



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

October 30, 2023

Joby Timm
USFS- George Washington & Jefferson National Forest
5162 Valleypointe Parkway
Roanoke, VA 24019

Re: Spongy Moth Suppression Project

Dear Mr. Joby:

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.

General Btk Comments

DCR's review of spongy moth treatment areas is based on both known and potential occurrences of natural heritage resources within or adjacent to proposed blocks. A primary concern from the standpoint of biodiversity preservation is the impact that spongy moth suppression treatments have on non-target organisms. Peacock et al. (1998) found that among 42 tested species of native butterflies and moths, all first and second instar caterpillars had 90-100% mortality from Btk application regardless of the species. For our purposes, non-target organisms include those species directly susceptible to the indications of a proposed treatment (e.g., Lepidopterans killed by *Btk*), as well as species that may be secondarily affected by a proposed treatment. Secondarily-affected organisms may include, but are not limited to, rare plants with insect pollinators that are directly susceptible to spongy moth treatments, and songbirds or small mammals faced with a diminished prey base following spongy moth treatment.

Terrestrial Resources

According to the information in our files, multiple Conservation Sites are located within the project area, including a 100-foot buffer. 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 Seven Bends- Massanutten Conservation Site is within sites 1, 9, 10, 11, 15, and 35. The Seven Bends - Massanutten Conservation Site has been assigned a biodiversity rank of B1, which represents a site of outstanding significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Basic Seepage Swamp	G3/S3/NL/NL
	Central Appalachian Calcareous Shale Barren	G2/S2/NL/NL
	Central Appalachian Calcareous Shrub Fen / Seep	G1?/S1/NL/NL
	Central Appalachian Shale Barren (Northern Type)	G3/S3/NL/NL
<i>Calopogon tuberosus</i> <i>var. tuberosus</i>	Tuberosus Grass-pink	G5T5/S1S2/NL/N L
<i>Cicindela patruela</i>	Barrens Tiger Beetle	G3/S2/NL/NL
<i>Glyptemys insculpta</i>	Wood Turtle	G3/S2/NL/LT
<i>Trichostema setaceum</i>	Narrow-leaf blue curls	G5/S2/NL/NL

The Short Mountain Conservation Site is located within site 16 and has been assigned a biodiversity rank of B2, which represents a site of very high significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Calcareous Shale Barren	G2/S2/NL/NL
<i>Astragalus distortus var. distortus</i>	Ozark milkvetch	G5T5?/S1/NL/NL

The Signal Knob Barren Conservation Site is located within site 5 and has been assigned a biodiversity rank of B3, which represents a site of high significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Shale Barren (Northern Type)	G3/S3/NL/NL
<i>Aralia hispida</i>	Bristly Sarsaparilla	G5/S2/NL/NL

The Indian Grave Ridge Conservation Site is located within site 14 and has been assigned a biodiversity rank of B5, which represents a site of general interest/open space significance. The natural heritage resource of concern associated with this site is:

<i>Solidago rupestris</i>	Riverbank goldenrod	G4?/S1/NL/NL
---------------------------	---------------------	--------------

The Browns Hollow Conservation Site is located within site 41 and has been assigned a biodiversity rank of B2, which represents a site of very high significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Calcareous Shale Barren	G2/S2/NL/NL
	Central Appalachian Shale Barren (Northern Type)	G3/S3/NL/NL
<i>Aralia hispida</i>	Bristly Sarsaparilla	G5/S2/NL/NL
<i>Boechera serotina</i>	Shale barren rock cress	G2/S2/LE/LT
<i>Euchloe olympia</i>	Olympia Marble	G5/S2/NL/NL
<i>Trichostema setaceum</i>	Narrow-leaf blue curls	G5/S2/NL/NL

The Big Schloss Conservation Site is located within site 24 and has been assigned a biodiversity rank of B3, which represents a site of high significance. The natural heritage resources of concern associated with this site are:

	Appalachian Xeric Pine Outcrop Woodland	G3/S2?/NL/NL
<i>Speyeria atlantis</i>	Atlantis Fritillary	G5/S2/NL/NL

The Paddy Run Conservation Site is located within site 17 and has been assigned a biodiversity rank of B4, which represents a site of moderate significance. The natural heritage resources of concern associated with this site are:

<i>Cicindela limbalis</i>	A Tiger Beetle	G5/S1/NL/NL
<i>Euphyes bimacula</i>	Two-spotted Skipper	G4/S2/NL/NL
<i>Glyptemys insculpta</i>	Wood Turtle	G3/S2/NL/LT

The Waterfall Mountain Seep Conservation Site is located within site 34 and has been assigned a biodiversity rank of B5, which represents a site of general interest/open space significance. The natural heritage resources of concern associated with this site are:

<i>Liparis loeselii</i>	Bog twayblade	G5/S2/NL/NL
-------------------------	---------------	-------------

The Tibbet Knob Conservation Site is located within site 23 and 40, this conservation site has been assigned a biodiversity rank of B3, which represents a site of high significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Montane Oak - Hickory Forest (Acidic Type)	G3G4/S3S4/NL/NL
<i>Aralia hispida</i>	Bristly Sarsaparilla	G5/S2/NL/NL

The Powells Fort Camp to Elizabeth Furnace Conservation Site is located within sites 1, 3, 4, 5, 6, 26 and 32. This conservation site has been assigned a biodiversity rank of B4, which represents a site of moderate significance. The natural heritage resources of concern associated with this site are:

	Central Appalachian Basic Seepage Swamp	G3/S3/NL/NL
	Central Appalachian Shale Barren (Northern Type)	G3/S3/NL/NL
<i>Arnoglossum reniforme</i>	Great Indian-plantain	G4/S2/NL/NL
<i>Trichostema setaceum</i>	Narrow-leaf blue curls	G5/S2/NL/NL

According to the Biotics database, site 39 contains two historic occurrences of a rare butterfly, the Northern Pearly Crescent (*Phyciodes cocyta*, G5/S1S3/NL/NL). Based on a review by a DCR biologist, there is potential for the species to still be extant in the area.

Due to the documented occurrence of rare non-targeted lepidopteran species in intersecting conservation sites and within the project area, DCR discourages the use of Btk for sites 17, 24, 39 and 41. Additionally, many sites are located within conservation sites that have rare plants documented. Rare plants have the potential to be impacted by Btk, through impacts to susceptible pollinator populations. Therefore, for all sites identified above as intersecting conservation sites, DCR recommends the use of Gypcheck or other treatments that are specifically targeted for the Spongy Moth.

Aquatic Resources

According to the information currently in our files, many Stream Conservation Units are within treatment areas, including a 100-foot buffer. 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 also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The North Fork Shenandoah River – Edinburg Gap SCU is within site 11 and 10, this

SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resources associated with this unit are:

<i>Glyptemys insculpta</i>	Wood Turtle	G3/S2/NL/LT
Aquatic Natural Community (RC-North Fork Shenandoah Second Order Stream)		G2/S2/NL/NL

The Stony Creek – Little Stony Creek – Swover Creek – Laurel Run SCU is within site 21 and has been given a biodiversity significance ranking of B4, which represents a site of moderate significance. The natural heritage resources of concern associated with this site are:

<i>Glyptemys insculpta</i>	Wood turtle	G3/S2/NL/LT
Aquatic Natural Community (RV-North Fork Shenandoah First Order Stream)		G3/S3/NL/NL

The Gravel Springs SCU is within site 27. The Cedar Creek SCU is within sites 19, 20, 30, and 31. Both SCUs have been given a biodiversity ranking of B4, which represents a site of moderate significance. The natural heritage resource associated with both sites is:

<i>Glyptemys insculpta</i>	Wood turtle	G3/S2/NL/LT
----------------------------	-------------	-------------

Due to the legal status of Wood turtle, DCR 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).

Karst Resources

This project has intersected the karst bedrock and VDE sinkhole screening layers. Sinkholes mapped by the Virginia Department Energy are within the project site (see Sinkhole layer on the Natural Heritage Data Explorer at vanhde.org). Typically, additional, smaller unmapped sinkholes can also be present in the vicinity. Sinkholes are areas where surface material has collapsed into the subsurface and into underground watercourses. Sinkhole areas are places where surface water directly affects groundwater quality and flow. What goes into sinkholes comes out in wells and springs, and can degrade drinking water, springs and spring-fed surface waters, and the habitat of subterranean creatures. Discharge of untreated stormwater runoff to sinkholes is discouraged, and sinkholes to which stormwater is diverted or which have been modified to accept stormwater are required by law to be registered as Class 5 Injection Wells with the US Environmental Protection Agency. Filling or alteration of natural (pre-existing) sinkholes is discouraged, and designation of natural buffers around sinkholes is desirable. 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.

During every phase of the project, DCR recommends adherence to best management practices appropriate for karst will help to reduce any potential impact to the karst, groundwater and surface water resources as well as any associated fauna and flora. Due to the impact to non-target species and the potential for karst systems to transport contaminants DCR recommends limiting the use of Btk and using species specific treatments to the greatest extent possible.

If karst features such as additional undocumented 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) the Virginia DCR, Division of Natural Heritage Karst Protection Coordinator, to document and minimize adverse impacts. Activities such as discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to environmental impacts including surface collapse, flooding, erosion and sedimentation, contamination of groundwater and springs, and degradation

of subterranean habitat for natural heritage resources (e.g., cave adapted invertebrates, bats). These potential impacts are not necessarily limited to the immediate project area, as karst systems can transport water and associated contaminants rapidly over relatively long distances, depending on the nature of the local karst system.

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 as long as Gypcheck or other species-specific treatment is used at sites where listed plants or insects occur.

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

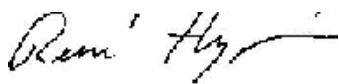
New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

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 <https://services.dwr.virginia.gov/fwis/> or contact Amy Martin at 804-367-2211 or amy.martin@dwr.virginia.gov. According to the information currently in our files, Cedar Creek, Cove Run, Little Stony Creek, Paddy Ran and Passage Creek, which have all been designated by the VDWR as a "Threatened and Endangered Species Water" for the Wood Turtle is within the submitted project boundary including a 100-foot buffer. Additionally, there is potential for the little brown bat (*Myotis lucifugus*), the tri-colored bat (*Perimyotis subflavus*), and the northern long-eared bat (*Myotis septentrionalis*) to occur within the project area. Due to the legal status of the wood turtle, little brown bat, and the tri-colored bat, DCR 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). Due to the legal status of the Northern long-eared bat DCR recommends coordination with the USFWS to ensure compliance with protected species legislation.

The U.S. Fish and Wildlife Service (USFWS) utilizes an online project review process (<https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process>) to facilitate compliance with the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884) (ESA), as amended. The process enables users to 1) follow step-by-step guidance; 2) access information that will allow them to identify threatened and endangered species, designated critical habitat, and other Federal trust resources that may be affected by their project; and 3) accurately reach determinations regarding the potential effects of their project on these resources as required under the ESA. If you have questions regarding the online review process, please contact Rachel Case at rachel_case@fws.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: Wil Orndorff, DCR-Karst
Amy Martin, VDWR

Literature Cited

Peacock, J.W., D.F. Schweitzer, J.L. Carter, and N.R. DuBois. 1998. Laboratory Assessment of the Effects of *Bacillus thuringiensis* on Native Lepidoptera. *Environmental Entomology* 27(2):451-457.