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Comments: ACP Plan Amendments Objection

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Re: Atlantic Coast Pipeline Draft Record of Decision (ROD)

Reviewing Officer Glen Casamassa, Associate Deputy Chief:

This letter is a formal objection to the Atlantic Coast Pipeline Draft ROD pursuant to 36 C.F.R. § 218. [36 C.F.R. § 218.8(d)(4)]. The Responsible Officials are R-8 Regional Forester Tony Tooke and R-9 Regional Forester, Kathleen Atkinson, who could allow implementation the project in the George Washington National Forest and Monongahela National Forest. Sherman Bamford submitted timely comments and is eligible to file an objection under 36 C.F.R. § 218.5

Introduction:

The proposed Atlantic Coast Pipeline would facilitate increased development of hydraulically fracked natural gas throughout the eastern United States. The proposed pipeline is proposed through important habitat on Allegheny Mountain, the Deerfield Valley, the Blue Ridge and surrounding areas of Virginia and adjacent states.

Hydraulic fracking is a controversial issue. Here as elsewhere, natural gas development accelerates the impacts of climate change, and discourages the development and use of renewable energy. It encourages hydraulic

fracturing and increases methane emissions that are 80 times more harmful than CO2 emissions.

The Atlantic Coast Pipeline (ACP) would cut a path through the George Washington National Forest - passing through highly sensitive karst geology, dense forests, across trout streams, and steep mountainous terrain. The purpose of the pipeline is to deliver fracked natural gas from Midwest over the mountains. Ultimately, if hydrofracking begins in Virginia, the pipeline could also be used to transport fracked gas from Virginia as well.

Project construction will result in the clear-cutting of hundreds of thousands of trees in the forest land that will be disturbed by the Project. The permanent conversion of forest to open land will fragment important habitat, will result in increased stormwater runoff, and will compromise the area's resilience to flooding in the face of increased precipitation and more frequent and intense storm events. The Pipeline Project will cross multiple public drinking water supply watersheds, wetlands, and water bodies, including designated high quality streams, trout streams, and protected streams.

I value the importance of protecting the Commonwealth's aquatic resources. Virginia's freshwater streams and rivers contribute considerable biological, recreational and economic benefits. Virginia's abundant waters support a great diversity of aquatic organisms, including self-sustaining freshwater fishes and freshwater mussel species. In 2006, recreational angling and its ripple effects (i.e., through purchase of gas, lodging, gear, etc.), provided an estimated $1.3 billion to Virginia's economy. In addition to Virginia, these waters serve as a regional resource for communities and industries in West Virginia, North Carolina, and the District of Columbia.[IM1]

Numerous areas are potential landslide areas in the mountainous region of the State of Virginia. The likelihood for these soils to become unstable during or after construction is high. Multiple features also contain seepage or drainage features which can provide for greater accelerated erosion potential or exacerbate the likelihood of a landslide. Pipeline activity such as trenching along slopes and equipment on unstable surfaces increases the risk of landslides. Slope failure in combination with poorly managed stormwater runoff can increase the likelihood of sedimentation of nearby streams and wetlands.

The Shenandoah Valley and other areas the proposed pipeline would cross in Virginia are underlain with karst geology. A significant portion of the current routes proposed for the pipeline run through karst areas. Karst topography is a landscape formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum. It is characterized by underground drainage systems with sinkholes, dolines, and caves. Dissolution of the carbonate bedrock leads to the development of karst features and subsurface karst aquifers. Karst aquifers are characterized as having complex flow pathways that can transmit groundwater at significantly higher flow rates than that of typical clastic or crystalline aquifers. As a result of their typically high hydraulic conductivities, karst aquifers have the ability to rapidly transmit contamination through the aquifer. According to the Virginia Department of Conservation and Recreation (VDCR), the most important current and future environmental issue with respect to karst is the sensitivity of karst aquifers to groundwater contamination, since water can travel rapidly through solution conduits with relatively little time for natural filtering (VDCR 2015). As the DEIS admits, (p.200), the "development of karst features could be initiated by the physical disturbance associated with trenching, blasting, or grading, or by diverting or discharging project- related water into otherwise stable karst

features."_

One of the more interesting features of karst topography is undoubtedly the limestone cave formations associated with large groundwater flows in Karst terrains. Caves are elongate cavities in limestone produced by solution and aided by mechanical erosion. They form along paths of greatest groundwater solution, usually along joint planes as water circulates through the fractures. Cave entrances and terminations can be found in the bottom of dolines, on hillsides, in quarries, at various other exposed locations. Cave passages can be determined in one of three ways, Linear, Angulate, and Sinuous. Linear is a straight linear passage with no change in ground level. Angulate is a passage consisting of sharp almost 90 degree changes in cave path, both up and down. Sinuous is a curved path of very smooth changes in height. The cave pattern depends directly on the mode of groundwater recharge in the area.

Because the land beneath karst topography is very unstable, it has a tendency to become too fragile to support the surface, and will collapse, creating a sink hole. Sink holes make building or living on karst topography very dangerous. The ground beneath a building, home, or school could give way at any time, creating a dangerous hazard for people to live with, creating a risk that hazardous liquids could be released and then move swiftly through subterranean rivers and streams, polluting water sources a mile or more away. Deadly vapors also could settle into underground caves.

Plan Amendments would allow construction to exceed existing restrictions on Soil and riparian corridor conditions. These impacts cannot be mitigated and impacts will be both immediate and ongoing.

Plan Amendments would allow private ACP developers to route the pipeline through steep slopes and a sizeable tract of potential old growth on Alleghany Mountain in Highland County and create a cleared 75-125 ft wide path/construction zone that would become a de facto "road" utilized both by ACP for clearing and maintenance and by illegal ORV/ATVs for destructive and illegal vehicular use. Roads damage forests by degrading water quality, changing hydrologic cycles, promoting invasion of harmful non-native species, and eliminating forest habitat. The pipeline, both during construction and throughout the many decades its impacts would be felt, will create many of the damages and risks that roads create.

Construction of the pipeline on steep slopes would have long-lasting impacts on soils, aquatic resources and other downstream resources. If slope failures occur, impacts could be irreversible.

Proposed Amendments would adversely impact the visual quality and the recreation values of the Appalachian National Scenic Trail (ANST), Shendandoah Mountain Trail/Great Eastern Trail and other special areas in the Jefferson National Forest. The cumulative impacts to the ANST are of a programmatic nature as there are currently numerous crossings of the ANST proposed including one other in Virginia (Mountain Valley Pipeline) and others in the eastern US. The continual degradation of the ANST is unacceptable and these impacts cannot be mitigated.

Proposed Amendments do not ensure that water quality, soils, geological resources, old growth forests, or endangered, threatened, sensitive and locally rare species are adequately protected.

The FEIS does not include an adequate analysis of an alternative route for the ACP that would not cross National Forest lands, as federal regulations require and as specified at FSM 2703.2(2)b. The minimum threshold for deciding whether any crossing of the National Forest lands may be allowed, is a finding that the "proposed use cannot reasonably be accommodated on non-National Forest System land."

Requested Remedies:

I request that the Forest Service reject the project. I request that the Forest Service independently analyze and fully disclose the purpose and need for this pipeline project and the impacts to bats, karst and cave resources, mussel, fish, other aquatic resources, black bears, old growth, outdoor recreation and other resources and multiple uses on the publicly owned George Washington National Forest. As the agency stated in June 2017, it is the Forest Service's responsibility to protect Federal property and to protect the public interest and I expect the George Washington and Jefferson National Forests to perform all the due diligence necessary to provide this assurance to the public.

This EIS is based on incomplete information. A new full FEIS needs to released. The FEIS appears to be drafted around a skeletal framework that FERC has used over and over again to disguise a sham process. FERC's canned FEIS formula avoids focusing on impacts and threats that are unique to the proposed routing, and presents information in a manner that detracts from the extraordinary impacts the proposed ACP would have across mountainous terrain that supplies remarkable water resources.

National Environmental Policy Act

The National Environmental Policy Act ("NEPA") is the nation's basic charter for the protection of the environment. NEPA makes it national policy to "use all practicable means and measures * * * to foster and promote the general welfare [and] to create and maintain conditions under which [humans] and nature can exist in productive harmony."[1] NEPA's purposes are to "help public officials make decisions that are based on [an] understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment."[2]

1. "Hard Look"

To accomplish these purposes, NEPA requires all agencies of the federal government to prepare a "detailed statement" regarding all "major federal actions significantly affecting the quality of the human environment."[3] This statement is commonly referred to as an Environmental Impact Statement ("EIS"). NEPA further provides

that agencies "shall * study, develop, & describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."10

An EIS must describe (1) the "environmental impact of the proposed action," (2) any

"adverse environmental effects which cannot be avoided should the proposal be

implemented," (3) alternatives to the proposed action, (4) "the relationship between local

short- term uses of [the] environment and the maintenance and enhancement of long-term productivity," and (5) any "irreversible or irretrievable commitment of resources which would be involved in the proposed action should it be implemented."11

NEPA's disclosure goals are two-fold: (1) to ensure that the agency has carefully and fully contemplated the environmental effects of its action, and (2) to ensure that the public has sufficient information to challenge the agency's action. The Council on Environmental Quality ("CEQ") - an agency within the Executive Office of

the President - has promulgated regulations implementing NEPA that are binding on all

agencies.12

The CEQ regulations provided that the direct, indirect, and cumulative effects of the proposed action must be analyzed under NEPA.13 When the agency prepares an EIS, it must take a hard look at the impacts of the action and ensure "that environmental information is available to public officials and citizens before decisions are made and before actions are taken," and the "information must be of high quality."14

In preparing NEPA documents, federal agencies "shall insure the professional integrity,

Including scientific integrity, of the discussions and analyses" and "identify any methodologies used and * * * make explicit reference by footnote to the scientific and other sources relied upon for conclusions * * *."15

NEPA requires that the Environmental Impact Statement contain high-quality information and accurate scientific analysis.16 If there is incomplete or unavailable relevant data, the Environmental Impact Statement must disclose this fact.17 If the incomplete information is relevant and essential to a reasoned choice, and costs are not "exorbitant," the information must be compiled and included.18

10 Id. § 4332(2)(E).

11 42 U.S.C. § 4332.

12 See 40 C.F.R. §§ 1500-1508.

13 40 C.F.R. §§ 1508.8, 1508.27(b)(7).

14 40 C.F.R. § 1500.1(b).

15 40 C.F.R. § 1502.24.

16 40 C.F.R. § 1500.1(b).

17 40 C.F.R. § 1502.22.

18 Id. § 15021.22(a).

No Comment Opportunity on Revised Plan Amendments Prior to Issuance of Draft ROD

The Forest Service did not provide a comment period for a Notice that was issued on June 5, 2017. The failure to provide for public participation on information that was first published on June 5, 2017, violates Forest Service Regulation 36 CFR §219.4.

Similarly, the public has not been informed of the DROD by publication on the FERC docket. Based on the Forest Service's previous representations, no one could have anticipated the DROD would be published on the same date as the Final Environmental Impact Statement.

The Forest Service Plan Amendment regulations prescribe detailed notification, public comment, and objection procedures that apply to every aspect of a proposed project and the decision-making process. Nothing in the regulations or in NEPA allows the Forest Service to issue a draft decision before all of the information on which the decision is based has been subject to public notice, comment and objection procedures. The Forest Service's compliance with the Endangered Species Act and the National Historic Preservation Act, and the mitigation and monitoring requirements are important components of the decision and must be subject to public review, comment, and objection.

The Forest Service Must Comply with All Requirements for Plan Amendment

In addition, I object to Supervisor Timm's conclusion that the substantive provisions within 36 CFR §§ 219.8 through 219.11 are not implicated by the Forest Plan amendments to the George Washington National Forest Plan. The Forest Service never provided a comment period on the implication of these regulations to the proposed Forest Plan amendments. The first time the Forest Service even mentioned the planning regulations was in the June 5, 2017 Federal Register notice for which the public was not given an opportunity to comment. The proposed amendments to the Forest Plan undermine the achievement of the Goals, Objectives and Direction in the Forest Plan. Furthermore, the unsupported conclusion that the regulations are not implicated is based on "mitigation" for which there is no evidence that any mitigation can be effective in the extraordinarily steep terrain

with geologic hazards, and fragile soil and water systems. The failure to show that mitigation is effective violates the National Environmental Policy Act.

Caves and karst:

The proposed route of the ACP passes through the Great Valley of Virginia, an extensive belt of kart terrain, and through areas with globally significant cave systems in Bath, Highland and Augusta Counties (FEIS ES-5, 4-9,4-10 and 4-16).

"Globally significant cave systems occur within the Folded Appalachian Subsection, including the caves of Burnsville Cove with approximately 100 km of mapped subterranean passages." (FEIS 4-10).

According to Holsinger, (1975) "Bath County is speleologically one of the most important counties in the state. Of the 86 recorded caves, 12 are large and several are quite extensive. Butler-Sinking Creek Cave, the largest cave in Virginia [identified at the time] is located in the northern part of the county."

Indeed, there are at least thirteen caves identified by Douglas in the narrow band within approximately 1 mi of where the ACP is proposed in the northern part of the county near Burnsville and Little Valley Run.

These include (based on the numbering system in Douglas):

In Little Valley Run watershed (Williamsville Quad., p.694):

(24) Wildcat - "entrance… is a sink in the nose of a ridge" (Douglas, p.129)

(25)

(26)

(27) Smoking - "in a small sink near a large oak tree" (Douglas, p. 147).

In the Burnsville/Dry Run area (Williamsville Quad, p.694):

(51) Butler Cave/Sinking Creek system - "All geological and topographical signs pointed to the existence of a large cavern in the general area; the drainage from both Chestnut Ridge and Jack Mountain disappears underground and there are hundreds of sinks, many exceeding 100 ft in depth. In addition, William E. Davies, of the US Geological Survey predicted many years ago the existence of a large complex cave system in the valley. There are three large water resurgences in the Bullpasture River three miles NE….The Butler Cave-Sinking Creek System is the largest cave known in the State of Virginia, and ranks high among the major caverns of the

world. At present, over 50,000 acres of gallery have been explored and mapped. Additional exploration, now being carried out, indicates that Butler, Breathing (Butler Saltpeter), Lockridge Aqua, and numerous cave systems in the area are all part of the same large subterranean drainage system. It is probable that the parts of the system known at present constitute less than a third of the complete system."(Douglas, pp. 135-146) "The length …has been extended to 75,504 ft. and the depth (below the entrance) to 570 ft….This cave is the largest continuously explorable segment of the large subterranean drainage system that drains Burnsville Cove." (Holsinger p.62-63)

(59) Haroufs Hole - "it is probably the upper levels of Sinking Creek system (per Nicholson, 1960, in Douglas, p. 146)
(45) Burnsville Sink #1- "a stream flows in during wet weather" (per Nicholson, 1958, in Douglas, p. 134).

(46) Burnsville Sink #2 (Boundless)- "A fair size stream sinks in its bed before reaching the entrance….It may connect with the Sinking Creek System. 1100 ft of passage has been mapped.: (Douglas, pp.134-35). "Is closely related to, but does not physically connect with, Butler-Sinking Creek Cave which lies just to the NE. … Cave contains about 1.800 ft of …passage trending NE and east….This stream has been dye traced to its resurgence at Aqua Cave spring about 4 miles to the NE." (Holsinger, p. 60-61).

(1) Carpenters (Douglas, p.146). "500 feet of passage, two pits, and a small lower level…The cave has many vertical features, including pits and tight canyons."(Holsinger, p. 64).

(3) Armstrong - "a low 75 ft passage leading out of bottom of large sink. It absorbs vast amounts of water in wet weather. The massive Heiderberg limestone is nearly flat-lying at this point." (Douglas, 149). "Recent exploration has extended the length of this cave to over 400 ft….The stream in Armstrong Cave has been dye traced to Cathedral Spring, 5.5 mi. to the NE" (Holsinger, p.58).

(57) Lockridges Water Sinks - "a stream …disappears into a small sink…beyond where the water sinks, there is a small cave just below the surface." (Douglas, p. 147)

(55) Rat Hole 1180 - "200 ft of walking passage. The rest is a low crawl."(per Nicholson, 1960, in Douglas, p. 147).

(58) Burns Chestnut Ridge - "a maze cave on several levels….several long narrow rooms with 30 ft ceilings …" (per Nicholson, 1960, in Douglas, p. 134). "length…approximately 2,000 ft…..The stream in this cave has been dye traced to Cathedral Spring which is located 3 mi to the NE on the Bullpasture River." (Holsinger, 61-62).

Windy Cove - Douglas p.160.

Additional caves near the route may include:

Staunton Quad (p.687)

(4) Blue Hole (Gibsons Hole)

Waynesboro Quad (p. 692)

(3) Coiner Springs

Reference:

Henry H Douglas, Caves of Virginia,Virginia Region of the National Speleological Society, Falls Church (1964)

John R Holsinger, Description of Virginia Caves, Virginia Division of Minerals (1975).

[IM2]

Undoubtedly other cave systems and karst areas have been discovered since the publication of these books.

Indeed, the map on FEIS 4-17 shows that the proposed route passes through the middle of the Windy Cove Cave Conservation Site, through the Cochrans Cave Conservation Site, through an area on between the Churchville area and the area east of Staunton with a large concentration of sinkholes, through an area around milepost 150 and south with a large concentration of sinkholes, to the east of the Barter Blue Cave Conservation site, and within or skirting close to the boundary of the Burnsville Cove Cave Conservation Site (BCCCS), very close to the southern and southwestern border of the site*, where there is a large concentration of sinkholes and lengthy caves (see above). Highland County is not fully shown, so it is unclear from the FEIS maps how the ACP could potentially impact karst and caves in Highland County.

[*The Virginia Cave Board states that the route passes within the BCCCS and according to the FEIS, there is uncertainty as to where the watershed boundary actually is (FEIS 4-16)].

FERC should have recognized that such cave systems exist in the area and should have fully analyzed any potential impacts from the project on these cave systems and other karst or cave features in the area. [IM3] FERC must do so to avoid the possibility of degrading these cave systems and other karst features, degrading water quality over large areas, risking the values that led to national natural landmark status, and harming wildlife that depend on them. As the Forest Service admits in the planning record, that "headwatrs are part of a karst system." (ACP INTERNAL STEEP SLOPES MEETING NOTES, April 20, 2017 Conference Call, in Planning Record as of Aug 1, '17). FERC should determine whether any other caves or cave systems not mentioned above underlie the proposed FERC corridor and surrounding areas where activities may take place. FERC should determine whether and how any karst or caves in the area are physically connected and hydrologically connected to one another, and whether any are possibly physically or hydrologically connected to any of the the large cave systems mentioned above. If parts of the ACP route are not located above the caves or within karst features themselves, but are either upstream from them or downstream from them in non-karst terrain, effects on water quality flowing upstream from or downstream to the cave systems should be examined as well. Impacts on wildlife species associated with any sinkholes, caves or karst terrain in the area should be disclosed and analyzed.

Only 29% of Bath County has been surveyed for caves and karst in 4 discontinuous segments (FEIS 4-15). Because "Atlantic has not received permission from landowners for field surveys, final locations of the surface karst features in the area would be determined when access permissions have been obtained" (FEIS 4-15), it is not clear that all cave openings and sinkhole openings have been identified or surveyed. More importantly, because of this, it is not clear that the areal extent of underground systems is fully understood and the degree to which cave systems are interconnected is not fully understood.

As I stated in previous comments on the ACP Survey Decision, "A full range of alternatives should be considered for the survey routes, including (1) our preferred alternative: not constructing the pipeline at all, (2) identifying and surveying routes entirely co-located along existing road and utility corridors rather than through remote parts of the Forest, and (3) locating the pipeline away from approaches to farmlands, trout streams, and other important privately-owned and public resources."

I contend that because the cave systems are so extensive within the Burnsville Cove, Little Valley Run and other areas in Bath, Highland and Augusta County, and because Forest Service lands are located in close proximity to private lands in these areas, and it is impossible to tell, based on the scant information presented in this FEIS, the precise locations where water and underground passages flow from areas beneath public lands to areas beneath private lands, and vice versa, that it is the Forest Service's responsibility to protect underground systems and waters that may pass under public lands, especially when the pipeline's footprint is located on both public lands or private lands. In karst terrain, there is the potential for underground activities to significantly affect surface resources, terrestrial wildlife and aquatic species found on public lands. Also, as stated in our earlier comments, the pipeline's approaches to other lands are important. If the Forest Service approves this ROD, ultimately the Forest Service is determining the approaches of the pipeline onto nearby private lands and determining what adverse and/or significant effects could potentially occur on important nearby privately-owned resources.

Butler Cave-Breathing Cave is a National Natural Landmark managed through a public-private program of the National Park Service. National Natural Landmarks are the best examples of biological features in both private and public ownership. National natural landmark status constitutes an agreement to preserve, in so far as possible, the natural values of the site. Access to the entrance is owned by Butler Cave Conservation Society, the first cave society formed in the United States. Today Butler Cave is estimated at over 18 miles in length and Chestnut Ridge Cave System is estimated at over 21 miles in length. These are some of the longest caves in Virginia and are among the 125 longest caves in the world. The proposed ACP route is in close proximity to Butler Cave-Breathing Cave.

FERC states: "no National Parks, designated Wilderness Areas, National Natural Landmarks, recreation recovery areas, or designated wild and scenic rivers were identified within 0.25 mile of the projects." (FEIS 4-382). There are several long, complex, interconnected cave systems in the area. Based on early descriptions and dye tracing cited in early descriptions, it appears that many of these systems have interconnecting stream systems. Some appear to be different caves at different levels, but may be, in some way interconnected. Given the long, complex interconnected nature of the cave system in this area, I find it hard to believe that FERC arbitrarily used a ¼ mile cut-off in assessing impacts to National Natural Landmarks. It is not clear that the degree to which underground systems beneath the ACP route may impact the Butler-Breathing Cave system, a national natural landmark.

Since there is mixed Forest Service/private land ownership in this area and since the National Park Service oversees the national natural landmark program, O would have expected the Forest Service and the National Park Service to utilize full survey information, cave system location information, and information on impacts to downstream resources are obtained before assenting to this project. I would expect headwaters and upstream areas to be protected. Both the FS and FERC should have consulted with the National Park Service and Butler Cave Conservation Society about the National Natural Landmark.

Issue previously raised in DEIS comments pp.5-7;12

Old Growth

According to the Forest Service's Southern Region guidance on old growth (FR-62), old growth in the eastern U.S. comprises approximately 0.5% of the old growth that historically existed in the southeastern US. Much of it was cut down in the early part of the 20th century.

Like any other project on the GWNF, pipeline planners should have followed all guidance from the Forest Service's Southern Region guidance on old growth (FR-62) that is applicable to projects. It is not clear that this was done. There is not evidence that all guidance was followed or that all necessary surveys were conducted. In response to our comment C)55-97, FERC only refers to "old growth forest surveys that would be conducted," implying that surveys have not yet been conducted.

In the Jun 27, '17 FS/ACP Biweekly Call Meeting Notes, the last record of such a planning call in the "ACP Planning Record 8/1/17" that I received from the FS, the notes state that old growth surveys are "currently underway" (p.3), in other words, they are not completed.

As part of this analysis, the Decision-makers should identify all old growth of any size (including within-stand old growth and old growth partially within multiple stands). Old growth components and old growth habitat value of all old growth of any size should be adequately protected. The FS should protect mature forest adjacent to or near existing old growth may be important ecological components that should be protected, as well. FERC should have provided figures on the size, distribution, and age of trees to be cut. FERC should have provided figures on the size, distribution, and age of trees to be cut. FERC should have disclosed the impacts on old growth and disclose whether the treatments could preclude or delay the attainment of old growth status.

The agency should examine whether there is any within-stand patches of OG or relic trees that should be protected or buffered from disturbance. It is possible that some old growth may exist within whole stands, partial stands, or portions of stands adjoining other stands. If any inclusions of an older age are found in the course of surveys, it would be proper to change the stand layouts and dimensions and numbers to incorporate this new data also

The agency should examine the spatial arrangement of OG and surrounding mid- late-successional habitat, to determine whether any such areas should be protected or buffered from disturbance. Even if these areas did not

meet operational criteria for old growth, given the obvious shortage of old growth in this area (and throughout the Appalachians) FERC should also consider designating some of the best areas as small, medium or large old growth tracts.

In FR-62, the Southern Region of the FS includes the following "considerations for old-growth forests during project-level planning: ""When developing overall management strategies for an area, care should be taken not to isolate the medium- and small-sized old growth patches from the mid- and late-successional forests." (pp. 26-7). National Forests need to "provide for ... representation of all old growth forest community types" (FR-62 p14) and "consider underrepresented old growth forest community types" (FR-62 p17) in planning.

Thorough old growth surveys should be conducted which include a record of where each of the plots were taken, a record of how each of the criteria for old growth were determined, and whether the FERC ensured that the criteria used were appropriate for this geographical area and the old growth types found here.

In 2010, I used Forest Service GIS layers to map stands on the GWNF that are 140 years or older (Based on Forest Service Southern Region's guidance, old growth can vary from 120-130-140 years or older, dependent on the old growth forest type and other conditions measured on the ground.) I found a large tract of 140 yrs old (now approx. 147 year old based on FS stand data) forest land near the location where the proposed ACP would cross into Va. from West.Va., and along the slope below it in the GWNF. See Old Growth Map_North GWNF.pdf. See also og-r8-north.pdf and og-r8-south.pdf, from the GWNF Forest Plan Revision process, which show more extensive areas of potential old growth in the Highland County, Bath County and Augusta County portions of the proposal. Approximately 26% of the ACP route is considered "potential old growth" (FEIS 4-167).

Old growth should be surveyed and avoided. FERC should have carefully examined the configuration and old growth forest types of old growth to avoid fragmenting large and medium sized old growth tracts and significant and large/medium sized mature forest/old growth tracts. FERC must avoid logging rare or underrepresented old growth forest types and higher elevation old growth forest.

It is important to understand that although stand ages can be identified, based on the FS's stand data, which may or may not be reliable in all cases, actual impacts to old growth cannot be ascertained until old growth has been surveyed. As Russ Macfarlane stated, until surveys are conducted, "the acres of old growth forests (as defined by the Regional Guidance) impacted by construction and operation of the pipeline cannot be quantified." (Email to Karen Overcash, May 23, '17). In some cases, forest stand data may contain inaccuracies in forest types, age, and other factors. Until surveys are conducted, these cannot be known.

It is hard to believe that the agency is moving forward with a decision on alternatives and plan amendments in the absence of this information. Clearly, the FS has not taken the "hard look" required by NEPA. It is also impossible for the public to comment on the project or fully participate in the objection process until this information is released.

The FS's handbook on environmental policy and procedures requires the FS to allow the public to fully participate in the NEPA process:

" 4. Ensure that the public is kept informed of the results? of scoping and the progress of the environmental analysis? commensurate with the public interest in the proposed action." FSH 1909.15.10.4

The FS is required to "Consider a full range of reasonable alternatives to the proposed action that address the significant issues and meet the purpose and need for the?proposed action. During scoping and the subsequent public participation? activities, discuss the feasibility and possible effects of these alternatives with potentially

interested and affected? agencies, organizations, and persons." FSH 1909.15.12.3c.?

The FS must fully and actively involve the public consistent with its own handbook: [IM4]

Make It Timely. The process allows enough time for the public to participate fully, with enough advance notice for all activities and crucial points in the process. …

Practice Openness. Dialogue is welcomed and facilitated among all interests. Anyone who wishes to participate can. Information to the public (documents, etc.) is accessible to all and is in language that people can understand.

Make Involvement Early and Continuous. The public is involved from beginning to end, and relationships are built over the long term.

FERC and Atlantic need to provide measures that are demonstrated to be effective. Evidence-based effectiveness of measures have not been disclosed.

Issue previously raised in DEIS comments pp. 24-25 and other pages.

Illegal Off-highway Vehicle (OHV) Use Encouraged; Effectiveness of Mitigation Measures not Demonstrated

The pipeline route will provide miles of easy illegal motorized access to wilderness, roadless areas, old growth forest and other interior portions of the Forest.

FERC states: "Atlantic would place berms across the right-of-way where it intersects an existing road. While their primary purpose would be to control erosion, the berms would deter most vehicle access of the right-of-way. Atlantic would also place large rocks, stumps, limbs, and related material along the right-of-way such that they present a physical barrier. If requested by a landowner, locking gates may be installed along the right-of-way in accordance with Atlantic's specifications to allow for access by maintenance vehicles and equipment" (FEIS 4-350).

Signs, fences/gates, rocks and other barriers have not proven effective across many sites on the GWJNFs. For example, in the Patterson Mtn ATV site (formerly a FS official site for ATV use), the FS was forced to erect boulders, steel barriers and other deterrents, but ATV riders continued to ride ATVs off-trail. The site eventually had to be closed.

FERC and the private ACP developers need to provide measures that are demonstrated to be effective. Evidence-based effectiveness of measures have not been disclosed.

There is nothing in the statement as to what monitoring would occur, how often it would occur, how thorough it would be, or how long it would last (i.e., for the life of the pipeline and/or the open-space corridor). There is nothing in the statement as to whether FERC and ACP would provide any additional funding for law enforcement officers who would patrol the area. FS budgets have been cut drastically over the past two decades and the GWJNFS is understaffed. How would existing LEOs be able to patrol the additional linear corridor provided by the pipeline footprint?

Also, does ACP have the financial ability to pay for LEO staffing and patrols over the foreseeable future? What financial guarantee or bond will be required to ensure that if the partnership dissolves, if ACP goes bankrupt, or if ACP is sold, transferred, or otherwise ceases to exist, the forest around the pipeline will be protected from illegal

motorized use facilitated by the infrastructure in place?

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 these measures are not demonstrated.

[IM5]

In April 2003, Forest Service Chief Dale Bosworth identified unmanaged off-road vehicle use as one of the four greatest threats to America's National Forests, along with fire, the spread of invasive species and habitat fragmentation. The Chief catalogued the damage and the other negative impacts caused by uncontrolled off-road vehicle use: "We're seeing more and more erosion, water degradation and habitat destruction. We're seeing more and more conflicts between users. We're seeing more damage to cultural sites and more violation of sites sacred to American Indians. And those are just some of the impacts."

On July 26, 2002 the GWNF's head LEO, Mr. Woody Lipps stated that "the number 1 threat on the Forest is illegal ATV use." In a letter dated July 1, 2004, Lipps stated, "so far this year, cross-country motor vehicle operation is the most reported violation occurring on the GW/Jeff."

Illegal motorized use is a very serious threat within the Jefferson National Forest. In a letter dated July 1, 2004, Woody Lipps, the George Washington and Jefferson National Forests' chief law enforcement officer stated, "so far this year, cross-country motor vehicle operation is the most reported violation occurring on the GW/Jef[erson National Forests]." Illegal motorized use has been a highly serious problem since this time.

[IM6] According to Brian Webb, the forest's current chief law enforcement officer, recently, illegal motorized users have gone so far as tearing out Forest Service gates in some cases, literally pulling them out of the ground to get around them or simply to damage them.

In the Roaring Branch mountain treasure, a network of user created motorized trails has been built and a makeshift cabin was built on public land near ATV trails.

Unfortunately, as Forest Service budgets have been cut, the number of law enforcement personnel has also dwindled and it has become harder to apprehend illegal motorized users and vandals. In the 1990s, there were 23-25 law enforcement officers distributed throughout the ranger districts of Virginia's two national forests. In recent years there have only been 10-12 officers. Meeting with Brian Webb, Patrol Captain, Supervisors Office, February 11, 2011)

ENVIRONMENTAL IMPACTS OF OFF-HIGHWAY VEHICLES

Over the past several decades as wages and leisure time have increased, more and more Americans are participating in outdoor recreation. From hiking to mountain biking, from snowmobiling to off-road motorcycle use, and from hunting to bird-watching, millions of Americans spend their time and money participating in one or more of these and other activities. While some forms of outdoor recreation are experiencing an overall decline in the number of participants (e.g., hunting) most other outdoor recreational pursuits are increasing in popularity. This increase, however, is not without an environmental cost.

The concept of a "non-consumptive" user is a myth. Each and every form of outdoor recreation exacts an impact on the environment. The severity, significance, and degree of impact is variable depending on the recreational activity. In general, the most damaging of the outdoor recreational activities on the environment is the use of ORVs. Perhaps as a consequence of America's love affair with the automobile, the popularity of ORV use has increased substantially over the past several decades. Today, motorcycles, all-terrain vehicles, snowmobiles, and wheel drive [IM7] vehicles invade our public lands, including National Forests. In their wake, these vehicles leave a trail of destruction involving the soils, vegetation, wildlife, and air and water quality.

The impacts are not the same across the board. Different ecosystems with different soil types, different floral assemblies, and which are subject to different climatic patterns experience variable levels of ORV impacts. Nevertheless there are no ecosystems which are immune to the adverse impacts of ORVs. As stated by Sheridan (1979), "ORVs have damaged every kind of ecosystem found in the United States: sand dunes covered with American beach grass on Cape Cod; pine and cypress woodlands in Florida; hardwood forests in Indiana; prairie grasslands in Montana; chaparral and sagebrush hills in Arizona; alpine meadows in Colorado; conifer forests in Washington; arctic tundra in Alaska." Many ecological communities have a relatively low threshold to impacts of recreational use (Frissell and Duncan 1965). Moreover, as ORV technologies have advanced, ORVs are more comfortable and reliable, able to travel greater distances, and able to access areas that were previously inaccessible, thereby exacerbating their impacts on the environment.

Indeed, the impacts of ORVs are complex and interrelated and they frequently interact synergistically, producing a "whole" more damaging than the sum of the individual impacts, which can result in substantial degradation to the ecology of disturbed habitats to the detriment of the biotic community occupying those habitats. Thus, ORV impacts to soil are not limited to the appearance of a tire tread, but include an increase in soil bulk density (compaction), a decrease in soil permeability to water, increased water runoff, increased erosion, and a decrease in vegetation density and productivity. Similarly, ORV impacts on wildlife are not limited to a simple disturbance, but may include increased stress, increased energy use, displacement from important habitat, and interruption of feeding activities. The cumulative effect of these impacts may adversely impact animal production and survival. Indeed, while the pass of one ORV can result in adverse impacts, the collective impacts of thousands of ORVs can be environmentally devastating. In many ecosystems these impacts, particularly to the soils, cannot simply be erased by prohibiting ORV use, but may actually require decades, if not centuries, for nature to repair.

The adverse impacts of ORVs are not limited to soils, vegetation, and wildlife. As Berry (1980) reported, ORV management problems include illegal trespass into areas in which ORV use is not authorized, widening of trails, fragmentation of wildlife habitats through unauthorized proliferation of trails, increased access to sensitive habitat and resources, and increased vandalism associated with increased visitor use. Moreover, though not widely reported, ORVs have also been implicated in damaging archaeologic and geologic sites (Stebbins 1974a, Stebbins and Cohen 1976, Wilshire and Nakata 1976) while others have noted that ORV trails frequently serve as dumps for human trash (Kalisz 1996).[4]

As reported by Wilshire et al. (1977):

ORVs have now invaded an enormous variety of natural settings, from deserts and coastal dunes to forested mountains, and from fertile habitats for wildlife to unique refuges for relict flora and fauna. The capability of the land and its biota to sustain this impact is as varied as the invaded habitats, but damage by ORVs in even the least vulnerable areas will require periods for recovery measured in centuries or millennia. Losses of soil and changes in the land surface will be long lasting, and certain natural life systems will never recover from the intensive ORV impacts already sustained. Archaeological and historical features, relict landforms, primitive soils, and other legacies of irreplaceable cultural, aesthetic, and scientific value have also been permanently lost.

The scientific literature indisputably demonstrates that ORVs cause significant and severe direct, indirect, and cumulative adverse impacts on the environment.[5] These impacts include soil compaction, accelerated soil erosion, denudation and loss of floral species diversity and production, reductions in animal populations, degradation of aesthetic and visual qualities, and adverse impacts on non-motorized forest users.[6] Evaluating and interpreting ORV impacts involves a variety of factors including terrain topography, soil moisture content, soil substrate, plant habitat type, types of vehicle, weight of vehicles, wheel configuration, types of tires\treads (i.e., low pressure, lugs, cleats, ribbed), time of year, and the amount and timing of ORV use (Ahlstrand and Racine 1993, Wooding and Sparrow 1979). Each of these factors may attenuate or amplify the environmental impacts of ORVs.

These impacts and others are not limited to the pages of scientific publications, but have been documented on a large number of National Forests. Though many National Forests fail to properly monitor the effects of ORVs on their lands as required by law, records obtained by Wildlands Center for Preventing Roads through the Freedom of Information Act provide numerous examples of the adverse impacts of ORVs on USFS lands. This evidence, which is summarized in the ORV Impacts on National Forests section of this document, represents the minimum impacts of ORVs on USFS lands based on current, and frequently insufficient, monitoring data. If the USFS properly monitored ORV effects, the evidence of adverse ORV impacts would be even more staggering than that gleaned from the records obtained through FOIA.

See also the following Reviews of the Environmental, Social and other impacts of ORVs:

Havlick, D.G. 2002. No Place Distant: Roads and Motorized Recreation on America's Public Lands. Foreword by Mike Dombeck. Island Press, Washington, DC.

Stokowski, P.A. and C.B. LaPointe. 2000. Environmental and social effects of ATVs and ORVs: an annotated bibliography and research assessment. School of Natural Resources, University of Vermont. 31p.

http://www.anr.state.vt.us/anr/atv_nov20_final.pdf <http://www.anr.state.vt.us/anr/atv_nov20_final.pdf>

Wildlands CPR, The Wilderness Society, et al. 1999. Petition to enhance and expand regulations governing the administration of recreational off-road vehicle use on National Forests. Published by Wildlands CPR, Missoula, MT 188p. http://www.wildlandscpr.org/orvs/ORVpetition.doc <http://www.wildlandscpr.org/orvs/ORVpetition.doc>

Wilkinson, T. 2000. Loud, Dirty, and Destructive. Wilderness, Pp. 26-31, 2000.

Abstract: Off-road vehicles (ORVs) could be the largest growing threat to America's wilderness. The Forest Service estimates that from 1979 to 1987 the number of ORVs using national forests has grown from 5.3 million visitors-days to 80 million visitor-days. The threat to wilderness will continue to grow given that between 1991

and 1997 the annual ORV sales have doubled. Wilderness supporters are outraged over the escalating problems of ORV use on public lands. The four federal agencies involved have ignored these threats to wilderness on large areas of undeveloped public land. Snowmobiles, four-wheelers, dirt bikes, and other ORVs leave their mark on back-country wilderness areas. Trails, both legal and illegal, disturb the natural wilderness and character of the land. The noise can drive away birds and harm the sensitive hearing of small mammals. Amphibians, reptiles, and plants become crushed when up against ORVs. Big game hunters worry that the proliferation of machines will scare off wildlife. Two-stroke engines cause water and air pollution, sometimes spilling fuel directly into soil and water. ORVs scar the land and harm wildlife with noisy, polluting, trail-mangling machines. ORVs are transforming recreation in national forests, especially in western lands. A coalition of over 100 groups filed a petition with the Forest Service urging the management of ORV use and the definition of the recreational standards. The ORV lobby, well-organized with financial support, maintains a good relationship with land managers who traditionally have supported ORV recreational uses. Grassroots and environmental efforts are bringing national attention to the ORV issue. The National Park Service has proposed a ban on snowmobiles in parks such as Yellowstone, and have other plans to limit ORV use. Environmentalists call for more actions limiting ORV use and want untouched areas undisturbed, unpolluted, and populated with wildlife.

Wilkinson, T 2001. On the beaten path. National Parks 75(3-4): 34-8.

Abstract: The National Park Service (NPS) has developed a new strategy to combat the damage caused by off-road vehicles (ORVs) in Big Cypress National Preserve in Florida. Across the National Park System, there is a noisy and increasing multitude of people using motorized recreation, causing a wide range of detrimental effects on wildlife and habitat. In Big Cypress National Preserve, which features some 22,000 miles of unregulated ORV trails, ORVs have caused massive destruction to the preserve's impressive biological diversity. The NPS' new bold, multiyear strategy will close trails to secure habitat, deploy scientists to assess damage, establish 400 miles of ORV trails, and limit the number of permits to 2,000. The NPS will also increase regular patrols of rangers to prevent illegal incursions. However, ORV groups, which have until now enjoyed de facto primacy over the backcountry and have hunting privileges there, intend to fight the new regulations.

Foltz, R.B., D. Meadows, C. Napper, R. Gonzales, C. Aldrich. Study proposal. Impacts of All Terrain Vehicles (ATV) on National Forest Lands and Grasslands. May 2004

Abstract. The US Forest Service will conduct a study to determine the potential impacts of All Terrain Vehicles (ATVs) on National Forest Lands and Grasslands. The objective is to determine which ATV mechanical components and equipment may cause potential impacts to the natural environment. The tests will be conducted on existing trails and areas open to cross country travel. Locations for the study are in Louisiana, Missouri, Kentucky, Minnesota, Montana, and Washington. Parallel trails dedicated to a single combination of ATV type and tire combination will be located at each site. ATV traffic will occur until three levels of soil disturbance, Low, Medium, and High, have been achieved. Key indicators for the soil disturbance classes will be presence or absence of vegetation cover, trail condition, and potential erosion condition. Following the ATV traffic, measurements of the erosion potential will be taken on each disturbance class. At the conclusion of the study we will be able to demonstrate the ATV vehicle and tire combinations that produce each level of soil disturbance, the erosion implications of those classes, and a method to predict soil erosion from ATV traffic in climates different from the test areas. 7 last paragraphs above Compiled by Adam Switalski

CLOSING REQUIREMENTS

Due to the extensive damage that the Forest Service has documented, it is simply not legal for the Forest Service to allow any ORV use on the Forest. The Forest Service is required to:

[t]he respective agency head shall, whenever he determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

Section 9 of E.O. 11644 as amended by E.O. 11989.

The effects of use by specific types of vehicles off roads on National Forest System lands will be monitored. If the results of monitoring, including public input, indicate that the use of one or more vehicle types off roads is causing or will cause considerable adverse effects on the factors and resource values referred to in Sec. 295.2, the area or trail suffering adverse effects will be immediately closed to the responsible vehicle type or types until the adverse effects have been eliminated and measures have been implemented to prevent future recurrence as provided in 36 CFR part 261.

36 CFR § 295.5.

Issue previously raised in DEIS comments pp.40-45 and other pages..

Trout Streams

"There are 36 [pipeline] waterbody crossings on the GWNF (some waterbodies are crossed more than once), including 13 perennial streams, 15 intermittent streams, 6 ephemeral streams, and 2 ponds." (FEIS 4-243). Eighty-nine waterbodies would be crossed by access roads (FEIS 4-213). Macroinvertebrate surveys have only been conducted on 7 streams (see response to comments CO55-111).

The DEIS stated that blasting could occur in "24 wild brook streams and/or stockable trout streams." (pdf p,. 357) FERC should pay particular attention to how ground disturbing activities and loss of shading and canopy near streams could affect trout habitat and trout populations in streams in the area - since this is an important area for trout. We are particularly concerned about the potential for forest clearing in this project to negatively affect water quality, sediment levels, and water temperature. FERC should analyze these issues and should fully mitigate all impacts. What are large woody debris levels along these streams and do they need to be augmented?

FERC should have also considered how it would protect the stream management zones, as laid out in the Virginia BMPs. These are different from the riparian zones established in the JNF Plan in some respects. For example, they require that the forest floor "remain essentially undisturbed" in the SMZ, which is 60-120 ft. along trout streams, dependent on slope of adjacent lands. The FEIS should specify how the project complies with Virginia BMPs.

Wider stream buffers should have been considered. Many species and biological communities rely on the health of riparian areas. See Jan 13, '04 USF&WS BO for the JNF p. 2 bottom paragraph and p. 3 top paragraph; and Seth Wenger, 1999, "A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation", Institute of Ecology, University of Georgia, 59 pp. (both incorporated by reference). And The Virginia Department of Game and Inland Fisheries (VDGIF) stated its position that the proposed riparian corridors in the draft revised Jefferson LRMP were not sufficient to protect threatened and endangered aquatic species. See Comment letter 2575 on the draft revised Jefferson LRMP, William Woodfin, Jr., Virginia Department of Game and Inland Fisheries, already in the FS's possession, incorporated by reference. Instead of the proposed riparian standards, the VDGIF recommended increasing the standard buffers with an allowance to reduce the buffers on a site-specific bases after consultation with all cooperating agencies. Id. Wider streamside buffers than those proposed here (EA 13&14) should have been considered and implemented.

Headwaters and small streams are particularly sensitive: "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). "Generally the headwater fish populations are the most threatened." (GWNF FEIS J-8). For information regarding salamander use of headwater stream habitat see

<http://www.epa.state.oh.us/dsw/wqs/headwaters/TechRep_FishAmphibian_2002.pdf> (incorporated by reference). This information needs to be fully considered and incorporated into the analysis. Expanded no cutting or no disturbance zones around stream courses needs to be implemented here.

The GWNF Plan requires the FS to delineate riparian areas and this should be done as part of the ACP proposed project through maps and other documentation.

- Springs and seeps are a component of landscape diversity and are very important for maintaining the population viability and distribution of salamanders, frogs, crayfish, box turtles, ruffed grouse, turkeys, and other species (see JNF Hagan Hall Timber Sale EA -43, 44, 46; incorporated by reference). Removal of their canopy cover impedes and disrupts the natural ecological succession of these areas. Implementation of the proposed alternative/mitigation is not compliant with the DFC for these microhabitats. These areas should be absolutely off-limits to cutting and removal and vehicles; and the no-disturbance zone should be more than just the "immediate" wet area due to hydrological, shade, and drying concerns.

"Elimination of terrestrial vegetation around aquatic breeding sites causes amphibian populations to decline [citations omitted]. Thus, maintenance of amphibian biodiversity depends on the protection and management of both aquatic breeding sites and the surrounding terrestrial habitat." "Factors influencing amphibian and small mammal assemblages in central Appalachian forests", Mitchell et al, Forest Ecology and Management 96: 65-76 (1997). (research conducted on the GWNF, incorporated by reference).

"Downed material in these spots is providing cover which was formerly provided by a forest canopy. This downed material is retaining the cooler temperatures and higher humidity associated with springs and seeps."

(Hagan Hall Wildlife Existing Condition report, Aug. 1998). "Removal of material from these sites [seeps, springs, bogs, and forested wetlands], particularly where most of the tree canopy is now gone, would increase the solar radiation causing warming temperatures and less humidity. . . . increased temperatures and drier air can affect the presence of certain amphibians and small mammals." (Hagan Hall EA-47). Ecosystem management should recognize that there is more to seeps, springs, bogs, and forested wetlands than just their physical characteristics. If these locations become unusable or unattractive to some amphibians, mammals, or other taxa that would be expected here, then they are not fully functional. There should be analysis or citation to studies to corroborate the assertion that retention of 5-15% (or whatever basal area the cutting method retains) of the overstory cover shading these sites is enough to maintain their full functioning and attain their DFC.

Surveys to identify these areas should have been carried out during wet periods when they can be properly detected (see state BMP manual). "Seeps and other wetlands ... are best located during rainy season as many wetlands are difficult to identify during dry periods." - Forestry Best Management Practices for Water Quality in Virginia Technical Guide at pg. 42 (incorporated by reference). If the habitats are not properly identified and inventoried, they cannot be properly protected, mitigated, and monitored.

Seep areas provide critical riparian habitat. A VDGIF biologist states they should be protected "by a minimum of 100 feet on each side (preferably 200-300 feet)" (see GWNF Johnson Mtn. timber sale project file at tab 20; incorporated by reference). This 200-300' zone should be applied here. See also Jan 13, '04 USF&WS BO for the JNF p. 2 bottom paragraph; and Seth Wenger, 1999, "A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation", Institute of Ecology, University of Georgia, 59 pp. (both in your possession and incorporated by reference).

FERC should have paid particular attention to how ground disturbing activities and loss of shading and canopy near streams could affect trout habitat and trout populations in streams in the area - since this is an important area for trout. FERC should assess the degree to which proposed activities could affect water quality, sediment levels, levels of large woody debris and water temperature in the specific streams and stream reaches in the project area. Cumulative effects should also be assessed.

The Virginia Department of Game and Inland Fisheries classifies wild trout streams as follows:

"Wild natural trout streams.

"Class ii. Stream contains a good wild trout population or the potential for one but is lacking in aesthetic quality, productivity, and/or in some structural characteristic. Stream maintains good water quality and temperature, maintains at least a fair summer flow, and adjacent land is not extensively developed. Stream would be considered a good wild trout stream and would represent a major portion of Virginia's wild trout waters.

"Class iii. Stream which contains a fair population of wild trout with carrying capacity

depressed by natural factors or more commonly man-related landuse practices. Land use activities may result in

heavy siltation of the stream, destruction of banks and fish cover, water quality degradation, increased water temperature, etc. Most streams would be considered to be in the active state of degradation or recovery from degradation. Alteration in land use practices would generally improve carrying capacity of the stream." (9 VAC 25.60 Virginia Water Quality Stds)

There are several class ii-v trout streams in the project area. For example, the Bullpasture River (and tributaries) is a class v trout stream, Jennings Branch and Orebank Cr are class iv trout streams, Mills Cr. (South R watershed), North Fork Back Creek (South River watershed), Spruce Cr. (Rockfish R. watershed), and South Fork Rockfish River (Rockfish R watershed) are class ii trout streams.

There are a high number of high quality trout streams in the project area. Adequate protection of these and other trout streams in the project area should be a high priority. Perennial, intermittent, and ephemeral tributaries of trout streams should also be considered because these play an important role in downstream water quality.

Other fishery related resources should be protected as well, such as the Coursey Springs Fish Cultural Station on the Cowpasture River.

It appears that Atlantic would have the primary responsibility for conducting post-construction monitoring. Atlantic would monitor the sites for 2-3 growing seasons post-construction until certain thresholds are deemed met and "restoration is deemed successful." It is not clear how thoroughly "FERC, cooperating agencies, and/or other agencies would continue to conduct oversight inspection and monitoring to assess the success of restoration," because FERC provides no information on how frequently the agencies would monitor and no information on what techniques they would use. FERC says that "other land and resource management agencies [such as the Forest Service] may conduct their own restoration inspections in areas where they have jurisdiction," but it is not clear how thorough or frequent these would be. Forest Service budgets have been cut significantly in recent years. Monitoring activities that were conducted routinely have, in many cases, not been done so with the same frequency as in the past. For example, in the project area for the CMB and Nettle Patch timber sale in the Clinch Ranger District (GWJNFs), macroinvertebrate sampling has not been conducted on the major streams in the project since 2000 - in 17 years. This is in spite of the fact that a major timber sale (CMB) hundreds of acres in size took place in these watersheds in 1998-2005 and in spite of the fact that a major timber sale hundreds of acres in size is planned in the same area (Nettle Patch) at present. In the Gilmore Hollow timber sale project area (Glenwood Ranger District, GWNFs), macroinvertebrate sampling has not been conducted in the North Creek (lower) or Sprouts Run watersheds since 1996. North Creek watershed, a Tier III Exceptional Waterway, was the site of a major flooding event that encroached on Forest Service roads and destroyed trail bridges after 1996. Sprouts Run is the site of a National Recreation Trail; logging took place in the watershed during the mid-1990s. So there is a question as to whether the Forest Service will have the capability to monitor and enforce the reclamation/restoration provisions incorporated into the ROD on the many miles that the pipeline project would impact. Secondly, there is a question as to who would fund the monitoring and enforcement activities of FERC, the Forest Service and other cooperating agencies. Since this is a for-profit project on public land, would Atlantic compensate the Forest Service, National Park Service, Virginia DCR, Virginia Department of Inland Fisheries, conservation easement holders and others affected by the project for the full amount of their monitoring and enforcement activities? What amount of money has Atlantic set aside for funding these activities? And is this funding assured if Atlantic were to go bankrupt, if Atlantic were not to make as much money on the project as expected, or if the project or pipeline were to change hands?

Issue previously raised in DEIS comments pp. 26-30 and other pages..

Aquatic Species

Roughhead shiner, Roanoke logperch, orangefin madtom, and candy darter all could potentially occur in the project area.

Surveys were only conducted at crossings (not downstream or upstream) for roughhead shiner and orangefin madtom (FEIS 4-243). Surveys are not complete ("pending") for Roanoke logperch (4-219). No surveys were conducted for candy darter (Table 4.7.1-1)

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 candy darter, a Forest Service sensitive species .

"Habitat - The candy darter inhabits rocky, typically clear, cold and warm, small to large creeks. Adults generally occupy unsilted runs, riffles, and swift pockets of current in and around large rubble and boulders. … Threats - Turbidity and siltation are assumed to be limiting factors…" (Terwilliger (ed), 1991, Virginia's Endangered Species,. p. 385) "In Virginia, Etheostoma osburni (candy darter) is generally distributed in Big Stony Creek only. Although six other systems of the New River drainage have its critical habitat requirements, recent records do not indicate the presence of candy darter. Furthermore, the fish is endemic to the New River drainage in the Ridge and Valley of Virginia and the Appalachian Plateaus of West Virginia and is experiencing declines throughout its range. Stony Creek provides essential habitat in preventing this species from becoming federally listed." (JNF Plan FEIS D-12).

For example, the following is from NatureServe (regarding the candy darter):

"Degree of Threat: Substantial, imminent threat

"Threat Scope: High

"Threat Severity: Moderate

" Threat Immediacy: High

"Threats: Primary threats may be turbidity and siltation resulting from human activities. Stocking of trout may be detrimental (trout probably eat E. OSBURNI). Also, anglers may limit populations by wading through possible spawning sites (Burkhead and Jenkins 1991). Jenkins and Burkhead (1994) stated that they previously (Burkhead and Jenkins 1991) may have underrated the jeopardy of this species in Virginia by recommending it for only special concern status; in 1994 they rated it as endangered or threatened in Virginia due to "localization or extirpation of most populations." Warren et al. (2000) rated this species as vulnerable.

"Environmental Specificity: B

"Endemism: endemic to a single nation

"U.S. & Canada State/Province Distribution

"United States - VA, WV

"Global Range: EF

"Global Range Comments: New River drainage, in the Ridge and Valley of Virginia and the Appalachian Plateaus of West Virginia (Jenkins and Burkhead 1994). See Jenkins and Burkhead (1994) for corrections of identifications affecting the known ranges of this species and E. KANAWHAE. In Virginia, generally distributed only in Big Stony Creek, perhaps solely above the gypsum plant at Kimbalton; extremely localized in Laurel Fork of the Wolf Creek system; limited range in the New River. Known also from Reed, Big Walker, Little Stony, and Sinking creeks, and Spruce and Pine runs, but there are no recent records from these streams (Burkhead and Jenkins 1991)….

"Reproduction Comments: Spawning typically peaks mid-to-late May in the Greenbrier River, West Virginia (Lee et al. 1980). Spawners were found in late April at a water temperature of 15.5 C in Big Stony Creek, Virginia; adults were in breeding condition on 20 June at 18 C in a different year (Burkhead and Jenkins 1991). Sexually mature in 2 years, lives up to 3 years…..

"Habitat Comments: Swift water over stones and boulders in cool montane streams. Rocky, typically clear, cold and warm, small to large creeks; adults generally occur in unsilted runs, riffles, and swift pockets of current in and around large rubble and boulders (Burkhead and Jenkins 1991). Fast rubble riffles of small to medium rivers (Page and Burr 1991). In three streams in West Virginia, occurred in fast current velocities and rock substrate in water depths of 20-30 cm (Chipps et al., 1994, Am. Midl. Nat. 131:175-180). May spawn in patches of sand in swift water? (Burkhead and Jenkins 1991)." (NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.1. NatureServe, Arlington, Va. Available http://www.natureserve.org/explorer <http://www.natureserve.org/explorer> . (Accessed: November 23, 2004)).

"Habitat - The candy darter inhabits rocky, typically clear, cold and warm, small to large creeks. Adults generally occupy unsilted runs, riffles, and swift pockets of current in and around large rubble and boulders. … Threats - Turbidity and siltation are assumed to be limiting factors…" (Terwilliger (ed), 1991, Virginia's Endangered Species,. p. 385)

Orangefin madtom, a Forest Service sensitive species and Virginia threatened species, is found in the Cowpasture River and perhaps other waterways in the area. Thorough surveys of this species must be conducted and adequate protective measures should be put in place. The habitat of the orangefin madtom "includes swift riffles with small cobble substratum; this madtom occupies interstitial spaces among cobbles; generally it is not in areas with large amounts of sand and silt (Simonson and Neves 1992). Riffles and runs of medium to large, cool to warm, usually clear streams; lives under large gravel, rubble and probably boulders and other cover."
(http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=103813&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=103813&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=103813)
<http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=103813&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=103813&offPageSelectedElType=species&offPageYesNo=t

rue&post_processes=&radiobutton=radiobutton&selectedIndexes=103813)>

FERC should have analyzed how the project (including forest clearing, roads, and other infrastructure) affect sediment-sensitive species such as trout, candy darter, roughhead shiner, Roanoke logperch, orangefin madtom and other aquatic species. Efficacy of proposed mitigation measures for the candy darter and other aquatic species must be explained, and they must completely compensate for potential adverse effects.

Cumulative effects of the ACP, other land disturbing activities in combination with other past, present, and reasonably activities and events in this watershed should be analyzed in accordance with NEPA. There is a possibility that these activities in combination with non-FS activities or events may already be contributing significant levels of sediment, affecting the viability of these species.

FERC should have analyzed how the project (including forest clearing, roads, and other infrastructure) affect sediment-sensitive species such as troutand other aquatic species. Efficacy of proposed mitigation measures for protected aquatic species must be explained, and they must completely compensate for potential adverse effects.

Cumulative effects of the ACP pipeline, other land disturbing activities in combination with other past, present, and reasonably activities and events in this watershed should be analyzed in accordance with NEPA. There is a possibility that these activities in combination with non-FS activities or events may already be contributing significant levels of sediment, affecting the viability of rare aquatic species.

See also paragraphs 2-11 and the last paragraph (on post-construction monitoring) from the section above.

It is hard to believe that the agency is moving forward with a decision on alternatives and plan amendments in the absence of this information. The FS has not taken the "hard look" required by NEPA. It is also impossible for the public to comment on the project or fully participate in the objection process until this information is released.

Issue previously raised in DEIS comments pp.26-34 and other pages.

Indiana Bat

The pipeline project calls for removal a far greater proportion of forest cover than permitted for timber projects under the Indiana bat provisions within the GWNF Plan. Forest clearing proposed in 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.

The DEIS 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 W.Va., populations have declined by 95% since the advent of white nosed syndrome (4-261).

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). Bat populations have also decreased since this time as a result of white nose syndrome.

The Brack and Brown (2002) study discloses that less than half of identified roost trees are shagbark hickory, but 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).

FERC and the FS should perform 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

Surveys are not complete ("pending") for Indiana bat (Table 4.7.1-1). Surveys at 89 sites are yet to be completed (4-262).

Virginia WERMS data indicates that there are 5 documented Indiana bat occurences in Bath and Highland Co. (FEIS 4-261). Five known hibernacula are within 5 mi of the project: Starr Chapel Saltpetre Cave is withing 2 mi, Mountain Grove Saltpetre Cave is within 3.4 mi, Breathing Cave is within 2.3 mi, Clarks Cave is within 3.1 mi, and Witheros Cave is within 4.7 mi (FEIS 4-263).

We note that there are a number of caves and cave systems within a short distance of the pipeline corridor that are shown in Henry H Douglas, Caves of Virginia,Virginia Region of the National Speleological Society, Falls Church (1964) and John R Holsinger, Description of Virginia Caves, See above. There may be additional caves discovered since the 1970s. Thorough surveys around these caves should be conducted to determine the impacts on Indiana bats.

Forest clearing proposed in 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 agency 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.' 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 clearing 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 overseers cannot 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. How would MV do so?

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.

Given the fact that this project would virtually clearcut a 125 ft (plus) corridor across many miles of the GWNF, far more intensive tree felling than allowed in the current Plan for Indiana bats, the FS should determine if northern long eared bat viability can be maintained, the FS should determine whether a larger acreage would be cut than allowed under the BO under which the Plan operates, and should determine whether such impacts can be mitigated and whether other logging and roadbuilding projects on the GWNF should be eliminated or sharply reduced. In addition, the GWNF Plan has not been revisited or amended to consider additional measures required by increased risk of population declines associated with white nose syndrome. The impacts of the ACP pshould not be considered within a vacuum.

Issue previously raised in DEIS comments pp.34-36 and other pages.

Northern Long-eared Bat

The FEIS states that the northern long-eared bat, a federally threatened species has the potential to occur in all counties crossed by the ACP (FEIS 4-271). The northern long-eared bat has declined 99% in the Northeast, 96% in Virginia, roughly 68% in West Virginia. Unlike the little brown bat, which is showing signs of stabilization in areas longest affected by white nosed syndrome, the northern long-eared bat population does not appear to be stabilizing anywhere. Northern long-eared bat populations are starting to show increasing mortality in the Southeast and Midwest. Twenty- five states in its 38 state range are now affected by white nosed syndrome, and

5 Canadian provinces in its range are also now affected by white nosed syndrome.

FERC and the FS should perform 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 threatened northern long-eared bat and its habitat.

Seven known hibernacula are within 5 mi of the project: Starr Chapel Saltpetre Cave is within 2 mi, Hidden Valley Waterhole is within 2mi, Mountain Grove Saltpetre Cave is within 3.4 mi, Breathing Cave is within 2.3 mi, Clarks Cave is within 3.1 mi, Witheros Cave is within 4.7 mi, and cave adjacent to Elkhorn Mtn is 2.7 (FEIS 4-273).

Surveys are not complete ("pending") for northern long-eared bat (Table 4.7.1-1)

There is currently no Forest Plan provision for protecting the Northern long eared bat than required for the Indiana bat. The pipeline project calls for removal a far greater proportion of forest cover than permitted for timber projects under the Indiana bat provisions within the JNF Plan. Forest clearing proposed in the Alternatives could adversely affect roosting (sheltering), maternity (breeding), foraging (feeding), and swarming habitat of the northern long-eared 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 agency 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).

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 bat roost trees is in effect no mitigation. "If during implementation active roost trees are identified. . ." Loggers or overseers 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.

Of particular concern are cumulative impacts to the northern long eared 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 declines from white nosed syndrome in Virginia.

FERC should have analyzed the particular habitat needs of the long-eared bat and should have analyzed how the project would impact the bat and its habitat.. Compared to random trees, roosts of northern long-eared bats were within intact forests ($x^2 = 10.56$, d.f. = 1, $P = 0.001$). Amount of obstruction and decay differed; roosts of M. sodalis typically were less cluttered and more decayed than those of M. septentrionalis ($x^2 = 38.63$, d.f. = 2, $P < 0.001$). Indiana bats roosted almost exclusively under exfoliating bark of bottomland snags, whereas northern long-eared bats also made extensive use of cavities and crevices. Northern long-eared bats used five identified species of trees for roosting; nine roosts were in pin oak, five in elm, two in unidentified snags, and one each in sweetgum, oak, and hawthorn (Cratagus spp.). Comparing roosts of Indiana bats and northern long-eared bats (Table 3), two variables were significant ($x^2 = 38.633$, d.f. = 2, $P < 0.001$). Degree of roost obstruction was greater around northern long-eared bat roosts than around Indiana bat roosts ($x^2 = 14.954$, d.f. = 1, $P < 0.001$), and M. septentrionalis roosts were less decayed than those of M. sodalis ($x^2 = 4.876$, d.f. = 1, $P < 0.027$). (Timothy C. Carter, George A. Feldhamer, Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois, Forest Ecology and Management 219 (2005) 259Ð268).

FERC and the FS should consider the differences between northern long-eared bats and Indiana bats and their use of habitats.

From Northern long-eared bat (NLEB) comparisons with the Indiana bat (Ibat) Appendix B:

<file://localhost/Users/Sherman/Library/Group%20Containers/UBF8T346G9.Office/msoclip1/01/clip_image002.png>

Canopy cover around roost trees

Northern long-eared bats: They appear to select roosts with generally more canopy cover than Indiana bats do.

Canopy coverage at NLEB roosts has ranged from 56 percent in Missouri (Timone et al. 2010), 66 percent in Indiana bats:

Mean values of canopy cover are highly variable among studies, ranging from <20 to 88 percent (FWS (2007). "First, some variation undoubtedly is related to differences in food sources: Arkansas (Perry and Thill 2007), greater than 75 percent in New Hampshire (Sasse and Pekins 1996), to greater than 84 percent in Kentucky (Lacki and Schwierjohann 2001).

Examples of studies that compared NLEB and Indiana bats directly:

Indiana bat 25% vs. NLEB 56% (Timpone et al. 2010)

Indiana bat 18% vs. NLEB 44% (Carter and Feldhamer 2005)

[IM8] Northern long-eared bat: Similar to Indiana bat. Beetles, mayflies, moths (Brack and Whitaker 2001, Lee and McCracken 2004, Feldhamer et al. 2009) Potential differences Indiana bat, as gleaners, NLEB eat more arachnids (spiders) (Feldhamer et al. 2009) and more orthopterans than Indiana bat (Lee and McCracken 2004).

Indiana bats: Flying insects. Consistent use of moths, flies, beetles, and caddisflies throughout the year at various colonies suggests that Indiana bats are selective predators to a certain degree, but incorporation of ants into the diet also indicates that these bats can be opportunistic (Murray and Kurta 2002). Hence, Brack and LaVal (1985) and Murray and Kurta (2002) suggested that the Indiana bat may best be described as a "selective opportunist," as are a number of other Myotis species (Fenton and Morris 1976).

Before this project proceeds, the FS should amend the GWNF Plan to provide conservation prescriptions surrounding northern long-eared bat hibernacula, as it does for the Indiana bat. Difference in habitat preferences between the two species should be considered.

For example, northern long-eared bats are documented in Burnsville Cove (FEIS Table 4.4.2-1) and Cochrans Cave (FEIS 4-16).

FERC and the FS should have considered the cumulative impacts of other projects and activities within a 5 mi radius of caves providing suitable habitat (or deemed to provide suitable habitat) elsewhere in Highland, Bath, Rockbridge, Augusta, and Nelson Co. Given the fact that this project would virtually clearcut a 125 ft (plus) corridor across many miles of the GWNF, far more intensive tree felling than allowed in the current Plan for Indiana bats, the FS should determine if northern long eared bat viability can be maintained, the FS should determine whether a larger acreage would be cut than allowed under the BO under which the Plan operates, and should determine whether such impacts can be mitigated and whether other logging and roadbuilding projects on the GWNF should be eliminated or sharply reduced. In addition, the GWNF Plan has not been revisited or amended to consider additional measures required by increased risk of population declines associated with white nose syndrome. The impacts of the ACP should not be considered within a vacuum.

We note that there are a number of caves and cave systems within a short distance of the pipeline corridor that are shown in Henry H Douglas, Caves of Virginia,Virginia Region of the National Speleological Society, Falls Church (1964) and John R Holsinger, Description of Virginia Caves, Virginia Division of Minerals (1975). There may be additional caves discovered since the 1970s. Thorough surveys around these caves should be conducted to determine the impacts on northern long eared bats.

Issue previously raised in DEIS comments pp. 26-37 and other pages.

Gray Bat

The gray bat is known to occur in Bath County (FEIS 4-260). "Juveniles have been found to forage more in woodland areas and consume more beetles than adult gray bats (Brack and LaVal, 2006; Kentucky Bat Working Group [KBWG], 2016)." (FEIS 4-259). ?

Requisite surveys for gray bats should be conducted. Impacts on cave and karst systems should be analyzed to determine impacts to complex cave systems and bats that inhabit them, esp. in light of white nose syndrome.

If cave systems inhabited by gray bats are found to exist under GWJNF lands, before this project proceeds, the FS should amend the GWNF Plan to provide conservation prescriptions for gray bat hibernacula.

As previously noted, there are a number of caves and cave systems within a short distance of the pipeline corridor that are shown in Henry H Douglas, Caves of Virginia,Virginia Region of the National Speleological Society, Falls Church (1964) and John R Holsinger, Description of Virginia Caves, Virginia Division of Minerals (1975). Thorough surveys around these caves should be conducted to determine the impacts on gray bats.

Issue previously raised in DEIS comments pp. 34-36 and other pages.

Black Bears

Black bears are found in the project area. Sherman Bamford observed a black bear in the Townsend Draft area in August 2015. Black bear is an MIS here and throughout the GWNF (GWNF Plan MIS List) and an important featured species in this bear management area and adjacent areas. Issues of negative impacts to the MIS black bear due to increased disturbance, stress, vulnerability, and deaths which the project could foreseeably facilitate should receive a hard look. See also 36 CFR 219.19(a)(4). "It is evident that hunting is a stronger influence on the dynamics of the local population than is habitat capability... Potential biotic increases in habitat quality resulting from timber harvest may easily be outweighed by the potential effects on population dynamics...We believe that habitat capability models, no matter how complex, cannot predict the status of bear populations by themselves. Population dynamics must be explicitly considered in evaluating the long-term effects of habitat manipulation on bears." - Brody and Stone "Timber Harvest And Black Bear Population Dynamics" (previously submitted with appeal of the West Dry Branch TS on this GW National Forest - the agency is already in receipt of this information - we incorporate it by reference into the AR - including the Powell declaration - "To date I have not been able to document that logging...ha[s] any positive effects on black bears or black bear habitat..."). 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) FERC should analyze the negative impacts to populations that the proposal would foreseeably result in (e.g., increased legal and illegal disturbance, facilitated poaching and hunting). See also 40 CFR 1507.2(d) and 1508.27 and FSH 1909.15,ch.05.

Foreseeable negative impacts from the proposed action to most MIS must be thoroughly analyzed in the EIS. For example, agency planners must use the latest scientific information when assessing impacts to MIS black bears and their habitat. A report published in 1991 by Steven Reagan, "Habitat use by female black bears in a southern Appalachian bear sanctuary," analyzes how removal of forest cover adversely affects black bears. The Forest Service is already in receipt of this information; it was delivered to the JNF Supervisor's office (currently the GW&JNFs SO) several years ago by the Southern Appalachian Biodiversity Project. We incorporate it by reference into the administrative record. One significant finding of this research was that black bears were not taking advantage of food and habitat in even-age logging sites as was anticipated. He also found that such logging results in a dramatic increase in female black bears' home range. The same potential result can reasonably be expected to occur here from this proposed even-age logging. The outcome would be increased competition for a limited food and habitat supply. Having to roam over a greater area would also make them potentially more vulnerable to legal, illegal, and accidental killing, injury, or stress by humans. These foreseeable direct, indirect, and cumulative impacts must be adequately considered and analyzed by the planners. The best and most accurate scientific information must be used - per NEPA. The potential clearly exists for significant impacts to black bear viability here. There must be hard inventory and population data for this MIS to provide an accurate picture.

Bears need security. Black bears are classified as "wide ranging area sensitive species" (SAA Terr Rpt 154&158). Areas of grapevines and large denning trees are key habitat components. Large hollow den trees are the preferred den sites of black bears (see eg JNF Plan Rev DEIS 3-177). Grapes are a soft-mast food source of black bears (see JNF Plan Rev DEIS 3-177). Hollow trees, existing stumps, snags, shallow holes, and rock outcrops are potential bear den sites. These must be protected. There must be analysis of the loss of interior and remote habitat that will occur and has already occurred here. The road density, when both legally and illegally used motor routes are considered, may be in excess of that found to be desirable for bears. (there is little info in the DEIS) And the effects of miles of nearby access roads. must be properly analyzed. Use of these rts. (and associated noise, disturbance, and partying) create constant disturbance which may impact black bears. And "closed" roads are known to be violated by vehicle use here and elsewhere. Temporary and closed roads facilitate more access and disturbance and mortality.). Road densities must meet Plan objectives for these important habitat components in the PA. And the agency's own "Wildlife Population Data Working Paper" (Goetz and McEilwane - incorporated by reference) shows that the impacts to bears becomes negative when the proportion of suitable acreage in regen areas exceeds 10%.). If recent clearings, even-aged cuts, grassy areas around roads existing and proposed roads, existing and proposed landings, and natural within stand openings are included in these figures, The criteria data and amount of suitable land here should be disclosed to the public.

Above ground den trees are important to black bears in the Appalachians. Data from a study in the Allegheny mountains of Virginia, for example, "show 93 percent of denned bears denned above ground in standing hollow trees." (GWNF Hoover Creek timber sale EA-57; incorporated by reference) Trees of sufficient size for bears to den are old large trees. Yet the agency's action would remove these key elements over the long-terrm, habitat significant to viability. Even if a few den trees are protected these trees are vulnerable to accidental or intentional damage by logging operators and may topple over in windstorms if left standing in a much more exposed location in the middle of a timber cut. The analysis must fully and fairly consider this factor. This is omission particularly glaring since there is no information in the project record as to amounts of trees in the area suitable for bears to den in, and given that the agency claims old growth is not present which would mean that such trees can be expected to be scarce.

A clear goal for black bear conservation is "promoting remote forest conditions when managing forests (e.g., minimizing forest fragmentation, limiting road development)." Rudis, V.A., and J.B. Tansey. 1995. Regional Assessment of Remote Forests and Black Bear Habitat from Forest Resource Surveys. J. Wildl. Management 59(1): 170-180 (written by FS researcher; incorporated by reference).

Clearing, roads, and other operations can be seen to make an area more desirable for Bear hunters (e.g., providing easier access for humans, attracting Bears to so-called "escape" habitat that does not actually provide an escape), but this does not equate to being better for Bears. Roadways and clearings can foreseeably be used for legal and illegal access. See also Jefferson NF Wilson Mtn. TS EA-69 - "roads and forwarder trail could increase hunting/poaching pressure".

Poaching and other wildlife disturbing activities must be fully and fairly considered.

These foreseeable direct, indirect, and cumulative impacts must be adequately considered and analyzed by the planners.

FERC should have provided hard inventory and population data for this MIS.

The FEIS fails to analyze impacts to black bears and fails to analyze impacts to black bear populations and habitat. Although roadbuilding, timber development, increased urbanization (we provided a list of some timber activities occurring throughout GWNF which FERC ignored), FERC's Cumulative effects analysis is "limited primarily to the combined impacts of construction projects within the same geographic scope of influence as ACP and SHP and would be greatest where forested areas are removed for the permanent rights-of-way and facility footprints." (FEIS 4-608).

Issue previously raised in DEIS comments pp. 38-40 and other pages.

Salamanders:

FERC should sufficiently examine and consider the potential impacts upon salamanders. This concern is significant here given the project's potential to destroy, degrade, or fragment suitable salamander habitat in some locations. Populations in the project area could be centered in, perhaps even be only found at, the particular places targeted for intense manipulation. They have very small home ranges with limited abilities of mobility (see attachments). They are susceptible and vulnerable to severe site-specific harm to their habitat and numbers; harm that would occur should the decision be implemented.

Their life history requirements and characteristics greatly restrict their abilities to "recolonize" areas. Since this project area does not contain Cow Knob salamander habitat, then the MIS (viz., black bears, pileated woodpeckers GWNF Plan 2-19) and other species listed in the GWNF Plan are of limited, even misleading, use for gauging impacts to site-sensitive salamander populations. Additional salamander/amphibian/reptile MIS need to be considered in this analysis.

The use of these species does not accurately gauge the impacts to small site-sensitive species of low mobility such as salamanders and turtles. 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.

Present MIS do not allow for the accurate monitoring and assessment of management impacts to salamander populations in the ACP corridor where Cow Knob salamanders do not occur. Then some other indicator of effects needs to be used; the project's and Plan's MIS are deficient. 16 U.S.C. 1604(g)(3)(C).

Impacts to site-sensitive creatures such as salamanders should be properly monitored and assessed. These creatures are very important components of forest ecosystems. The biomass of salamanders in a northern hardwood forest was twice that of the bird community during the breeding season and nearly equal to that of small mammals (see Burton and Likens, 1975, Copeia: 541-546). While in southern Appalachian forests, salamander biomass may exceed that of all other vertebrates combined (see Hairston, 1987, Community Ecology and Salamander Guilds). It is clear that they play key roles in ecosystem dynamics.

Impacts to site-sensitive creatures such as salamanders are also not being properly monitored and assessed. These creatures are vitally significant components of forest ecosystems. The biomass of salamanders in a northern hardwood forest was twice that of the bird community during the breeding season and nearly equal to that of small mammals (see Burton, T.M. and G.E. Likens, 1975, "Salamander populations and biomass in the Hubbard Brook Experimental Forest, New Hampshire", Copeia (1975): 541-546). While in southern Appalachian forests, salamander biomass may exceed that of all other vertebrates combined (see Hairston, N.G., 1987, Community Ecology and Salamander Guilds, Cambridge University Press, Cambridge, UK. It is clear that they play key roles in ecosystem dynamics.

Abundant studies reveal the severe impacts of logging upon salamander populations and their preference for older forest sites. See "The Relationship Between Forest Management and Amphibian Ecology", 1995, deMaynadier and Hunter, Environmental Reviews 3:230-261 (incorporated by reference). See also "Effects of Timber Harvesting on Southern Appalachian Salamanders", Petranka et al, 1993, Conserv. Biol. 7:363-370; "Effects of Timber Harvesting on Low Elevation Populations of Southern Appalachian Salamanders", Petranka et al., 1994, Forest Ecology and Management 67:135-147; and "Plethodontid Salamander Response to Silvicultural Practices in Missouri Ozark Forests", 1999, Herbeck and Larsen, Conservation Biology 13:3, 623-632) (these are standard journals readily available to the agency; the agency is already in possession of most if not all of this info as the studies took place on and were funded by NFs). Also, James Organ, "Studies on the Life History of the Salamander, Plethodon welleri," Copeia 1960 No. 4. Also R.G. Jaeger, "Moisture as a Factor Influencing the Distributions of Two Species of Terrestrial Salamanders," Oecologia (Berl.)6, 191-207 (1971); "Competitive Exclusion and Environmental Tolerances in the Distribution of Two Species of Salamander (Genus Plethodon) in Virginia, U.Md. Doc. Dissertation, 1969; and Jaegar, Bioscience Vol. 24, No.1 (33-39) regarding the effects of competition on salamanders, including effectives of moisture and environmental tolerances on competing salamanders.

Terrestrial salamander abundances are affected by forest thinning (Grialou, J.A., West, S.D., and R.N. Wilkins. 2000. The effects of forest clearcut harvesting and thinning on terrestrial salamanders. Journal of Wildlife Management 64(1): 105-113).

Harpole and Haas, "Effects of Seven Silvicultural Treatments on Terrestrial Salamanders, For. Ecol. & Mgmt. 114:349-356 (1999) found that relative abundance of salamanders based on area-constrained searches decreased on group selection cuts, 12-14 sq. m shelterwood cuts, 4-7 sq. m shelterwood cuts, leave tree cuts, and cl

Nearcuts , Harpole and Haas, "Effects of Seven Silvicultural Treatments on Terrestrial Salamanders, For. Ecol. & Mgmt. 114:349-356 (1999).

Large plethodontid populations declined in group selection cuts after the Daves Ridge TS (Mt Rogers NRA). See the 1994 SO monitoring and evaluation report, section on Daves Ridge TS and James Organ's report on salamanders and related issues in the Daves Ridge area ("Salamander Survey in Connection with Daves Ridge Timber Sale"). These documents, already in possession of the GWJNFs are incorporated by reference

FERC has not sufficiently examined and considered the potential impacts upon salamanders. Another pertinent study that the agency needs to incorporate in its analysis and decision is "Determinants of salamander distributions along moisture gradients" by M. Grover in Copeia 2000 (1): 156-168.

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 low 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 p

vroduce substantial and permanent impairment of the productivity of the land. Present MIS (outside of the range of the Cow Knob Salamanders) do not allow for the accurate monitoring and assessment of management impacts to salamander populations. Then some other indicator of effects needs to be used.

(Congdon et al 1993, op cit.)

Issue previously raised in DEIS comments pp.46-48 and other pages.

Cerulean Warblers:

The cerulean is recognized by the FS and others as an area-sensitive species (Southern Appalachian Assessment, Terrestrial Rept, Robbins et al., Cove Creek BE, 1995, Clinch RD, J&GWNFs, Maple Springs Branch BE, Clinch RD, J&GWNFs). Other species are listed as area sensitive species in the SAA. The FS should consider the impacts to these area-sensitive species.

The FS found that cerulean warblers habitat "tended to be older, large diameter stands with tall trees, a deciduous understory, multiple layers and ages..." ((Cerulean Warbler Interim Mgmt Strategy, Clinch RD, GWJNFs, p. -7) "Trees 18.2 in. in diameter composed greater than one-fourth of the overstory trees in the stands." (CW IMS-7) The IMS documents that research characterized "suitable cerulean warbler habitat as mature forest with a high, closed canopy and a large number of stems greater thatn 12 in. diameter..." (CWS IMS-8) The cerulean warbler is found in the PA and vicinity. 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. (Robbins, Fitzpatrick and Hamel, 1989, " A warbler in trouble: Dendroica cerulea") 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).

- The cerulean is recognized by the FS and others as an area-sensitive species (SAA, Terrestrial Rept, Robbins et al., Cove Creek BE, 1995, Clinch RD, J&GWNFs, Maple Springs Branch BE, Clinch RD, J&GWNFs). 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) Most often, its occurrence is recorded in forests with large, tall trees. (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." (Cerulean Warbler Status Assessment April 2000) 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 removal of contiguous forest cover and removal of large, old trees that are potential cerulean warbler nest trees.

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) 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. (J. R. Sauer et al) Much of this decline has occurred in the species' core breeding range. 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. (Hamel (2000); Paul B. Hamel, How We Can Learn More About the Cerulean Warbler (Dendroica Cerulea), Auk 121(1): 7, 9 (2004).)

National forests like the JNF and other portions of the proposed MVP corridor 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).

Cerulean Warblers require a minimum forested area of 700 hectares to sustain a viable population. (MTM EIS at III.F-15.) 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)) 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. (Robbins et al. 1992) Within the context of a fragmented landscape of private land, the unfragmented forest habitat provided in the path of the proposed MVP 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.)

"For nest trees, cerulean warblers preferred white oaks, sugar maples, and cucumber magnolias and avoided red maples and oaks in the red oak group (scarlet, black, northern and southern red oak." (CEWA study p. 15). It is not clear that these preferences are used in determining tree species retention.

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.

There are viability concerns for cerulean warblers, other species of interior forest-dwelling warblers, species of cuckoos, and other interior-forest dwelling songbirds listed as declining in BBS (or other ornithological data) that must be taken into consideration.

Other species are listed as area sensitive species in the SAA. The FS should consider the impacts to these area-sensitive species.

The proposed activities could impact birds that have different stratigraphic preferences, niches, and life cycle needs. What are the stratigraphic preferences and vegetative preferences of cerulean warbler and other birds? How would the project affect birds with different stratigraphic preferences and vegetative preferences of birds other than and including cerulean warblers?

The proposed activities could impact birds during the time that birds are seeking mates, breeding, nesting, rearing their young, or migrating. During what period due forest interior birds seek mates? Breed? Migrate? How would the project affect these factors? The project may involve a taking under the MBTA if birds are killed in nest trees or nearby trees

What activities are affecting the forest interior birds throughout their breeding range? Wintering range? How do these activities cumulatively affect birds?

The 2001 Executive Order on Migratory Birds states: "Sec. 3. Federal Agency Responsibilities. (e) Pursuant to its MOU, each agency shall, to the extent permitted by law and subject to the availability of appropriations and within Administration budgetary limits, and in harmony with agency missions:

(1) support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;…

(4) design migratory bird habitat and population conservation principles, measures, and practices, into agency plans and planning processes (natural resource, land management, and environmental quality planning, including, but not limited to, forest and rangeland planning, coastal management planning, watershed planning, etc.) as practicable, and coordinate with other agencies and nonfederal partners in planning efforts;…

(6) ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern;…

(9) identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. With respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. These principles, standards, and practices shall be regularly evaluated and revised to ensure that they are effective in lessening the detrimental effect of agency actions on migratory bird populations. The agency also shall inventory and monitor bird habitat and populations within the agency's capabilities and authorities to the extent feasible to facilitate decisions about the need for, and effectiveness of, conservation efforts;"…

Sec. 2 i) "Species of concern" refers to those species listed in the periodic report "Migratory Nongame Birds of Management Concern in the United States," priority migratory bird species as documented by established plans (such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas), and those species listed in 50 C.F.R. 17.11." Several birds listed in Bird Species of Conservation Concern 2002 are found in this area (see breeding bird survey records). Impacts to these NTMBs should be analyzed.

Issue previously raised in DEIS comments pp. 48-52 and other pages.

Allegheny Woodrat

The Allegheny woodrat is found on the GWNF. 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 (See '01-'03 GWJNFs Monitoring &Evaluation (M& E) Rpt Mengak 2002 pp. 30-34, See also the entire'01-'03 GWJNFs M&E Rpt Mengak 2002 pp. 1-38).

The project would destroy the very habitat on which the Allegheny woodrat relies. The FEIS does not demonstrate that adverse impacts to Allegheny woodrat are mitigated.

Issue previously raised in DEIS comments pp. 52 and other pages.

Impacts to Viewsheds, Trails and Special Areas

As Alfred Runte said, and quoted by former Forest Service Chief Jack Ward Thomas in the FS Handbook for Scenery Management, "There is no question… that the national forests are major contributors to an American sense of place, to an identity with landscape that transcends economics for its own sake."

Although FERC asserts that "in general, impacts on recreational and special interest areas would be temporary and limited to the period of active construction, which typically would last only several days to several weeks," the agency fails to catalog, let alone analyze the numerous trails, river systems, camping areas, picnicking areas, caving areas, fishing areas, hunting areas, skiing areas and other recreational sites across the two national forests, national parklands, state lands, and conservancy lands this project could impact. All national forest lands are recreational areas and special interest areas. The agency has not analyzed impacts to these areas, so has no basis on which to make such a blanket statement.

There are, in addition, a number of special areas identified by the Forest Service (See special-areas2.pdf).

These include -

(1) two Indiana bat protection area a few miles to the south of the northern Bath County segment of the proposed route. These special areas are located around the periphery of an Indiana bat hibernacula. There are three Indiana bat protection areas and three hibernacula in Bath County and may be other hibernacula across the state line in West Virginia. Comprehensive surveys for the bat should take place. The surveys, to date, have yielded few bats in Bath County. Due to white nose syndrome, endangered and listed bat populations (Indiana, northern long-eared, and gray bats) may be greatly weakened or may be suffering serious population declines, so the impacts of additional stresses on the bats should be considered.

(2) Scenic corridor and viewshed along Jennings Branch

(3) Scenic corridor and viewshed below the location where the ACP is proposed to cross the AT and Blue Ridge Parkway.

(4) Mt Torry Furnace

(5) Browns Pond special area "consists of two units, each designed around the protection of a sinkhole pond…Browns Pond is not large..but it is quite undisturbed. Winterberry Pond is half the size of Browns Pond."

Virginia Division of Natural Heritage program recommends: "Timber cutting and road expansion projects should be excluded from within the protection boundaries of this special area. 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. Water levels of the ponds should not be stabilized. No timber cutting should occur in or around the sinkholes that are scattered outside of the special interest area." Biological Diversity in the George Washington National Forest p.36-37. Note that Virginia Division of Natural Heritage recommends protection of sinkhole areas in the Browns Pond drainage that extend beyond the boundary of the conservation site.

Steve Croy (GWJNFs Ecologist) stated: "Any increased use or "improvement" of the road beyond its current condition runs the risk of adding sediment to the pond and alter suitability for future studies." (Nov. 29, ;16 email). Fred Huber (GWJNFs Botanist) stated: "I do have concerns about the Browns Pond area. It is an area rich in sinkholes and has a depression with rare species. The road use MIGHT be OK but I have no idea what types of vehicles are going to be using it and how much, if any, alteration to the road will be necessary. That road is pretty steep and windy in places so I don't see big trucks getting in there without a good deal of modification. I would prefer they do not use the road unless it is for light trucks only, similar to what the FS uses. Otherwise there needs to be an analysis of impacts." (Nov. 29, '16 email in Planning Record as of Aug. 1, '17).

It is unclear what FERC plans to do in the Browns Pond area at this time.

Other special areas include overlooks and trails along the Blue Ridge Parkway.

These include -

(1) Three Ridges Overlook

(2) Catoctin Trail

(3) Side trails from Humpback Rocks to the AT

(4) Humpback Rocks

(5) Greenstone Trail

(6) Priest Overlook & Priest Overlook Trail

(7) White Rock Falls Trail

There is no mention of these trails, other trails associated with the Blue Ridge Parkway, or their viewsheds in the FEIS.

Proposed pipeline construction is a highly a permanent change to the visual quality and the recreation values of the Appalachian National Scenic Trail. The cumulative impacts to the ANST are of a programmatic nature as there are currently numerous crossings of the ANST proposed including one other in Virginia (Mountain Valley Pipeline) and others elsewhere in the eastern US. The continual degradation of the ANST is unacceptable and these impacts cannot be mitigated.

There are other trails at risk that FERC barely even acknowledges.

These include the Great Eastern Trail.

(1) The Great Eastern Trail is an 1800 mi trail from Alabama to the Finger Lakes of New York. This long distance trail runs through the Jerkemtight Roadless Area and further north along the crest of Shenandoah Mountain. The proposed route runs just to the south in the Walker Mountain area. What are the impacts to the viewshed?

Other trail viewsheds, trail corridors and trail features that could be adversely impacted include

(2) Bear Rock Trail on Warm Springs Mountain (shown on DEIS project maps)

(3) Tower Hill Mountain Trail (shown on DEIS project maps)(4) Fort Lewis Trail on Tower Hill Mountain (shown on DEIS project maps)

(5) Shenandoah Mountain Trail (Great Eastern Trail)

(6) Trails to Browns Pond and vicinity

(7) Trail 451 on Warm Springs Mountain

(8) Trail 717 on Jerkemtight

(9) Trail 443 on North Mountain

(10) Trail 636 Paddy Lick Trail

(11) Rt. 121 on Back Creek Mtn

(12) Trail 622 Wilson Mtn

(13) Trail 488 Walker Mtn

(14) Trail 507 Torry Ridge

(15) Trail 518 Torry Ridge

(16) Trail 479 Kennedy Ridge

(17) Tr 650 Dowells Draft

(18) Trail 485 Crawford Mtn

(19) Trail 489 Crawford Mtn

(20)Trail 449 Braley Pond

and other trails in the viewshed

Of these, only Torry Ridge Trail and Dowells Draft Trail are mentioned (FEIS 4-471). Other than a vague reference to general forested and non-forested areas (FEIS 4-421), impacts to trails and trail viewsheds are not mentioned beyond a 0.1-0.2 mi segment at only the pipeline crossings themselves (FEIS 4-458). Viewsheds elsewhere on the trails are not considered. These trails are quite significant. For example, Shenandoah Mountain Trail is a segment of one of a only a handful of long-distance trails in the Appalachians.

The FEIS makes a cursory statement on designated Wild and Scenic Rivers but fails to mention that there are a number of Virginia waterways in the pipeline corridor that are eligible Wild and Scenic Rivers. FERC and the cooperating agencies must protect the outstandingly remarkable values (ORVs) for which these waterways were found eligible Wild and Scenic Rivers. See GWNF Plan Revision DEIS Appendix D "Wild and Scenic Rivers Eligibility Determination."

These include

(1) the Cowpasture River. Segment B from Rt 42 Bridge to the Confluence with Bullpasture River. Fish and Wildlife Values Class A. Historic and Cultural Values Class A

(2) the Bullpasture River . Segment A. Scenic, Recreational and Geological Values, Class A.

FERC does not explain whether any aspects of the project could impact the ORVs for which these rivers were found to be eligible Wild and Scenic Rivers under the GWNF Plan Revision process. The FEIS does not address whether any aspect of the project would preclude designation as a wild and scenic river or would preclude future eligibility as a wild and scenic river.

Issue previously raised in DEIS comments pp. 11; 23-14; 31; 7, 8 and other pages.

Freshwater Mussels

Atlantic has assumed presence of freshwater mussel species at the Cowpasture River, James River, Appomattox River, Nottoway River, Sturgeon Creek, Meherrin River, and any perennial tributaries to these rivers. On ACP, the James spinymussel may occur in perennial streams within the James River watershed in Highland, Nelson, Buckingham, Bath, and Cumberland Counties, Virginia.

- The requisite full, intensive, and competent surveys, inventories, and data gathering for listed and agency-recognized species must be performed. Cumulative impacts must be analyzed and accounted for.

Surveys are not complete ("pending") for James spinymussel, yellow lance, Atlantic pigtoe, and green floater (Table 4.7.1-1).

- 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's Endangered Species 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 (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)There is no information in the DEIS 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.

- It is not clear that all provisions of the Mussel and Fish Conservation Plan, adopted into the Plan revision, are being fully implemented. For example, the Mussel and Fish Conservation Plan requires that minimum conservation zone widths be measured based on stream type and slope (MFC Plan 12). Conservation Zones used in the project may not adequately take into account the steep slopes found in the cutting units (EA Aquatics). FERC never discloses how steep the slopes are in and around waterways inhabitated by the James spinymussel, and their upper reaches.

- The Mussel and Fish Conservation Plan objectives require the FS to manage streams " in a manner that results in a minimum of 200 pieces of large woody debris (LWD) per stream mile (125 LWD/km)." Minimum diameters of LWD pieces are specified (MFC Plan 12). The FS does not disclose whether LWD levels are adequate and whether they would be maintained or improved as a result of this project.

- The MFC Plan objectives require the FS to manage streams in a manner that meets or exceeds State Water Quality Standards (MFC Plan 12). Theoretically, this would be accomplished by implementing BMPs, but FERC does not demonstrate the effectiveness of BMPs at meeting state water quality standards in this ranger district

and NF, or that timber sale administrators could assure that BMPs are fully adhered to.

- And FERC has not demonstrated that current monitoring requirements are being followed, inlcuding, eg, direct monitoring of T&E mussel populations and habitat, or development of a proper protocol.

- 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 undisclosed. Some populations may be close to threshold levels of tolerance for sediment; but who knows, the agency discloses no information on this relevant factor. Total amounts of sediment estimated to enter these streams along with the proposed cutting are tabulated but not meaningfully analysed. How many tons would enter precisely what stream segments? On this the table and discussion in the DEIS are silent. Monitoring information as to effects to intermittent stream populations and water quality from previous cutting are absent. Exceeding the threshold levels for certain intermittent tributary "resources" may be at risk.

- "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.

- The preferred habitat of the Atlantic pigtoe is coarse sand and gravel at the downstream edge of riffles. It is less common in sand, cobble and mixtures of sand, silt and detritus (Bogan and Alderman, 2004). The Atlantic pigtoe requires fast flowing, well oxygenated streams and is restricted to fairly pristine habitats. Adams et al. (1990) state that Fusconaia masoni prefers yielding substrates of sands or gravel below riffles. http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=112228&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=112228&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=112228 <http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=112228&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=112228&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=112228>

-Green floater - This is considered to be a species of quiet waters, Ortmann (1919) stated, "it avoids the larger rivers and prefers smaller streams... it is averse to very strong current, and prefers the quiet parts, pools and eddies with gravelly and sandy bottoms". Clarke (1985) concurred with this description of its habitat preference. often found in small creeks and large rivers and sometimes canals. This species is intolerant of strong currents and occurs in pools and other calm water areas (Strayer and Jirka, 1997). Preferred substrate is gravel and sand in water depths of one to four feet. This species is more likely to be found in hydrologically stable streams, not those prone to flooding and drying. Good water quality is also important.

Ahttp://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=107377&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=107377&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=107377

Yellow lance-This species is found in sandy substrates, rocks and in mud, in slack water areas (Johnson, 1970),

but apparently is absent from lakes (Britton and Fuller, 1979). It is also found buried deep in sand and may migrate with shifting sands (J. Alderman, pers. comm.). Although it prefers clean, coarse to medium sized sands as substrate, on occasion, specimens are also found in gravel substrates. This species is found in the main channels of drainages down to streams as small as a meter across.

http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=110016&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=110016&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=110016&selectedIndexes=150434
<http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=110016&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=110016&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=110016&selectedIndexes=150434>

These mussels have varying types of habitat preferences. FERC should ensure that activities in river and stream bottoms protect habitats of mussels and other aquatic species.

Issue previously raised in DEIS comments pp. 30-33 and other pages.

Indirect and Direct Impacts to Paddy Knob and Semi-primitive ROS area

Paddy Knob potential wilderness area is next to the proposed ACP route's crossing of Allegheny Mountain. (GWNF Plan Revision DEIS Appx C). According to the Forest Service's potential wilderness area evaluation for the area, Paddy Knob "is a steep and rugged mountainside capable of offering a primitive experience…. The location of Paddy Knob is remote and the area is thinly populated….the habitat is unusual for Virginia and deserves protection" According to Virginia's Mountain Treasures, The Unprotected Wildlands of the George Washington National Forest, (Wilderness Society, et al), the srea"lays claim to some of the highest elevations on the George Washington National Forest….Paddy Knob has an elevation of over 4477 ft… Significant stands of old growth have been identified. Paddy Lick may contain 2649 acres of possible old growth" (p. 65)

The area has a "small core of 3284 acres of semiprimitive land." (GWNF Plan FEIS, C-24)FERC should evaluate whether the project could diminish this semiprimitive core, could alter the recreational opportunity spectrum of this area, and alter the remoteness of the area and the primitive experience it offers, thus increasing the possibility the area would no longer meet criteria for wilderness designation. If the unusual high elevation habitat or old growth forest in the area is contiguous to or spills over into similar habitat in the ACP corridor, then FERC should analyzed the degree to which this project would degrade this large block of habitat.

FERC should have analyzed the degree to which the project would facilitate illegal off-highway vehicle use in the area and to degree to which the area and its remote and semiprimitive (ROS) values could be degraded from such use.

Issue previously raised in DEIS comments p. 15and other pages.

Range of Alternatives

- NEPA requires the agency to develop a reasonable range of alternatives for a proposed action. See 42 USC 4332(2)(E); 40 CFR 1502.14 and 1508.9(b). The agency is required to assess to the fullest extent possible the reasonable alternatives that will avoid or minimize adverse effects upon our human environment, resolve conflicts, and not prematurely foreclose options. See 40 CFR 1501.2(c), 1507.1(d); CEQ 46 Fed. Reg. 18026, 18027; and FSH chap. 20, section 23.2. The full range of possible alternatives is to be impartially explored - 1909.15 FSH 14.2 and 12.3c. This proper consideration of alternatives is the "heart" of the NEPA process - Monroe County Cons. Council, Inc. v. Volpe (1972). Examination only of alternatives that achieve similar results is not sufficient to meet the intent of NEPA - CEQ v. United States(1989) and Sierra Club v. Espy(1993). The existence of a single viable but unexamined alternative renders the NEPA document inadequate - Citizens for a Better Henderson v. Hodel (1985).

- Agency planners have not developed or analyzed a proper range of alternatives for managing this area. In this way the agency has prematurely foreclosed options that might better protect or restore the environment and/or resolve conflicts.

The FEIS uses this rationale to avoid consideration of a "national forest avoidance alternative": "A significant factor in siting ACP was the location at which the pipeline would cross the ANST. In the general project area, the ANST is located on lands managed by either the NPS or FS. The NPS has indicated that it does not have the authority to authorize a pipeline crossing of the ANST on its lands. Instead, legislation proposed by Congress and signed into law by the President would be necessary to allow the NPS the authority to review, analyze, and approve a pipeline crossing of the ANST on its lands. Because of this legislative process, Atlantic considered locations where the ANST was located on lands acquired and administered by the FS, which significantly constrained the pipeline route and severely limits opportunities for avoiding and/or minimizing the use of NFS lands. (FEIS 3-18-19)

However, as the Appalachian Trail Conservancy states in its DEIS comments, "In section 3.3.4.1, the ACP DEIS also dismisses alternatives avoiding or minimizing impacts to the ANST and surrounding forest lands because planning, design and approvals would "take too long." NEPA and CEQ regulations for dismissing alternatives do not include timeframes convenient to the applicant. In fact, alternatives cannot be dismissed because they are cheaper and faster. (NPS NEPA Handbook Section 2.7A and B 2015) FERC inconsistently dismisses some alternatives because route modifications along the ANST would require congressional approval. Other alternatives are dismissed stating that congressional approval was not a factor, even though approval by Congress would be required. Without analysis of all alternatives, it is impossible to select the best alternative for the proposed action. Further, without the opportunity to make an informed case for a preferred alternative that would cross National Park Service land, there is no chance to pursue the provided legal mechanisms to cross NPS lands even if the applicant and ATC are in mutual support."

FERC and the FS should have assessed alternatives that avoid or minimize impacts to key resources and public lands to the fullest extent possible. Protection of our public lands should receive higher priority than convenience of the private ACP developer. The FEIS does not include an adequate analysis of an alternative route for the ACP that would not cross National Forest lands, as federal regulations require and as specified at FSM 2703.2(2)b. The minimum threshold for deciding whether any crossing of the National Forest lands may be allowed, is a finding that the "proposed use cannot reasonably be accommodated on non-National Forest System land."

Issue previously raised in DEIS comments p.3 and other pages.

Too Many Decisions to be Made after the Release of NEPA Documents; After Public Input; After Draft Decisions. The Public is left in a Fog and Public Land Managers have no way to assure themselves that National Forest Resources will actually be Protected once this Project is Underway.

The release of the draft ROD at the same time as the release of the grossly incomplete FEIS for the Atlantic Coast Pipeline appears to be deliberately rushed and premature. (The same applies to the Mountain Valley Pipeline and these pipelines would have cumulative impacts on resources such as watersheds and the Appalachian Trail), Key surveys are incomplete. Analysis related to future survey data and requests by agencies and member of the public is yet to be presented. Goals have not been set for many protective measures, or are subject to change at the discretion of FERC or whim of the private ACP developer. Numerous mitigation measures are promised, but not developed. Effectiveness of mitigation measures is not examined. The US Fish and Wildlife Service has not completed its Biological Opinion. But a decision is about to be made in the absence of much of this information. The effect of this is that this project is likely to be pushed out the door based on promises alone. Needless to say, when the public is kept in the dark, when agencies cannot with confidence say what the effects of the project are or what mitigation measures will be developed in the "future," then the entire NEPA process is circumvented.

One example is the analysis of impacts to steep slopes and other soils and geological resources. In the "ACP Planning Record 8/1/17" that I received from the FS, there is evidence that there is much uncertainty about how soils/geological/steep slope/kart mitigation measures will be applied, whether ACP has the ability to correctly apply mitigation measures, whether the "best in class "(BIC) program consists demonstrably effective protocols and measures or is merely an experimental, untested, risky program, and the effectiveness of proposed mitigation measures.

According to specialists in the Forest Service:[IM9]

"Pam Edwards [Research Hydrologist, Northern Research Station, Region 9] indicated that from information given during the ACP-led pipeline tour, she is concerned that ACP's BIC approach seems to be a guess. At several of the sites the group visited there were multiple failures. One would occur and then they apply some mitigation, but the area would fail again. It seemed like at the time of initial construction ACP wasn't concerned with failures that might occur so they weren't applying BIC practices or other treatments at that time. Instead, they'd wait until a problem occurred and then use a BIC technique or try something else. But there wasn't any effort to try to anticipate what problems might occur and why, and design and apply BIC practices based on that analysis. Even after problems occur they don't seem to have a good understanding of what BIC practices might be the best fit for any given situation. The FS has asked ACP to provide an explanation of how they will use analysis of the site to determine which specific BIC techniques they will use, but there does not seem to be a good connection between actual site field conditions and the BIC practices that they select.

Stephanie Connolly [Forest Soil Scientist, Monongahela National Forest] brought up the field trip and mentioned that there were some concerns she had at some of the visited sites. There is a lack of understanding of some of the fundamentals on the tour sites. An example was at the second stop, when ACP was explaining their initial construction of a segment of their pipeline which resulted in a failure due to lack of drainage surrounding the pipe in the trench and also another company installing pipe below ACP's within the same corridor. Stephanie noted

that the drainage issue should have been known prior to pipeline construction due to the presence of a stream in the area. It is concerns like this that make Stephanie feel like there is a lack of prior design that considers the surrounding environment and environmental variables which could lead to failures. Instead of designing around water issues or designing specifically to address these issues prior to construction, it seems like ACP designs the route and then fixes issues post-construction instead of being proactive. …

Jim Thompson agreed with Steffany Scagline [Soil Scientist for Special Projects, Monongahela National Forest] and Pam Edwards [Research Hydrologist, Northern Research Station, Region 9] that there is a disconnect between field conditions and ACP's recommended BIC procedures. It seems as though ACP's approach is reactive rather than proactive, consisting of a minimum initial effort followed by repairs of any problems that occur. We have tried to have this conversation more than once with ACP folks but have not received a satisfactory response. …

Tom Collins [Geologist, George Washington National Forests] mentioned that the FS also needs to be assured that ACP will have geotechnical consultants (geotechnical engineers and engineering geologists) involved in every stage of the project from the design stage all the way through the construction process. Tom suggested that the FS include this requirement in their POD comments and when issuing any permits require that geotechnical expertise must be integrated completely in the process from design through to construction. Kent Karriker [Ecosystems Group Leader, Monongahela National Forest] indicated that he agreed with Tom's point and that the FS made that point on the field trip to ACP. ACP responded that they are in the process of determining how many geotechnical, engineering and hydrology staff they will need and indicated that they do intend to have those folks in the field advising on the process. …

Field Trip - Stephanie Connolly [Forest Soil Scientist, Monongahela National Forest] commented that she appreciated the field trip and the fact that ACP selected locations that were representative of the landscapes and soils that are present on the forests. They struggled to deal with issues and problems, many of which were due to variation in contractor expertise. She had concerns that although ACP consists of expert pipeline companies, the field trip illustrated that they are in an experimental phase in dealing with slope instability and water control/drainage issues. It should not be acceptable for ACP to use a trial and error approach on NFS lands. The LRMP plans do not allow for that kind of ambiguity. The FS needs some level of certainty that these measures are effective and that they have been used in the past. It was apparent during the field trip that the reality on the ground is much less certain than they present it to be. During the field trip, it was apparent that ACP thought the measures they were using and the site conditions were 'good enough' at the sites visited, but Stephanie saw many problems with the sites including: ?* Signs of head cutting and erosion that were not being addressed?* Inadequate silt fence maintenance?* Compaction/hardening and lack of vegetation at riparian crossings ?ACP appeared to be unaware that the FS expects that such issues would not be allowed to occur on NFS lands. Some of the sites that had already been treated for failures were experiencing additional problems within a year of treatment. ?

Stephanie Connolly [Forest Soil Scientist, Monongahela National Forest] mentioned that the DPMC document shows that the headwaters are part of a karst system. There are case studies showing that hydrologic connections can be made throughout the Mauch Chunk and Greenbrier Limestone area that includes this watershed. This document brings up an incident from the 1970s which occurred during construction of the Highland Scenic Highway. A major spring that supplies water to the Edray Trout Hatchery was contaminated by suspended sediment from highway construction on the Mauch Chunk which traveled 2 miles before emerging in the springs within the Greenbrier Limestone. Similar geology and hydrology will be crossed by the pipeline.

Stephanie also brought up that the FS has not seen the ACP storm water plan designs because ACP submits that storm water will not be an issue because they are going to regrade the slope to its original contour. They contend that because of that contouring, there will be no storm water runoff. The FS does not concur with this assertion, so we need to address this issue. "

Excerpts of ACP INTERNAL STEEP SLOPES MEETING NOTES April 20, 2017 Conference Call .

Note that these steep slopes meeting notes occurred after the comment period for the DEIS concluded and are the last set of steep slopes meeting notes in the Planning Record. So the questions raised in these discussions remain unaddressed and are pertinent at this stage. In the absence of concrete information about what this project entails, what mitigation measures would be put into place, and the effectiveness of those mitigation measures, there is no assurance to the public that this project is indeed safe for our publicly owned soils, watersheds and resources or downslope resources on private lands.

There is also a question about what would happen once pipeline construction is underway and whether the private ACP developers would actually comply with approved protective measures and restrictions. Or whether variances may allow private ACP developers to override approved protective measures and restrictions..

"Steffany Scagline [Soil Scientist for Special Projects, Monongahela National Forest] also mentioned that she asked Greg Park the time frame of how long a trench on a steep slope at one of the sites would have been open. He said that he did not remember specifically, but that it probably would have been open for up to two months. Stephanie Connolly mentioned that Columbia has committed to having trenches on their steep slope sections open for a maximum of 48 hours. Granted, Columbia is an existing line and ACP would be a greenfield line, but 48 hours and a couple months is still a large difference in open-trench time.

"Tom Bailey [Soil Scientist, George Washington and Jefferson National Forests] mentioned another project on the Jefferson NF where the proponent got a variance from Virginia DEQ to have more than 500 ft of trench open at one time. They had approximately 2000 ft of trench open during a large storm event which caused large amounts of sediment to enter local stream channels which was carried to private land."

Excerpts of ACP INTERNAL STEEP SLOPES MEETING NOTES April 20, 2017 Conference Call

The Forest Service should not allow this project to proceed based on this incomplete FEIS and based on FERC's and private ACP developers' promises that cannot be ascertained or relied upon.

Issue previously raised in DEIS comments pp. 15, 19 and other pages.

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[1] 42 U.S.C. § 4331(a).

[2] 40 C.F.R. § 1500.1(b)-(c).

[3] 42 U.S.C. § 4332(C).

[4] In an ORV site in Laurel County, Kentucky, Fritsch (1994) reported over a thousand discarded truck and heavy machinery tires littering ten or more acres of countryside.

[5] The scientific literature on ORV impacts to the environment is substantial, but not complete. Much of the ORV literature was published in the 1970s and focused on the adverse impacts of ORV recreation on arid lands. Other literature is available documenting adverse ORV impacts on other ecosystems, including coastal, tundra, forest, grassland, and marshland, but, until recently, there has not been a substantial demand to assess the totality of ORV impacts on the ecosystems in which they are used. Consequently, the petition relies on the full range of scientific literature to document the adverse impact of ORVs on the environment. There is no reason to believe that the impacts documented in these papers are not consistent with the potential impacts of ORVs.

Similarly, though there have been some studies which have examined the adverse impacts of ORVs on wildlife, the majority of studies, including studies cited in this petition, have focused on non-ORV caused human disturbance. While the type of disturbance may be different, there is no rational reason to believe that the general impacts would significantly differ.

[6] A comprehensive review of the impact of recreation on wildlife, focusing on wildlife in the Rocky Mountains, has recently been published by the Montana Chapter of The Wildlife Society (Joslin and Youmans 1999).
