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January 27, 2021

Jay Martin
North River Ranger District
401 Oakwood Drive
Harrisonburg, Virginia 22801

Re: Mt. Storm-Valley 550 kV Transmission Line Rebuild Draft EA Comments

Dear Mr. Martin:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Please find below DCR comments for the above referenced project.

Cow Knob Quad

According to the information currently in our files, the German River – North Fork Shenandoah River – Bennett Run Stream Conservation Unit (SCU) is located within the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The German River – North Fork Shenandoah River – Bennett Run SCU has been given a biodiversity significance ranking of B3, which represents a site of high biodiversity. The natural heritage resources of concern associated with this SCU are:

Glyptemys insculpta	Wood turtle	G3/S2/NL/LT
Aquatic Natural Community (RV-North Fork Shenandoah Second Order Stream)		G2/S2/NL/NL

The Wood turtle ranges from southeastern Canada, south to the Great Lake states and New England. In Virginia, it is know from northern counties within the Potomac River drainage (NatureServe, 2009). The Wood turtle inhabits areas with clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands (Buhlmann et al., 2008; Mitchell, 1994). Since this species overwinters on the bottoms of creeks and streams, a primary habitat requirement is the presence of water (Mitchell, 1994).

Threats to the wood turtle include habitat fragmentation, urbanization, and automobile or farm machinery mortality (Buhlmann et al., 2008). Please note that the Wood turtle is currently classified as threatened by the Virginia Department of Wildlife Resources (VDWR).

The documented Aquatic Natural Community is based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database, which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, this stream is a grade B, per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds a "Healthy" stream designation per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this stream to ideal stream conditions of biology and habitat for this region. Lastly, this stream contributes to high Biological Integrity at the watershed level (6^{th} order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Community and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

In addition, the Little Dry River, Spruce Lick Run, German River and Cold Spring River have been designated by VDGIF as "Threatened and Endangered Species Waters" for the Wood Turtle.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow. Please note, based on information in the Draft Environmental Assessment (EA) on Page 88 that *nearly all construction activity is on ridgetops or high on side slopes with long forest filters,* DCR reiterates the recommendation for strict adherence to erosion and sediment controls due to increased erosion probability on steep slopes. Due to the legal status of the Wood turtle, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act **(**VA ST §§ 29.1-563 – 570).

Furthermore, the Rader Knob and the Leading Ridge South Conservation Sites intersect the project area. The Rader Knob Conservation Site has been given a biodiversity significance of B4, which represents a site of moderate biodiversity, and the Leading Ridge South has been given a biodiversity significance of B2, which represents a site of very high biodiversity. The natural heritage resources associated with the Rader Knob Conservation Site are the following:

Heuchera alba	White Alumroot	G2Q/S1/SOC/NL
Epeolus americanus	Cuckoo bee	GNR/S1S2/NL/NL
Osmia illinoiensis	Mason bee	G1/S1/NL/NL
Melitta eickworti	Deerberry melittum	G?/S1/NL/NL

White alumroot is a state rare perennial plant that, as currently understood, is narrowly endemic to a small, high-elevation area of the Ridge and Valley province in western Virginia and eastern West Virginia. It inhabits exposed and shaded outcrops of quartzite, hematitic sandstone, calcareous sandstone, and siltstone, typically at elevations higher than 900 meters. In Virginia, it is restricted to a small area of the mountains of Augusta, Highland, and Rockingham Counties. In 2014, four occurrences of this state rare plant were documented in Virginia, 2 extant and 2 historic.

The natural heritage resource with the Leading Ridge South Conservation Site is also the Mason bee (*Osmia illnoiensis,* G1/S1/NL/NL).

Please note, in 2018 DCR zoologist collected the 3 rare species of bees in the existing powerline and George Washington and Jefferson National Forest (GWJNF) at two different locations as part of the GWJNF proposed timber cuts in Rockingham County.

According to the USFWS webpage Midwest Region Endangered Species Rusty Patched Bumble Bee Map (https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html) the northern end of the project area falls within the Rusty Patched Bumble bee yellow zone ("primary dispersal zone"= low potential zone).

Due to the potential for this site to support additional populations of rare bees, DCR recommends an inventory for these resources in the study area. With the survey results, we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss arrangements for fieldwork.

The transmission line right-of-way and the roads layer of the project intersects the Gauley Ridge Conservation Site. DCR recommends minimizing ground disturbance during the project.

Rawley Springs Quad

Also according to the information currently in our files, the Long Run Ridge Conservation Site and White Oak Flat are also located within the project area. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Long Run Ridge Conservation Site and White Oak Flat have been given a biodiversity significance ranking of B4, which represents sites of moderate significance. The natural heritage resources of concern at the Long Run Ridge Site are:

Plethodon punctatus	Cow Knob salamander	G3/S2/NL/NL
Bombus terricola	Yellow-banded bumble	G3G4/S1/NL/NL
Bombus affinis	Rusty-patched Bumblebee	G2/S1/LE/NL

The roads layer for the project intersects the White Oak Flat Conservation Site. The natural heritage resource associated with the site is the Cow Knob salamander.

The Cow Knob salamander is known from the Great North and Shenandoah mountains in north-central Virginia and adjacent sections of West Virginia (Petranka, 1998). It occurs in mixed hardwood and hemlock stands; however, it is most abundant on north-facing slopes in high-elevation old-growth forests (Pague et al, 1991). Like most species in this genus, the Cow Knob salamander is completely terrestrial; however, it relies on moist microhabitats to complete its life cycle.

Threats to this rare salamander include canopy removal due to forestry activities and defoliation by gypsy moths (Pague et al, 1991).

The rusty patched bumblebee is listed as endangered under the Endangered Species Act by U.S. Fish and Wildlife Service (USFWS) effective March 21, 2017. Since the late 1990s, the Rusty patched bumblebee has declined throughout its historical range including Virginia and is anticipated to be extinct in all ecoregions by 2030. Threats to the rusty patched bumblebee include disease, pesticides, climate change, habitat loss and small population dynamics.

If tree removal is proposed for the project for infrastructure construction including access roads and laydown yards, surveys for the Cow Knob salamander may be warranted. Due to the potential for this site to support additional populations of rare bees, DCR recommends an inventory for these resources in the study area. With the survey results, we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss arrangements for fieldwork. A list of other individuals who are qualified to conduct inventories may be obtained from the USFWS.

In addition, Slate Lick Branch has been designated by VDWR as "Threatened and Endangered Species Waters" for the Wood Turtle.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow. Due to the legal status of the Wood turtle, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act **(**VA ST §§ 29.1-563 – 570).

Mount Sidney and Briery Branch Quads

According to the information currently in our files, the War Branch SCU is within the proposed roads layer for the project and has been given a biodiversity significance ranking of B4, which represents a site of moderate biodiversity. The natural heritage resource of concern associated with this SCU is:

Glyptemys insculpta	Wood turtle	G3/S2/NL/LT

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow. Due to the legal status of the Wood turtle, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act **(**VA ST §§ 29.1-563 – 570).

The southern portion of this project is situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. The southern portion of the project is also within the range of and overlies potential habitat for the state and federally threatened Madison Cave isopod (*Antrolana lira*, G2G4/S2/LT/LT). Because this species is a groundwater obligate crustacean, knowledge of its presence at specific locations within its range is poor, and sampling to determine its presence is difficult and frequently inconclusive. Projects involving the following components have potential to impact this species: 1) withdrawal of water from wells or lowering the water table, 2) alteration of sinkholes, cave entrances, or sinking streams, 3) waste water injection, 4) quarrying, 5) nutrient applications lacking a certified nutrient management plan, or 6) discharge of water to a conveyance that discharges to a karst feature downstream. If the project meets one or more of these criteria, please coordinate with Wil Orndorff.

The Virginia DCR karst staff screened this project against the Virginia Speleological Survey (VSS) database and the Virginia DMME sinkhole coverage for documented sensitive karst features and caves. The possibility exists to encounter sinkholes and caves that are not documented in this area. To minimize impacts to karst, groundwater and surface water resources, the stabilization of the soil around the site should be prioritized during all the phases of the project and all standard erosion control measures that are appropriate for the site should be used. DCR also recommends minimizing sediment transport and preventing the introduction of any unwanted chemicals that

could be spilled from equipment, such as fuel or oil, into the ground or streams. The use of herbicides or pesticides should be discouraged. If they are used they should be chosen carefully to reduce the risk to groundwater crustaceans and all other resources. Furthermore, due to the legal status of the Madison Cave isopod, DCR recommends coordination with the US Fish and Wildlife Service (USFWS) and VDGIF to ensure compliance with protected species legislation.

If karst features such as sinkholes, caves, disappearing streams, and large springs are encountered during the project, please coordinate with Wil Orndorff (540-230-5960, Wil.Orndorff@dcr.virginia.gov) to document and minimize adverse impacts. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the project involves filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for storm water discharge, copies of VDOT Form EQ-120 will suffice.

Rare Bees including Rusty-Patched Bumble Bee

According to the Draft EA on Page 90, "*Rusty patched bumble bees are not known to occur in the Project area since it is not located within a High Potential Zone, as designated the U.S. Fish and Wildlife Service. However, as noted in the design elements, Dominion will include plants in their seed mix to benefit species that rely on nectar."* DCR has no additional recommendations for the Rusty-Patched Bumble Bee at this time. DCR supports the inclusion of native pollinator species in the seed mix as identified in the Virginia Solar Native Plant Finder. https://www.dcr.virginia.gov/natural-heritage/solar-site-native-plants-finder.

In regards to the other rare bees documented within the project area as indicated in DCR's February 26, 2020 letter and Dominion's memo, DCR recommends avoidance of the two locations in the powerline where the rare bees were documented in the 2018 survey (Rader Knob and Leading Ridge). If these areas cannot be avoided and presence of these species are assumed, DCR recommends minimizing the ground disturbance in these areas. DCR also supports Dominion's measures to minimize impacts by reducing ground disturbance to the extent feasible, with towers replaced near existing towers and use of existing forest roads and road prisms established when the line was originally constructed in the 1960s.

DCR also suggests the following other mitigation measures:

- DCR supports the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf) and methods for treating the invasives. Robust monitoring is needed as part of an adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

- DCR supports the ROW restoration include appropriate revegetation using regional native species in a mix of grasses and forbs with a cover crop for soil stabilization while also allowing natural revegetation. DCR supports the native plant mix contain species in the genus *Lithospermum* (and possibly other plants in the Boraginaceae family). DCR also recommends including Deerberry (*Vaccinium stamineum*) in the seed mix if possible, which is valuable to some of the other bees documented in the powerline. Please note, Switchgrass is more likely than other warm season grasses such as little bluestem to outcompete the other native species in the seed mix, so it may effectively reduce or eliminate some of the other species listed under the Wildlife and Pollinator Mix on Sheet 5 of the Erosion and Sediment Control Plans.

- DCR recommends the maintenance of the re-established ROW vegetation be consistent with the current ROW maintenance plan to continue to provide suitable habitat for rare bees.

- According to a December 14, 2020 Dominion Memo, Dominion is in the process of evaluating a proposal to survey bees in the Right-of-Way (ROW) on the Forest. DCR supports post construction rare bee surveys be conducted which would add more knowledge to the bee fauna of the powerline and to better inform DCR and utility companies about best practices for rare bee conservation in these right-of-ways.

Cow Knob Salamander

To protect Cow Knob salamanders, DCR supports Dominion's protective measures including "no new road construction will occur in the Shenandoah Crest Zone outside the currently cleared ROW. Identified potential habitat areas will not be disturbed by construction activities. If the Project design changes such that identified potential habitat would be disturbed, a survey for individual salamanders would be completed before work would be authorized."

DCR appreciates Dominion sharing the sensitive salamander survey results from 2020 including shapefiles as well as a report Dominion funded to summarize results of a 2019 survey in the area. DCR requests copies of any other surveys conducted for rare, threatened and endangered species within the project area.

All Quads

DCR recommends the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

Virginia native species alternatives to the non-native species listed in the Virginia Erosion and Sediment Control Handbook (Third Edition 1992), can be found in the 2017 addendum titled "Native versus Invasive Plant Species", here: https://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/NativeInvasiveFAQ.pdf. Page 3 of the addendum provides a list of native alternatives for non-natives commonly used for site stabilization including native cover crop species (i.e. Virginia wildrye).

Furthermore, if tree removal is proposed, the project will fragment **C1 and C2** cores as identified in the Virginia ConservationVision. The Virginia ConservationVision is a GIS analysis for identifying and prioritizing conservation lands in Virginia.(http://www.dcr.virginia.gov/natural_heritage/vaconvision.shtml)

Cores are areas of unfragmented natural cover with at least 100 acres of interior condition and provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection), and carbon sequestration, along with the associated economic benefits of these functions. The cores are ranked form 1 to 5 (5 being the least ecological relevant) using many prioritization criteria, such as the number of natural heritage resources (i.e. rare species) occurring in a core.

Fragmentation occurs when a large, contiguous ecosystem is transformed into one or more smaller patches surrounded by disturbed areas resulting from the conversion and development. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments (leaving round versus long, skinny fragments); by retaining

connective corridors that allow significant migration between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).
According to the response in the Draft Environmental Assessment in regards to forest fragmentation on Page 89 *"The ROW width will not change. Towers will be located adjacent to existing towers. Existing roads will be used for most access to the towers. Approximately 5.2 miles of roads will be constructed on the Forest, but these roads will be on the existing road prisms from the access roads used for the original construction. All but 0.5 miles of these roads will be closed and revegetated after use. This 5.2 miles is in 36 separate segments, to include short roads extending from existing roads to towers. These roads will not fragment core habitat. A total of about 4 acres of trees will be cleared for temporary crane pads at tower sites (up to 59 tower sites). Based on early project design, preliminary estimates indicated that there will be select locations up to approximately 290 feet from the edge of the ROW and at most one acre in size. These areas will be revegetated after use and will return to forested cover. These small clearings along the edge of the existing ROW will not fragment habitat, will have minimal impact on any core, and be temporary. None of the cores will be fragmented nor be noticeably reduced in size due to clearing activities."*

DCR supports not expanding the existing ROW for the project. Per a May 28, 2020 email and December 14, 2020 memo, Dominion is planning to submit a Phase 3 "proposed clearing" shapefile to DCR upon completion of detail project plans based on USFS approval. With a shapefile of the project area including all associated infrastructure, our information management section can conduct a fragmentation analysis.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

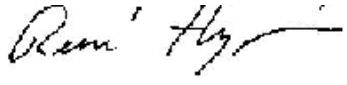
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to DCR's Biotics database. Following the DCR-DNH scoping project review, the Company shall re-submit project information with completed information services order from and a map to DCR-DNH or submit the project on-line through the Natural Heritage Data Explorer. This review shall occur during the final design stage of engineering and upon any major modifications of the project construction (i.e. deviations, permanent or temporary, from the original study area and/or relocation of a tower(s) into sensitive areas) for an update on natural heritage information and coordination of potential project modifications to avoid and minimize impacts to natural heritage resources.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. René Hypes
Natural Heritage Project Review Coordinator

Cc: Ernie Aschenbach, VDWR
Troy Andersen, USFWS
Wil Orndorff, DCR-Karst

Literature Cited

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