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Roanoke, VA

Feb 5, '23

Dr. Homer Wilkes, Under Secretary

U.S. Department of Agriculture

c/o Jefferson National Forest

MVP Project

5162 Valleypointe Parkway

Roanoke, VA 24019

Dr. Wilkes and US Forest Service:

This is a comment letter on the Mountain Valley Pipeline Draft SEIS (Released Dec. '22).

I request that the Forest Service choose Alternative 1, the No Action Alternative. I request that the Forest Service independently analyze and fully disclose the purpose and need for this pipeline project (and proposed amendments) 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 Jefferson 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.

I ask the Forest Service not to amend the Jefferson National Forest or provide concurrence to the Bureau of Land Management for a Right of Way/Temporary Use Permit.

The reasons for the establishment of the Jefferson National Forest were (1) the protection of water resources, (2) to prevent flooding, and to (3) prevent the degradation of water quality. Going forward with this project at this time would turn that on its head.

The proposed Mountain Valley Pipeline would facilitate increased development of hydraulically fracked natural gas throughout the eastern United States. The proposed pipeline is proposed through important habitat on Peters Mountain, Sinking Creek Mountain and Brush Mountain on the Jefferson National Forest and would have a devastating impact on the New River Valley 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 Mountain Valley Pipeline (MVP) would cut a path through the Jefferson National Forest in Giles County and Montgomery County, Virginia - passing through highly sensitive karst geology, dense forests, across trout streams, and steep mountainous terrain. The proposed route would run through (a) a remote and undeveloped section of the Appalachian Trail between the newly-expanded Peters Mountain Wilderness and the Rice Field Shelter/Vista, (b) an area between the Cascades and the New River, (c) the Brush Mountain Roadless Area, a roadless area which directly adjoins Brush Mountain Wilderness, (d) the headwaters of Craig Creek, home to federally endangered freshwater mussels, Stony Creek, home of the endangered candy darter, and this and other watersheds with these and other TSELR species and (e) near residential neighborhood between the

national forest and Blacksburg. 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.

The Plan Amendments would severely compromise the wilderness and remote character of Peters Mountain and Brush Mountain Wilderness and Roadless areas and other lands by allowing the long-term fragmentation of the forest and cutting off the wilderness areas from the remainder of the intact forest. Construction of the pipeline on steep slopes on Peters Mountain would have long-lasting impacts on soils, aquatic resources and other downstream resources.

If slope failures occur, impacts could be irreversible.

The easement corridor will become a vector for invasive and opportunistic species and facilitate intrusion into the wilderness areas. It will create conditions that facilitate illegal use by OHV and ATVs throughout the area. It will also impact the scenic integrity of the wilderness areas. These need to be considered in a programmatic analysis that assesses impacts cumulatively as other areas which are part of the National Wilderness Preservation System are currently under impact in these aforementioned ways from oil and gas leasing and infrastructure nation-wide. The continual degradation of the National Wilderness Preservation System is unacceptable and these impacts cannot be mitigated.

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 MVP to route the pipeline through steep slopes, old growth and roadless area on Brush Mountain and create a cleared 50-125 ft wide path/construction zone that would become a de facto "road" utilized both by MVP for clearing and maintenance and by illegal ORV/ATVs for destructive and illegal vehicular use. The MVP is proposed to cross about 1 mile of the Brush Mountain Inventoried Roadless Area, thus damaging the value of this area. The existence of remaining roadless areas on the Forest is valuable, because they are all too rare. 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.

Plan Amendments would allow MVP to route the pipeline and create a cleared corridor/construction zone along steep slopes, through a sizeable tract of old growth forest, and through potentially significant geological resources on Sinking Creek Mountain. Sinking Creek Mountain is an especially inappropriate location for a large pipeline full of explosive materials under high pressure on steep slopes in an active seismic zone. It is the scene of the largest rock block landslide in North American history. It has its own booklet from the US Geologic Survey, "The Mountain That Moved." Some geologists think the entire mountain moved as the result of a single earthquake event.

Construction of the pipeline on steep slopes on Brush Mountain and Sinking Creek Mountain 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), wilderness areas, roadless areas, and other special areas in the Jefferson National Forest. The cumulative impacts to the ANST, as well as those to the National Wilderness Preservation System are of a programmatic nature as there are crossings of the ANST proposed. 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 DSEIS does not include an adequate analysis of an alternative route for the MVP 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."

This DSEIS is based on incomplete information. A new full DSEIS needs to be released. The DSEIS appears to be drafted around a skeletal framework that the FS has used over and over again. The 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 MVP would have across a 300 mile course of mostly mountainous terrain that supplies remarkable water resources.

The 45 day comment period for this project (and proposed amendments) is clearly inadequate, given the timing (released just before Christmas and spanning much of the holiday season) and given the magnitude of this controversial project (and proposed amendments). The comment period should be expanded by 30 days. Aquatics fisheries reports and many other reports were added well into the 45 day comment period, giving the public inadequate time to review and respond to the proposal.

The following section on the National Environmental Policy Act applies throughout this comment letter:

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."⁷ 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."⁸

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."⁹ 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 35 U.S.C.A. § 706(2)(A).

⁴ Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co., 463 U.S. 29, 43 (1983), citing Burlington Truck Lines v. United States, 371 U.S. 156, 168 (1962).

⁵ Motor Vehicle Manufacturers Association of the United States v. State Farm Mutual Auto Insurance Company, 463 U.S. 29, 43 (1983).

⁶ Pacific Coast Fed'n, 265 F.3d at 1034.

⁷ 42 U.S.C. § 4331(a).

⁸ 40 C.F.R. § 1500.1(b)-(c).

⁹ 42 U.S.C. § 4332(C).

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

2012 Planning Rule

This proposal is not in compliance with the 2012 Planning Rule (36 CFR Part 219); Ecosystem Integrity.

The Plan must include plan components, including standards and guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore function, composition, and connectivity.-Soils and Soil Productivity, including guidance to reduce soil erosion and sedimentation-Water Quality-Water Resources-Riparian Area. The analysis does not demonstrate how the proposal (including 11 plan amendments weakening the plan) would maintain and restore ecological integrity in conformity with the 2012 Planning Rule. In fact, the proposal appears to do the opposite.

The Forest Service Must Comply with All Requirements for Plan Amendment

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.

Threatened, Endangered, Sensitive and Locally Rare (TESLR) species

The Forest Service must address new information that has emerged since this project was last examined by the Forest Service.

"[T]here are some portions of the analyses that warrant supplementation because of changed circumstances or new information, including:...

"The FWS revised the list and status of several Federally listed species. FWS is anticipated to issue a new BO for the project in early 2023.

Endangered Species Act (ESA) Changes:

Critical Habitat for the candy darter (*Etheostoma osburni*) was designated on April 7, 2021 and became effective on May 7, 2021 (86 FR 17956).

The Atlantic pigtoe (*Fusconaia masoni*) was listed as Threatened under the ESA and Critical Habitat was designated on December 16, 2021.

On November 29, 2022, the FWS reclassified the northern long-eared bat (*Myotis septentrionalis*) from Threatened to Endangered under the ESA.

On September 13, 2022, the FWS proposed to list the tricolored bat (*Perimyotis subflavus*) as Endangered, and a decision is expected September 2023.

Running buffalo clover (*Trifolium stoloniferum*) was delisted from the ESA on August 6, 2021.

The Forest Service is in the process of revising the list of Region 8 Regional Forester Sensitive Species (RFSS).

Draft Updated RFSS Changes:

Four species are proposed to be added: Tennessee dace (*Chrosomus tennesseensis*), American bumble bee (*Bombus pensylvanicus*), little brown bat (*Myotis lucifugus*), and American ginseng (*Panax quinquefolius*)." DSEIS-12

The Plan must include plan components, including standards and guidelines , to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore function, composition, and connectivity.-Soils and Soil Productivity, including guidance to reduce soil erosion and sedimentation-Water Quality-Water Resources-Riparian Area. (See 2012 Planning Rule (36 CFR Part 219); Ecosystem Integrity)

"The Jefferson National Forest is charged with creating and maintaining habitat conditions suitable to maintain viable populations of all species native to the planning area (JNF Plan 2-10).

The Forest Service has an affirmative duty to avoid negative effects and assist and contribute to the recovery of T&E species "the Forest Service coordinates closely with the US Fish and Wildlife Service to avoid negative effects and assist with recovery" (JNF Plan 2-12)

"Goal 9 - Contribute to the conservation and recovery of federally listed threatened and endangered species (JNF Plan 2-13).

"Maintain records of locations and conditions of federally listed threatened and endangered species within the planning area." (JNF Plan 2-14)

The JNF Plan does not have plan components to maintain or restore the ecological integrity of the JNF or meet its other requirements if it does not list, recognize or provide standards and guidelines for the protection of the federally listed candy darter, Atlantic pigtoe, or northern long-eared bat or proposed listed tricolored bat. The JNF Plan should be amended list, recognize and provide standards and guidelines for the protection of these species.

Candy Darter

The candy darter, a Forest Service, a federally Endangered species, inhabits the Stony Creek watershed where this project is proposed.

"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) ", 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. ." (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 (Chippis 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>. (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)

The FS should have analyzed how the project (and proposed amendments) (including forest clearing, roads, pipelines and other infrastructure including ancillary infrastructure) affect sediment-sensitive species such as trout, candy darter, 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 project (and proposed amendments), other land disturbing activities in combination with other past, present, and reasonably activities and events in the range of the candy darter should be analyzed in accordance with NEPA and NFMA. 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 the candy darter. The DSEIS does not analyze the impact of other activities/uses that may adversely affect the candy darter, in combination with this project (and proposed amendments).

Effectiveness of the modeling methods for MVP is not assured.

A group of graduate and PhD students at Virginia Tech analyzed the modeling methods used to analyze the Mountain Valley Pipeline.

They found:

"Increased sedimentation causes a variety of biologically relevant issues, both at the individual and population level. The effects on the latter are well documented in the FEIS and 2020 Biological Opinion (BiOp), with sedimentation being the core culprit cited for projected short term population declines and lowered reproductive rates. However, the models used by USFS to understand the effects of sedimentation on various species were based solely on RUSLE and RUSLE2 output. The models are not based on data measured in the field, so it is likely that their results do not accurately represent the quality of stream habitat. This is problematic because declarations about how much risk each species is at on a whole (and their individual populations) are being made with these numbers.

"Baseline TSS and turbidity data should be collected from the impacted streams to better assess risk to the local populations. There are many threatened and endangered aquatic species in the 2020 BiOp that will be impacted by increased levels of sedimentation; however we have focused on how issues with the Report could impact the candy darter (*Etheostoma osburni*) as a case study.

The U.S. Fish and Wildlife Service (USFWS) gives specific numbers for how much increased sedimentation the species are allowed to be exposed to over various lengths of time in their 2020 BiOp. However, as discussed in Section 4 these are relative to baseline numbers that are generated by RUSLE and RUSLE2, not measured at the site. ...

"...Embeddedness, a measure of how much suspended sediment has settled on the stream bottom, is not quantified by the USFS despite it being a vital metric to understand, since darters need porous gravel substrate to lay their eggs.

"These potential outcomes for darter species are mainly based on the impacts to spawning habitat and food availability. Both candy darters and Roanoke logperch need porous streambeds to lay eggs, while the macro-invertebrates they eat suffer their own population declines and are harder to locate in turbid waters. ...

"Comparing suspended sediment levels alongside population level effects (e.g. death, births, recruitment) is useful to quantify direct effects of increased sedimentation on a metapopulation. However, the majority of the analysis done by the agencies (FERC, USFWS, USFS) does not account for individual sub-lethal effects. Ignoring individual allostatic loads can make populations look more resilient than they actually are (Newcombe and Jensen, 1996). Allostasis is the ability of an organism to maintain homeostasis through environmental changes, especially how an organism can handle the additive effects of multiple concurrent environmental and social stressors. While dramatic allostatic overloads often result in measurable drops in reproduction or death, it can also manifest as sub-lethal damages that can greatly diminish a population's resilience even while vital rates look promising (McEwan and Wingfield 2003). It is difficult to obtain these types of data, as it often involves field endocrinology and physiology techniques which are both time consuming and expensive to carry out. However, it is important to consider cumulative stressors to individuals within a population might have when declaring how at risk a particular population is.

...

"... This example demonstrates the importance of verifying and supporting modeled estimates with actual field measurements. This analysis was only performed for one location because of the difficulty of determining construction dates near crossings. While these results can't necessarily be generalized to all waterways this

analysis clearly shows that MVP's modeled results can be very inaccurate in at least some cases. It is unreasonable to assume that a model that has failed in the past will perform reliably in the future. It is incumbent upon MVP to use existing water quality data from construction they have already completed to improve their remaining work in the JNF and elsewhere. Implementing water quality monitoring more widely is a way to ensure that their expectations based on models are borne out in the real world.

"... we strongly urge the USFS to require an adaptive management strategy that includes pre-, during, and post-construction monitoring, contingency planning for events of higher than expected sedimentation, and a strong accountability structure to ensure accurate implementation. This is in line with best practices found in scientific literature, and widely recommended to supplement the modeling procedures used in the Report, especially in unique study areas such as JNF. "

The Forest Service has not adapted such a strategy or analyzed potential impacts, including the impacts of events of higher than expected sedimentation. Given the landslide prone soils in the area and the potential for earthquakes in Giles County, there is a potential for a blowout or landslide of significant scale. This applies not only to the candy darter, but also to all other TESLR species in this and other watersheds. The agency continues to rely on theoretical models rather than real world proof of damages for its conclusions.

[MVP sedimentation analysis fails to sufficiently mitigate water quality impacts within the Jefferson National Forest" Science Policy Initiative - Direct Advocacy Committee Substantive formal comment on the USFS Draft Supplemental Environmental Impact Statement Submitted November 8, 2020 , Banerter et al.]

The Forest Service has stated "Eighteen fragmented populations of candy darter remain. Many of these populations are threatened by excessive sedimentation and hybridization with the closely related variegate darter. Due largely to the increasing of hybridization, a 2018 Species Status Assessment Report predicted the species' "most likely future scenario" is near-total extirpation across its current range, which "significantly increases the candy darter's risk of extinction over the next 25 years.

"Candy darter populations in the four Virginia watersheds that still support the candy darter (Stony Creek, Cripple Creek, Dismal Creek and Laurel Creek) are genetically distinct, isolated from one another, and are all vulnerable, because of the precariously low size of populations...

"It is important to realize that there is no current risk of hybridization of candy darter with variegate darter on the GWJ since variegate darters do not occur in Stony Creek, Cripple Creek, Dismal Creek, or Laurel Creek. Risk of hybridization of candy darter with variegate darter on National Forest System lands is currently limited to the Monongahela National Forest." (Aug 19 '22 letter from Forest Supervisor Jobe Timm to Sherman Bamford).

In addition to the MVP project, several projects have occurred in the four Virginia watersheds where candy darter is found, including the Insect and Disease logging project (current), Ewing Mountain project (current), Ewing Mountain project (previous), Kelly Flats project (previous), Olean project (previous), Interior project (previous), Big Mountain project (previous), Johns Creek Mountain project (previous), and Fork Mountain project (previous).

The Forest Service has stated "The George Washington and Jefferson National Forests do not measure sedimentation on a mass or volumetric basis for activities implemented on NFS lands. Monitoring of soil erosion and risk of sediment delivery is observational and includes random, interdisciplinary monitoring of" BMPs (Aug 19 '22 letter from Forest Supervisor Jobe Timm to Sherman Bamford).

In the only example of soil disturbance monitoring cited in the letter, Tub Run East, on Johns Creek, the BMP evaluation found that the percentage of the AMZ width measurements that did not meet the Forest Service-defined width requirement was between 20 and 40%. (Tub Run East Best Management Practices Evaluation, Dec. '18) If this is typical of other actual projects, there is no assurance that BMPs are being met. In addition, on the MVP corridor itself and nearby areas, VA and WV state inspectors have documented major problems throughout the period of construction of the MVP itself.

Impacts of sedimentation on federally listed species have not been documented or analyzed. Cumulative impacts of numerous other projects, events and activities in watersheds inhabited by the candy darter and other federally listed species have not been documented or analyzed.

Landslide Features/Landslide Susceptibility on Sinking Creek Mountain and other areas along the pipeline corridor

Sinking Creek Mountain is known for "the largest known landslides in eastern North America; they are visible from satellite photos from space." From Camp Tuk-a-way to beyond Huckleberry Knob on the mountain, "features such as bogs, sag ponds, springs and 'double ridges' are abundant. In this area, there is a 45 to 60 foot-high cliff of sandstone exists near the crest of the mountain. All these features are related to the "tearing away and sliding downhill of enormous masses of rock," dating, at least, to 10,000 years ago. (Drs. Watts and Whisonant, Letter to JNF Supervisor Joy Berg, 1993, incorporated by reference, already in your possession). Some of these landslides are up to 3 miles long and can be detected in satellite photographs. See also, US Geologic Survey, "The Mountain That Moved."

Since the proposed route of the pipeline is only approximately 1 mile west of Camp Tuk-A-Way, I would have expected additional analysis of these ancient landslide sites and related geological and soil issues. The FS should have analyzed (1.) whether any portions of the landslide sites exist near, above, or below the proposed pipeline site, (2.) the potential for any man-made infrastructure and/or natural events (including seismic activity, heavy rainfall, freeze-thaw, natural slumping, etc.) to cause any landslides in the project area, (3.) cumulative effects, and potential for the pipeline to cause or exacerbate slumping, rockslides, landslides or other events, (4.) natural features and unique biological communities related to landslides within the project area, (5.) the degree to which landslide activity or potential for landslide activity would lead to additional engineering constraints, costs, and planning or re-routing of the pipeline once it is underway, (6.) the degree to which landslide activity or potential for landslide activity would necessitate additional mitigation measures, (7.) worst-case downslope impacts, (8.) whether, even if there was no landslide activity on the proposed route, there is a chance that past or present landslide activity to the east, west, or upslope from the pipeline could have weakened any rock formations directly within the pipeline corridor and increase the risk of slope failure, (9.) impacts to bogs, sag ponds, and sandstone cliffs, and (10.) impacts to karst features on the surface and underground, since FEIS maps show karst on Sinking Creek Mountain. Having hiked to the upper reaches of Sinking Creek Mountain in Jul., '17, Sherman Bamford can attest to the fact that the slopes on the mountain are quite steep. Given the steepness of the terrain, these other types matters should have received additional consideration, especially in light of the geological history of Sinking Creek Mountain.

In addition to this, other portions of land near the pipeline route are vulnerable to landslides and earth movement. For example, portions of Rt 796 north of Newport, have been closed due to earth movement. This road is close to the pipeline corridor. Other slopes not listed above may be subject to landslides and earth movement.

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: "Mountain Valley and Equitrans would manage unauthorized off-road vehicle and ATV use on their operational rights-of-way by adhering to Section VI of the FERC Plan and Equitrans' Plan, which includes measures such as signs, fences/gates, and slash, timber, and boulder barriers."

"signs, fences/gates, and slash, timber, and boulder 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.

The Forest Service needs to provide measures that are demonstrated to be effective. Evidence-based effectiveness of measures have not been disclosed. Illegal incursions by off-road vehicles may contribute to increased sedimentation and impact TESLR species, riparian resources and aquatic species.

If response to this, FERC responded "Mountain Valley would offer to ?install and maintain measures for off-road vehicle (ORV) control to all owners/managers of forested lands, including the Jefferson National Forest" (FEIS pdf 3495) but offered no assurances that measures could prevent illegal motorized use on the Forest. ?

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 MV 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 MV 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 MV goes bankrupt, or if MV 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.

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.

Roadless Areas

The Plan Amendments would allow MVP to route the pipeline through steep slopes, old growth and roadless area on Brush Mountain and create a cleared 50-125 ft wide or wider corridor/construction zone utilized by MVP for clearing and maintenance and by illegal ORV/ATVs for destructive and illegal vehicular use. The MVP is proposed to cross about 1 mile of the Brush Mountain Inventoried Roadless Area, thus damaging the value of this area. The existence of remaining roadless areas on the Forest is valuable, because they are all too rare. 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.

The FS does not take a hard look at whether the 50-125 wide (or wider with ATWS) corridor/construction zone around the pipeline would in fact constitute a de facto road. The FS should have looked at how similar roads (both temporary and permanent) are to the proposed corridor/construction zones, in terms of FS standards, design and a number of factors. The corridor is also intended "for operation and maintenance" (see Draft ROD) (Section 2.3.3 in FEIS). This brings up the question of degree to which the corridor/construction zone, would be

actually maintained for motor vehicle use during operation of the pipeline and during routine maintenance activities - which could last many decades. Also, we note that in the case of temporary road construction on FS lands, roads are not intended to remain in use permanently. For example, if a road is to be constructed for a timber sale, roads are not intended to be close after the timber sale and other project activities are completed; otherwise they would not be temporary roads. But the FS and FERC do not make clear how long the corridor/construction zone would be used by motor vehicle use. For these reason, it is difficult to distinguish the proposed corridor/construction zone from a de facto road. These issues need to be examined in the context of resource impacts and compliance with the Roadless Rule.

By definition a road may include:

Road. A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary.

(2) Unclassified road. A road on National Forest System lands that is not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

(3) Temporary road. A road authorized by contract, permit, lease, other written authorization, or emergency operation, not intended to be part of the forest transportation system and not necessary for long-term resource management.

36 CFR 294.11.

This project would impact Brush Mountain inventoried roadless area near Brush Mountain Wilderness. As stated in our comments on the DEIS, features associated with the mountain that includes Brush Mountain roadless area and wilderness include old growth forests, table mountain pine, sweet pinesap, pirate bush, small cliffs facing Craig Creek, and sections of Craig Creek a short distance from the headwaters (and eastern continental divide) [providing clean water for the endangered James spiny mussel. The section of Craig Creek in the inventoried roadless area is suitable habitat for the spiny mussel and spiny mussel is documented down stream.]

This project would impact a remote and undeveloped section of the Appalachian Trail between the newly-expanded Peters Mountain Wilderness and the Rice Field Shelter/Vista. As we stated in previous comments on Mountain Valley Pipeline activities, "the Forest Service should... determine whether the route passes through any areas that meet the qualifying criteria for potential wilderness areas (roadless areas) if these areas were not included in the inventory for the 2004 Jefferson National Forest plan revision. This includes all areas of any size that may meet the criteria between Peters Mountain Wilderness and the New River. Any qualifying areas should be added to the potential wilderness inventory."

Eligibility for Wilderness

"[T]he decision to harvest timber on a previously undeveloped tract of land is 'an irreversible and irretrievable decision' which could have 'serious environmental consequences.'" (National Audubon Society vs. U.S. Forest Service, 1993)

Before approving any activities in the Brush Mountain and Peters Mountain areas, the FS should have examined whether any activities approved as part of this project could impact any area's future eligibility for wilderness. "An area recommended as suitable for wilderness must meet the tests of capability, availability, and need. In addition to the inherent wilderness quality it possesses, an area must provide opportunities and experiences that are dependent upon or enhanced by a wilderness environment. Also consider the ability to manage the area as wilderness" (See FSH 1909.12 ch. 70 Environment 2. Challenge. 3. Outdoor Recreation Opportunities 4. Special Features & 5. Manageability).

See FSH 1909.12 ch. 70.2 Definition of Forest Road. See FSH 1909.12 ch. 70.22b Other improvements: "Powerlines with cleared rights-of-way, pipelines, and other permanently installed linear right-of-way structures should not be included." See also FSH 1909.12 ch. 71.21, "according to the Wilderness Act, a wilderness area "[h]as at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition" (16 U.S.C. 1131c).

"Areas to be included in the inventory must be federal lands and must meet one of the following size criteria:

"1. The area contains 5,000 acres or more.

"2. The area contains less than 5,000 acres but is of sufficient size as to make practicable its preservation and use in an unimpaired condition, including but not limited to areas contiguous to an existing wilderness, primitive areas, administratively recommended wilderness, or wilderness inventory of other Federal ownership."

"The Brush Mountain IRA was originally 5,920 acres in size" (Draft ROD FAQs). Brush Mountain Wilderness is 4795 acres (<http://www.wilderness.net/NWPS/wildView?WID=713>). The remainder of Brush Mountain is 1,125 acres.

Several of these factors make it less likely that the Brush Mountain inventoried roadless area could be recommended for wilderness or designated wilderness if the pipeline were constructed.

Due to the clear potential for significant harmful impacts from this proposal, and the uncertainties involved, the environmental impact statement (EIS) needs to expressly examine this issue. Projects in roadless areas that would alter the area's undeveloped character require an EIS. (National Audubon Society vs. U.S. Forest Service, 1990) See also FSH 1909, 8.12 ch 20. An agency must prepare an EIS if "substantial questions are raised as to whether a project may cause significant degradation of some human environmental factor" (LaFlamme vs. FERC, 1988) See also 42 USC 4332(2), 40 CFR 1508.27, and Thomas vs. Peterson, 1982) "[T]he decision to harvest timber on a previously undeveloped tract of land is 'an irreversible and irretrievable decision' which could have 'serious environmental consequences.'" (National Audubon Society vs. U.S. Forest Service, 1993)

The decision for extractive development in the Brush Mountain and Peters Mountain areas would substantially alter the undeveloped character of the area. In this proposal, the FS would likely degrade and greatly diminish the Brush Mountain inventoried roadless area by permitting on-the-ground activities within a quarter of the Brush Mountain Wilderness. On Peters Mountain the pipeline is proposed near the center of a large core of low road density habitat on Peters Mountain (see "Arc-Grid Analysis Conducted by James O'Hear, March 1999", already in your possession, incorporated by reference).

This is a significant issue that should have been addressed in the EIS: (a.) Logging in roadless areas is highly controversial. Michael Dombeck, Chief of the Forest Service addressed Congress by saying that the USFS "suffers a credibility gap.... Until we rebuild that trust and strengthen those relationships, it is simply common sense that we avoid... old growth and roadless areas." (Scott Sonner, AP 2/25/97)

(b.) Logging in unprotected wild areas in the George Washington and Jefferson National Forests are cumulatively significant when examined together. Other planned or recent logging and roadbuilding in the Big Schloss/Great North Mountain, Crawford Mountain, Elliott Knob, Little Allegheny, Jerkentight, North Fork of Pound, Gum Run area and other wildlands areas may be significantly affecting the pool of high quality remote habitat in the Appalachians. (c.) Unique characteristics of the area could be affected.

Old Growth

There is a sizeable tract of old growth on Sinking Creek Mountain. (Map: Forest Service Old Growth Inventory, Jefferson National Forest, Northern Half, JNF Forest Plan Feb. '03, incorporated by reference, already in your possession). It appears that the proposed pipeline route bisects this area. Other tracts of old growth may exist along other portions of the JNF where the pipeline is proposed. 1700 (linear) feet of the proposed MVP would impact known old growth forest.

According to the Forest Service's Southern Region guidance on old growth (FR-62), old growth in the eastern

U.S. comprises approx 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 JNF, 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 the administrative record, according to the "MVP Planning Record as of 7/8/17" that I received from the FS.

For example, 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 have been 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 FS ensured that the criteria used were appropriate for this geographical area and the old growth types found here.

As part of this analysis for the project (and proposed amendments), the Decisionmakers should have identified 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. The FS should have provided figures on the size, distribution, and age of trees to be cut. The FS should have provided figures on the size, distribution, and age of trees to be cut. The FS 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) the FS should have also considered designating some of the best areas as small, medium or large old growth tracts. This was certainly relevant on Sinking Creek Mountain where there there was a sizeable tract of old growth, as mentioned above.

Black Bears

Black Bear habitat and black bear populations found in the areas of the proposed corridors and areas surrounding the proposed corridors.

Black bear is an MIS here and throughout the JNF (JNF 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 (and proposed amendments) could foreseeably facilitate should receive a hard look. See also 36 CFR 219.19(a)(4). "

- 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.

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. (

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 dened bears dened 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.

- 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.

- The FS should have provided hard inventory and population data for this MIS.

Black bears, a management indicator species in the JNF, should have been a higher priority for FERC and the FS.

Indiana Bats

The Indiana bat population in Virginia and southern states is decreasing. By the time the Indiana Bat Amendment, the Bats' numbers had 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. 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). Bat populations have also decreased since this time as a result of white nose syndrome.

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

The agency is at present modifying and/or damaging and/or degrading and/or destroying IB habitat (or contemplating such) throughout its range.

At present, the JNF Plan only considers there to be 11 hibernacula in 7 counties in Virginia with 5 miles of the GWJNFs, Bath, Bland, Craig, Highland, Lee, Tazewell, and Wise, and Monroe (WV). According to the BA, there are two known hibernacula within 5 miles of the project corridor, Greenville Saltpetre and Tawney's (BA 7-5). Before this project proceeds, the FS should amend the JNF Plan to provide Indiana bat conservation prescriptions surrounding these caves, as it does for other caves.

FERC and the FS should have considered the cumulative impacts of other projects and activities within a 5 mi radius of these caves, caves occupied by Indiana bats in Monroe Co, WV, and caves providing suitable habitat (or deemed to provide suitable habitat) elsewhere in Giles, Craig, Monroe, Roanoke and Montgomery Co. Given the fact that this project would virtually clearcut a 125 ft (plus) corridor across many miles of the JNF, far more intensive tree felling than allowed in the current Plan, the FS should determine if Indiana 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 JNF should be eliminated or sharply reduced. In addition, the JNF 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 MVP pipeline 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). These include (in Giles Co): Cave # 60 - Douglas Cave, # 69, #39, #16 - Johnson, # 17 - Parsells, #74, # 71 - Kanodes Pit, # 32, #10, #15 0 Charlton Cliff Shelters, # 67 - Key Ridge #1 and 2, #11 Coburn, #20, #53 - Tawneys, # 13- Hog Hole, # 45 - Smokehole, # 24 0 Links.Barn, # 13 - Dulaneys, # 1 - Canoe, # 68, # 28, #4 - Claypools; (in Montgomery Co) #15 Vickers Rd, #8 - James, #14 -Slussers Chapel, and #9 Mills. There may be additional caves discovered since the 1970s. Thorough surveys around these caves should be conducted to determine the impacts on Indiana bats.

Northern Long-eared Bat

The FEIS states that the northern long-eared bat, a proposed endangered species could be adversely impacted. 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.

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) 259-268).

-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:

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).

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% (Timone et al. 2010)

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

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).

Foraging behavior:

Northern long-eared bats: Nocturnal. Both hawking and gleaning (Brack and Whitaker 2001, Feldhamer et al. 2009, Fenton and Bogdanowicz 2002; Ratcliffe and Dawson 2003). Within canopy more than Indiana bat (Nagorsen and Brigham 1993).

According to the BA, there are three known hibernacula within 5 miles of the project corridor, Greenville Saltpetre, Canoe and Tawney's (BA 7-15 to 16).

Before this project proceeds, the FS should amend the JNF 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.

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 Giles, Craig, Monroe, Roanoke and Montgomery Co. Given the fact that this project would virtually clearcut a 125 ft (plus) corridor across many miles of the JNF, 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 JNF should be eliminated or sharply reduced. In addition, the JNF 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 MVP pipeline 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). These include (in Giles Co): Cave # 60 - Douglas Cave, # 69, #39, #16 - Johnson, # 17 - Parsells, #74, # 71 - Kanodes Pit, # 32, #10, #15 0 Charlton Cliff Shelters, # 67 - Key Ridge #1 and 2, #11 Coburn, #20, #53 - Tawneys, # 13-

Hog Hole, # 45 - Smokehole, # 24 0 Links.Barn, # 13 - Dulaneys, # 1 - Canoe, # 68, # 28, #4 - Claypools; (in Montgomery Co) #15 Vickers Rd, #8 - James, #14 -Slussers Chapel, and #9 Mills. 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.

Gray Bat

There has been a range expansion for the gray bat. "The FWS Elkins Field Office issued a letter on September 29, 2016 detailing the capture of a gray bat (*Myotis grisescens*) in Logan County, West Virginia. This capture represented a range expansion for the species. As such, the FWS requested additional consultation for projects located in select areas of West Virginia, including the counties of Fayette, Monroe, and Summers, which would be crossed by the MVP." (BA 2-5) Eleven caves (Hibernacula Features of Unknown Suitability) within 2.5 mi of the corridor were identified within Monroe Co (BA 7-20).

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 JNF Plan to provide conservation prescriptions for gray bat hibernacula.

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). These include (in Giles Co): Cave # 60 - Douglas Cave, # 69, #39, #16 - Johnson, # 17 - Parsells, #74, # 71 - Kanodes Pit, # 32, #10, #15 0 Charlton Cliff Shelters, # 67 - Key Ridge #1 and 2, #11 Coburn, #20, #53 - Tawneys, # 13- Hog Hole, # 45 - Smokehole, # 24 0 Links.Barn, # 13 - Dulaneys, # 1 - Canoe, # 68, # 28, #4 - Claypools; (in Montgomery Co) #15 Vickers Rd, #8 - James, #14 -Slussers Chapel, and #9 Mills. There may be additional caves discovered since the 1970s. Thorough surveys around these caves should be conducted to determine the impacts on gray bats.

James spiny mussel

The proposed pipeline would parallel Craig Creek (BA 8-68) and would cross the creek before ascending a steep nose of a side ridge (field visit, Jul. '17). The FEIS response to comments states that survey "efforts" were made, not actual surveys, and these covered less than a mile BA 8-68. The project is proposed near the headwaters of Craig Creek and near the eastern continental divide. How does FERC demonstrate that the project is not likely to adversely affect the James spiny mussel?

- The requisite full, intensive, and competent surveys, inventories, and data gathering for endangered species must be performed. Cumulative impacts must be analyzed and accounted for.
- 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 imperiled disproportionately relative to terrestrial species... This alarming decline, the severity of which was not recognized until recently, is primarily the result of habitat destruction and degradation associated with adverse anthropogenic activities." (Williams, Warren, Cummings, Harris and Neves, 1993)
- At its peak, the James spiny mussel (*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 spiny mussel 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 spiny mussel 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 tabulated but not meaningfully analysed. How many tons would enter precisely what stream segments? On this the table and discussion in the FEIS 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.

Salamanders

The Forest Service should sufficiently examine and consider the potential impacts upon salamanders. This concern is significant here given the project's (and proposed amendments) potential to permit activities that 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.

Trout Streams

The FS and FERC should survey each stream to determine what kind of trout population it has and was classification of trout stream it falls under.

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.

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 JNF Plan requires the FS to delineate riparian areas (manage prescription area (RxA) 11 areas) and this should be done as part of the MVP 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).

Aquatic Species

Yellow lance occurs in the James River drainage. This species may also potentially be affected by this project.

The JNF Plan documents that orangefin madtom occurs in the Upper Craig watershed (JNF Plan 4-10) and documents that Atlantic pigtoe mussel and roughhead shiner are also found in the upper James watershed (JNF Plan 4-10). Atlantic pigtoe is found in the Craig Creek drainage (see Terwilliger, Virginia's Endangered Species 275 to 276). See also Terwilliger pp.356 to 357 regarding the range of the roughhead shiner. See GWJNFs TESLR lists.

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The yellow lance, is a G2G3 S2S3 species in Va., and the roughhead shiner, is a G2G3 and S2S3 species. The roughhead shiner is confined to the Ridge and Valley province of the upper James drainage, Virginia...The contiguity within subpopulations and the sharp limits of the range of the species indicate that high gradient and small size of stream, turbidity, and siltation variously combine to effect the tight distribution of the roughhead shiner (Jenkins and Burkhead, 1975a)" Terwilliger (1991). The roughhead shiner is a sensitive species (R-8 sensitive species list).

Sincerely yours,

Sherman Bamford