffic has caused more animals to be killed by accident, including deer, squirrel, rabbit, raccoon, and possum. During my first few years here, I bought Virginia permits and hunted deer in the GWNF and on my private laud. But with the decrease in our local deer population, I felt it was not good management practice to hunt until the overall deer population is back up.

I support the GWNF 15 year proposed plan to ban horizontal drilling using hydraulic fracturing. The extraction of natural gas using this method would have detrimental effects on the diverse biological systems being protected in the GWNF. Our eastern national forest lands, especially the Appalachian Mountains, were purchased to preserve watersheds. Along with preserving watersheds, were the added benefits of protecting the mountain slopes from soil erosion, protecting the purity of mountain steams, and preserving mountains for their beauty and recreation. Our air, water and land would be polluted with diesel fumes, toxic chemicals, various gases, and salts brought up from deep within the earth, etc. T11e cutting dowu and clearing of large tracts of forest land needed for roads, well development areas, pipelines, and compression stations would break up wildlife habitat and destroy critical wildlife food sources. These areas of clear cut would cause soil erosion on our mountain slopes and cause sedimentatiou in our mountain streams affecting water purity and stream wildlife diversity. The large uumber of heavy equipment would compact the forest land past the point of restoration. Also, the complete extraction process including the noise and light pollution would destroy the beauty of and desirability of recreating in the GWNF.

Overall, but especially on the issue of banning horizoutal drilliug using hydraulic fracturing, I support preferred option G of the proposed GWNF Land and Resources Management Plan. In option G, I would prefer all of the area known as Beech Lick Knob to he designated as Recommended Wilderness Study Area because this undeveloped area needs to remain as natural as possible. Only in the area known as Beech Lick Knob would I support option F of the Proposed GNWF Land and Resources Management Plan where most of that area is designated as Recommended Wilderness Study Area.

Thank you for your time aud attention on these matters.

Sincerely,

Ray Plank

October 7, 2011

To Whom It May Concern:

As a Landowner that has property joining Forest Service Land, I request that the final management plan be sensitive to private land owners that are wishing to develop wind energy on their property.

Wind energy is a very important part of our Nation's future; therefore Energy Companies must be able to access private lands and transmission line in the most cost effective way possible. Without being able to build roads or put transmission line through Forest Service Land under a special use permit would be against the future plans of OUR NATION TO BE FREE OF FOREIGN OIL.

Your job is to manage the forest. Sometimes you must look at the big picture and do what is best for aiL Instead of coming up with a draft plan on wind development you should look at each project under the special use permit. Who knows, we may need wind development on Forest Service Land tomorrow so we can run our computers or charge our cell phones.

Thank You,

Dan W. Long

Turner Mountain Farm, LLC

October 7, 2011

George Washington National Forest
Forest Plan Revision
5162 Valley Pointe Parkway
Roanoke, VA 24019

As a citizen and landowner in Rockingham County Virginia, I would like to take this time to express my support for wind energy development in suitable, privately owned lands in our community. There appears to be a very suitable ridge top in Rockingham County that has great potential for wind energy development. This land is privately owned lands. It concerns me that the proposed Draft Forest Plan designates the surrounding National Forest Lands as not suitable for wind development. With the numerous environmental permitting requirements and the current special use permitting procedure, I would ask that the GWNF not exclude the National Forest Lands surrounding the ridge tops that are suitable for wind energy development. It is critical to any wind project that needed access be available, in this case by improving existing infrastructure and roadway running through National Forest Lands. Wind Energy Projects also must be able to connect to the "grid". I would like to request that the final GWNF management plan take the above into consideration and be sensitive to the private land owners in our community by allowing for the special use permitting process apply in the area surrounding the proposed ridge top wind farm.

Sincerely, Paul Reid
Mary Reid

Dear Sirs:

I am writing you in regard to a proposed plan to build wind towers on the top of the Shenandoah Mountain in Pendleton and Rockingham Counties or WV and VA. I am a resident and landowner here in Pendleton County and my family has owned property here since 1796. My residence is in Fort Seybert WV and the family farm has been built up over the years to about 640 acres. In 2003, my wife and I built a new home which commands a spectacular view of the Shenandoah Mountain from Cow Knob to High Knob. If the proposed wind farm is allowed to be built this view will be ruined for myself and many other residents and visitors to this majestic part of Pendleton County. As you may well know this wind farm would be surrounded by the George Washington National Forest.

It seems wrong to me to put what I would regard as heavy industry in the middle of such a biologically diverse ecosystem which includes endangered bats and the indigenous Cow Know Salamander. As you probably realize this wind farm would benefit a relative few people at the expense or many It has come to my attention that a certain member of the Rockingham County Board of Supervisors has petitioned officials of the George Washington National Forest to let this project to proceed and to let transmission lines be built across the National Forest property. Also I have been informed that this Supervisor is a landowner of some of the property that the proposed wind farm would be built on and would stand to benefit personally by its construction. It is my hope that this project will not be allowed to proceed for the benefit of a few at the expense of the many people who would be living with it for the many years to come. As a life long resident I can attest to the return of Bald Eagles and Golden Eagles and the diverse flora and fauna of the area. To allow this wind farm to
be built would in my opinion be a huge mistake that would last for generations to come.

Most Respectfully Yours,

George Rexrode