

# Natural Heritage – Locality Liaison/Habitat Restoration

## *Final Report for FY2017 VCZMP Grant No. NA16NOS419Task #5*

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*Virginia Department of Conservation and Recreation –  
Division of Natural Heritage*



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The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Commerce, NOAA, or any of its sub agencies.

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## *Executive Summary*

During the FY2017 grant year, the Locality Liaison reviewed 981 projects for impacts to natural heritage resources in the coastal zone (39% of the projects reviewed statewide). Projects for renewable energy this year, included 38 different solar projects. DCR-DNH has continued to work with Environmental Resources Management to assure that the WB – Express project in Fairfax County will not impact documented natural heritage resources. DCR-DNH has also continued coordination with the Virginia Department of Game and Inland Fisheries (VDGIF) to find solutions to mitigate the impacts of the Independence Boulevard project in the City of Newport News.

Coastal localities and other conservation partners participated in 7 training sessions for the Natural Heritage Data Explorer (NHDE) website (<https://vanhde.org>) including 24 from state agencies, 3 from local governments, 13 from consulting companies, 3 from land trusts and one from a federal agency. At the end of FY2017, there were twenty-six coastal counties and fifteen coastal cities, 8 Planning District Commissions and 19 land trusts within the Coastal Zone with access to natural heritage data through NHDE, digital shapefile data, and/or a combination of these tools. This equates to 93% of Coastal Zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 76% of the Land Trusts within the coastal zone.

Presentations included an overview of DCR-DNH's Natural Heritage Program, the Locality Assistance Program, and the Natural Heritage Data Explorer (NHDE) website highlighting the Virginia Conservation Vision models, and the Virginia Species and Community Database Search. In addition, other online conservation tools were presented including the Virginia Wetlands Catalog, the updated 2017 Coastal Ecological Value Assessment (Coastal VEVA), which is part of the DEQ's Virginia Coastal Geospatial and Educational Mapping System (GEMS). Natural Heritage information was updated quarterly on the NHDE website and shapefiles including the updated information are also distributed to licensed users. During FY2017, 551 coastal projects were submitted through the NHDE, 56% of all the projects submitted in the coastal zone.

The locality liaison attended the Virginia Association of Planning District Commissions annual meeting in Roanoke, VA in July and the Virginia's Department of Environmental Quality's Coastal Zone Policy meeting in September. Both meetings provided an opportunity for the new locality liaison to meet coastal partners and begin to build a foundation for future collaboration.

The Locality Liaison and other project review staff renewed or initiated 43 coastal natural heritage data licenses throughout this grant year, including localities, consultants, land trusts, educational institutions, state agencies, federal agencies and planning district commissions.

The Locality Liaison also posted a quarterly coastal species highlight section to the Local Assistance webpage (<http://www.dcr.virginia.gov/natural-heritage/localityliaison>) and the locality map (<http://www.dcr.virginia.gov/natural-heritage/localitiesmap>) was updated identifying localities with natural heritage data.

## ***Introduction***

Through the Locality Liaison program, the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) works with local and regional planners to assist them in fully utilizing natural heritage resource information as well as the consultative services we provide to ensure protection of natural heritage resources. The Locality Liaison program seeks to establish natural heritage resource information as part of fundamental locality decision-making criteria through tools such as project review, comprehensive planning, project sitings, zoning amendments, and open space planning.

The Virginia Coastal Zone Management Program (VCZMP) and the Chesapeake Bay Program have developed flood risk management initiatives and generated interest in land use issues within the Coastal Zone. In addition, the Bay Total Maximum Daily Load (TMDL) program has encouraged localities to incorporate green infrastructure into their land planning. Coastal localities are developing conservation objectives, identifying potential areas for protection and looking at innovative approaches in making land use decisions that will improve water quality and develop long-range planning for local resiliency. The Locality Liaison program continues to work to have natural heritage resources play a larger role in decision making in regards to the problems and opportunities they face in development and protecting their natural heritage resources.

## ***Staffing***

As of July 2018, Tyler Meader serves as the Coastal Zone Locality Liaison (Locality Liaison) and reviews projects within the coastal zone with assistance from other environmental review staff. Rene' Hypes (Natural Heritage Environmental Review Coordinator) provides input for higher profile projects reviewed within the Coastal Zone. Numerous other DCR-DNH staff members also support the Locality Liaison program, including Data Manager Megan Rollins, Project Review Assistants, and various Natural Heritage biological inventory personnel.

## ***Environmental Review***

The DCR-DNH Environmental Review Section, to which the Locality Liaison is assigned, works with local, state, and federal government agencies as well as private individuals and consultants to assess the potential for proposed activities to impact natural heritage resources and to recommend ways to avoid or minimize these impacts. The Locality Liaison has primary responsibility for reviewing projects in the Coastal Zone and provides oversight for the Project Review staff assisting in the review process. Barbara Gregory (Project Review Assistant, Senior) conducts reviews for the Virginia Department of Transportation (VDOT) projects statewide which during FY2017 included 202 transportation projects in the Coastal Zone. During this grant year, DCR-DNH reviewed a total of 981 projects in the Coastal Zone. This represents 39% of the projects reviewed statewide by DCR-DNH.

Through environmental review, the Locality Liaison provides service in connecting clients directly to needed information about natural heritage resources. With the state's most comprehensive database for rare, threatened and endangered species and significant natural communities, environmental review provides an opportunity for cooperating with other organizations. Many private consultants routinely and voluntarily coordinate with DCR-DNH before taking development project applications to regulatory agencies. Though DCR-DNH does not have regulatory authority, it has agreements with regulatory agencies that rely on our natural heritage resource data. The United States Army Corps of Engineers (ACOE) and the Department of Environmental Quality (DEQ) Virginia Water Protection Permit Program (VWPP) screen wetland development projects against the DCR-DNH database and forward potential conflicts for our comment. The DEQ Virginia Pollutant Discharge Elimination System (VPDES) program also screens issuance and re-issuances of permits for point source discharges to surface waters against the DCR-DNH database and the Virginia Department of Health (VDH) screens for issuance or re-issuance of pump-out facilities as part of their permitting process. The Virginia Marine Resource Commission (VMRC) relies on the DCR-DNH to review Joint Permit Applications (JPAs) for subaqueous bottomlands impacts and the DEQ Renewable Energy Permitting relies on DCR-DNH to review solar and wind energy projects for potential impacts to natural heritage resources. Virginia Soil and Water Conservation Districts, which coordinate local natural resource protection programs, rely on DCR-DNH for information to include in local agricultural conservation planning. The United States Fish and Wildlife Service (USFWS) also relies heavily on DCR-DNH data for their own regulatory responses including 5-year reviews of species listed under the federal Endangered Species Act. The USFWS Information, Planning, and Conservation (IPaC) System web site on-line screening process includes DCR-DNH species suitable habitat models and references the Natural Heritage website for species coordination purposes. Additionally, DCR-DNH provides information on natural heritage resources to the Virginia Outdoors Foundation and Virginia land trusts as they work on developing conservation easements.

The DCR-DNH has a Memorandum of Agreement with the Virginia Department of Game and Inland Fisheries (VDGIF) for sharing of data and species coordination between the two agencies. In addition to regulatory agencies, the Virginia Department of Transportation (VDOT) integrates Natural Heritage data into CEDAR Integrator, their internal database for environmental screening purposes, and based on that screening uses the Natural Heritage Data Explorer for submitting transportation projects for further review. Also, under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR-DNH represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

## Specific Projects

### **Energy - Solar Project**

*Spotsylvania Solar Project-Spotsylvania County*

In April 2018, DCR-DNH provided comments on a proposed 500 megawatt solar facility in Spotsylvania County. This is currently the largest proposed solar project in the commonwealth and because the megawattage is above the Permit by Rule (PBR) threshold of 150MW, the State Corporation Commission (SCC) is the state permitting agency. According to the information in our files, the Po River at Corbin Bridge Stream Conservation Unit and the Plentiful Creek Stream Conservation Unit are documented downstream of the project site with an associated occurrence of the Dwarf wedgemussel (*Alasmidonta heterodon*, G1G2/S1/LE/LE) a state and federally listed freshwater mussel and a significant aquatic natural community. Furthermore, after review by a staff botanist, a survey for Small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) was recommended which was conducted in June 2018, and no individuals were documented.

## **Energy - Pipeline Project**

### *WB Xpress Project – Chantilly Compressor Station and Chantilly Lateral, Fairfax County Section*

The portion of the project in Fairfax County intersects the Elklick Diabase Flatwoods Conservation Site and the Elklick Woodlands Natural Area Preserve. A recent re-review in October of 2017 of this portion of the project intersected a newly documented location for Purple milkweed (*Asclepias purpurascens*, G5/S2/NL/NL), a rare plant in the easement south of Pleasant Valley Road. The project proposed using the existing access road for proposed activities but expanding the width of the existing gravel road to accommodate the required equipment. The DCR-DNH Northern Region Steward determined that expansion of the road width to the north side only would be the least impactful on this resource. DCR-DNH also reiterated the need to utilize existing access roads within the intersection of the right-of-ways to the northwest of the proposed staging area to avoid impacts to Purple milkweed, documented in that location. Furthermore, the Elklick Woodlands Natural Area Preserve is located within the project area and is owned by the Fairfax County Parks Authority and jointly managed with DCR-Natural Heritage. DCR-DNH recommended continued coordination with the Fairfax Parks Authority and the DCR-DNH Northern Region Natural Area Steward in regards to avoiding impacts to the natural area preserve. (Appendix B)

## **New Connector Road and Trails**

### *Independence Boulevard-York County*

The 2015 proposed Independence Boulevard project is ongoing, and DCR-DNH has continued to provide comments on the various stages of the project. In August of 2018, DCR-DNH provided comments on a proposed deed restriction and trail system for the conservation area to mitigate for impacts to Mabee's salamander habitat from the proposed road project. At issue was the proposal to place a conservation easement or deed restriction over the conservation area associated with the new connector road. DCR-DNH supported the Virginia Department of Game and Inland Fisheries's recommendation of placing a conservation easement on the conservation area rather than a deed restriction, since a conservation easement provides a stronger level of protection. DCR-DNH also stated that according to the Virginia Attorney General's opinions,

there are no restrictions in the VA code prohibiting a municipality from granting a conservation easement in perpetuity. In addition, DCR-DNH provided multiple comments on the proposed trail system within the conservation area, including recommendations that a planned plant survey be broadened to include all potential rare plant species from the area, requesting better and more detailed maps, and concerns about invasive species introduction. (Appendix C)

## **Frequent Flooding Studies**

### *Pungo Ferry Road- City of Virginia Beach*

The project proposed to raise the elevation of Pungo Ferry road due to frequent flooding events. DCR-DNH provided comments on the North Landing River:Pocosins Conservation Site that is within the project site and the natural heritage resources of concern, and also provided recommendations to minimize impacts to those resources. (Appendix D)

### *Indian River Road- City of Virginia Beach*

The project proposed to raise the elevation of Indian River road due to frequent flooding events. DCR-DNH provided comments on the North Landing River:West Neck Creek Conservation Site that is within the project site and the natural heritage resources of concern. DCR-DNH also recommended a survey for the Rare skipper (*Problema bulenta*, G2G3/S1S2/SOC/NL) and Duke's skipper (*Euphyes dukesi*, G3/S2/NL/NL) in the project site. (Appendix E)

## **TMDL-Erosion Control**

### *Chippokes State Park Shoreline Erosion-Surry County*

As part of an effort to limit sediment entering waterbodies in the Chesapeake Bay watershed, VDOT proposed to install offshore riprap breakwaters, conduct beach nourishment and grade and replant the bank. This planned project is within the Lower College Run Conservation Site with an associated occurrence of the Yadkin hedge-nettle (*Stachys matthewsii*, G1G2/S1/SOC/NL), a state rare plant.. DCR-DNH recommended a survey for the plant, and also made comments about some potential issues arising from the use of breakwaters for erosion control. On a follow-up visit including a DCR-DNH staff botanist, State Parks staff, and the consultant, the extent of the Yadkin hedge-nettle was documented. Due to the extent of the population and the impacts of previous shoreline stabilization projects, DCR-DNH continues to internally evaluate potential impacts from the proposed project. (Appendix F)

## **Habitat Restoration**

### *Consulting Services for an Ecologically Responsible and Pollinator-Smart Solar Industry*

The Project Review Coordinator along with other Natural Heritage staff participated in the awarding of a DEQ contract for the enhancement and creation of resource tools to encourage pollinator-friendly solar energy farm development in the Virginia. The one year contract includes the enhancement of the Virginia Solar Site Native Plant Finder

(<http://www.dcr.virginia.gov/natural-heritage/solar-site-native-plants-finder>) and Virginia Solar Site Pollinator/Bird Habitat Scorecard (<http://www.dcr.virginia.gov/natural-heritage/document/va-solar-site-pollinator-bird-habitat-scorecard.pdf>) (Appendix G), the development of a native plant cultivation and maintenance manual, monitoring plan associated with the Virginia Solar Scorecard and business plan for a native plant/seed industry in Virginia.

## **Land Protection**

### *Malvern Hill-Henrico County*

DCR-DNH protection staff worked with various land conservation organizations to document natural heritage resources at this tract in Henrico County, and to provide assistance in securing easements and providing recommendations for protection of natural heritage resources. Some of the natural heritage resources that could potentially benefit from the placement of a conservation easement on this tract include the Atlantic sturgeon (*Acipenser oxyrinchus*, G3/S2/LE/LE), Sensitive joint-vetch (*Aeschynomene virginica*, G2/S2/LT/LT), and Swamp pink (*Helonias bullata*, G3/S2S3/LT/LE).

### *Natural Heritage Data and Natural Heritage Data Explorer*

The heart of DCR-DNH's service to localities is the set of databases and information tools that indicate what is rare, where the rarities are, and how they can be protected. As of September 30, 2018, DCR-DNH databases contain information about approximately 9,746 specific occurrences of natural heritage resources, 2,481 of which reside in the coastal zone. Over the years, DCR-DNH has continually worked to improve the quality of the data and the utility of the tools used to present the data to researchers, planners, and decision-makers. All DCR-DNH data has been converted to modified polygons within the GIS system. Conservation sites are now the primary mechanism for distributing natural heritage location information for public use. Conservation sites identify areas that potentially warrant conservation action because of the associated natural heritage resources and the habitat required for their survival. In FY2017 certain kinds of conservation sites, including 90% of terrestrial conservation sites and anthropogenic habitat zones, have undergone an automated site delineation process using a customized ArcGIS toolbox built in Python programming language which provides a consistent and repeatable process for updating conservation sites on a quarterly basis.

DCR-DNH currently tracks over 2,101 conservation sites, of which 614 are in the coastal zone as of September 30, 2018. These sites are continuously being updated by DCR-DNH staff.

Keeping natural heritage and partner data current is an ongoing effort. At the May 2018 DCR-DNH all staff meeting, the VACZMP Coastal GIS Coordinator gave a presentation on the updated 2017 Coastal Virginia Ecological Value Assessment (VEVA). This assessment is a geospatial product that ranks terrestrial and aquatic areas based on the ecological value providing guidance to local governments engaged in land use management and conservation planning. Multiple partners including DCR-DNH provided data and input for this planning tool.

The Virginia Natural Heritage Data Explorer (NHDE) allows Internet users to access Natural Heritage data on a remote website. This ArcServer GIS informational tool last updated in December of 2017 can alert planners to potential areas of opportunity or concern, facilitate proactive planning for county resources, and allow preliminary screening of projects and activities for potential impacts to natural heritage resources. In addition, licensed users may submit projects for review through the website. The natural heritage data on the website is updated quarterly, as updates are released to subscribers for digital screening coverage shapefiles.

The website includes the Species and Community Search function which allows users to search for a list of natural heritage resources by various filters including localities, coastal zone and planning district commissions. The Virginia ConservationVision models are also accessible through the website, which help target conservation efforts by guiding comprehensive planning.

Several different levels of NHDE access are available, from a public access level to a paid subscription with increasing information made available to different tier level users. The Natural Heritage Data Explorer website tool can be accessed at <https://vanhde.org/>.

Training sessions for the NHDE have generally been held on an every-other-month basis. NHDE training sessions were held in Richmond utilizing the DEQ computer lab, Farmville VA Cooperative Extension Training Center and by webinar for individual training sessions. NHDE training is provided by the project review staff, primarily the Locality Liaison. The general training sessions are open to all organizations, but may be divided into three sections according to the user's tier access level. During this grant year, 7 separate hands-on training sessions for NHDE were held for coastal zone participants.

Approximately 1346 projects have been submitted through NHDE during FY2017 with 551 occurring in the coastal zone. Improvements to internal project review efficiency have been achieved through enhanced database query functions and access, updates to the fillable on-line information services order forms including new review services and increasing the number of projects reviewed electronically through NHDE. In addition, DCR-DNH has increased efficiently in the project review work flow by the utilization of ArcGIS On-Line that allows concurrent multi-user entering of projects including the hundreds of projects reviewed annually for the coastal zone.

### ***Participants in Locality Liaison Presentations***

Presentations included an overview of DCR-DNH's Natural Heritage Program, the Locality Assistance Program, the Natural Heritage Data Explorer (NHDE) website and ConservationVision models. Additional information was provided about, the Virginia Wetlands Catalog and the Coastal Virginia Ecological Value Assessment (VEVA), part of DEQ's Coastal GEMS website application.

Coastal participants in the training sessions included 24 from state agencies, 3 from local governments, 13 from consulting companies, 3 from land trusts and one from a federal agency. A

list of the local government, state, agencies and consultants that participated in these training sessions can be found in Appendix H.

### ***Locality Partnerships with DCR-Natural Heritage***

The Locality Liaison has worked with localities within the Coastal Zone to encourage comprehensive use of natural heritage data and DCR-DNH services for conservation planning.

At the end of FY2017, there were 26 coastal counties and 15 coastal cities, 8 Planning District Commissions and 19 land trusts within the Coastal Zone with access to NHDE, digital shapefile data, and/or a combination of these tools. This equates to 93% of Coastal Zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 76% of the Land Trusts as of September 30, 2018. The Locality Liaison updated the website map (<http://www.dcr.virginia.gov/natural-heritage/localitiesmap>) to display localities with natural heritage data, reflecting the current status. Please see Appendix I for a map of the Virginia localities with Natural Heritage information. The Locality Liaison and project review staff renewed or initiated 43 data licenses throughout this year within the coastal zone, including localities, consultants, land trusts, educational institutions, state agencies, federal agencies and planning district commissions.

The locality liaison attended the Virginia Association of Planning District Commissions annual meeting in Roanoke, VA in July and the Virginia's Department of Environmental Quality's Coastal Zone Policy meeting in September.

### ***Habitat Restoration and Protection Initiatives***

#### ***DCR State Parks Planning Review***

Natural Heritage staff participated on an advisory committee for state parks to discuss their master planning efforts. DCR-DNH staff review the park's resource information to consider appropriate park development. This process has provided state park planners with natural heritage resource information early in the planning stages to prevent impacts to resources. The review of proposed projects at False Cape State Park, Pocahontas State Park, Chippokes State Park, Westmoreland State Park, Belle Isle State Park and the review of the master plan for Widewater State Park identified documented natural heritage resources within the parks and DCR-DNH provided recommendations for avoidance of impacts to these resources during development.

#### ***Virginia Aquatic Resources Trust Fund Interagency Review Team***

The Corps-Norfolk District and DEQ chair the Virginia Aquatic Resources Trust Fund (VARTF) Interagency Review Team that reviews and approves wetland and stream mitigation projects. Once approved these projects serve as an acceptable form of compensatory mitigation for impacts to state waters, including wetlands, permitted under Virginia Water Protection individual and general permits. DCR-DNH environmental review coordinator is a member of the

interagency review team reviewing proposed wetland mitigation projects in the coastal zone as well as the other parts of the state. Several wetland mitigation bank prospectus were reviewed this year including 5 coastal zone wetland mitigation bank projects.

### ***Recommendations for Further Actions***

The Locality Liaison program has proven most effective when the Locality Liaison can become actively involved in a specific project of concern to the locality such as the partnerships with James City County and Fairfax County. Furthermore, interest in natural heritage information often depends on timing such as whether a comprehensive plan is under review or a major development project is being considered. Thus, the Locality Liaison will strive to stay aware of upcoming locality events through coordination with other Heritage regional and agency staff. The Liaison continues to identify when Coastal Zone localities comprehensive plans are due for review and will contact these localities at the appropriate time to offer assistance.

The Natural Heritage Data Explorer training will continue to be available every other month to provide interested users with the ability to access natural heritage information. In addition to on-site training, the locality liaison will offer to bring the training to the locality and the ability for participants to attend by webinar may also be included to increase participation by localities in NHDE training sessions.

41 Coastal Zone localities currently have access to the NHDE or digital shapefile Natural Heritage data. It is very important to provide follow-up assistance to these localities beyond the initial presentation and delivery of data. The Locality Liaison plans to work with these localities to determine how these data are being used and discuss local needs for further assistance. Additionally, localities that have used the NHDE in the past, but have not attended training for the NHDE will be targeted in FY2018. It is also important to keep in contact with the localities due to possible staffing changes.

The Locality Liaison will continue to focus on contacting localities that currently do not have Natural Heritage data, with King and Queen, Surry and Caroline Counties being targeted for FY2018 in the coastal zone as well as counties that have not renewed their current data licenses. In some cases this may involve contacting departments other than planning, such as GIS, Environmental, Recreation, Parks or Utilities departments if they are separate entities. This may also involve an effort to assist localities in developing ordinances or regulations necessitating the review of Natural Heritage information for certain projects, including renewable energy projects. Contacting PDCs in the coastal zone may help in identifying the best way to involve some of the localities.

The Locality Liaison web page will be updated and revised to continue to provide relevant natural heritage information for localities as well as updating the quarterly coastal species section (Appendix J) and the map of localities with Natural Heritage data. The Locality Liaison along with the project review staff will continue to work to improve the environmental review process.

## **Appendix A**

Letter for the Spotsylvania Solar Energy Facility, SUP18-0001,  
SUP18-0002, SUP18-0003

Molly Joseph Ward  
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**COMMONWEALTH of VIRGINIA**  
DEPARTMENT OF CONSERVATION AND RECREATION

To: Robbie Rhur, DCR-DPRR

From: Tyler Meader, DCR-DNH

Date: April 23, 2018

Subject: Spotsylvania Solar Energy Facility, SUP18-0001, SUP18-0002, SUP18-0003  
Due April 23, 2018

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.

According to the information currently in our files, the Po River at Corbin Bridge Stream Conservation Unit and the Plentiful Creek Stream Conservation Unit are located downstream from the project site. Stream Conservation Units (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 Po River at Corbin Bridge SCU has been given a biodiversity ranking of B2, which represents a site of very high significance. The natural heritage resource associated with this site is:

*Alasmodonta heterodon*

Dwarf wedgemussel

G1G2/S1/LE/LE

The Dwarf wedgemussel grows to a length of approximately 30 mm. This species inhabits creeks of varying sizes, residing in muddy sand, sand, and gravel bottoms, in areas of slow to moderate current and little silt deposition (USFWS, 1993). Currently, this species exists in widely scattered, small populations in the Chowan, James, York, Rappahannock, and Potomac River drainages. Its native host fishes include Mottled sculpin (*Cottus bairdi*), Johnny darters (*Etheostoma nigrum*), Tessellated darters (*Etheostoma olmstedi*) and Sculpins (*Cottus* sp.) (Michaelson and Neves, 1995). Please note that this species is currently classified as endangered by the United States Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries (VDGIF).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species.

In addition, the Po River has been designated by the VDGIF as a “Threatened and Endangered Species Water” for the Dwarf wedgemussel.

The Plentiful Creek SCU has been given a biodiversity ranking of B4, which represents a site of moderate significance. The natural heritage resource associated with this site is:

Aquatic Natural Community  
(NP-Pamunkey Second Order Stream)

G3/S3/NL/NL

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<sup>th</sup> 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.

Furthermore, according to a DCR biologist, potential exists for Small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) to occur at the project site. Small whorled pogonia is a perennial orchid that grows in a variety of woodland habitats in Virginia, but tends to favor mid-aged woodland habitats on gently north or northeast facing slopes often within small draws. It is quite natural for plants of this species to remain dormant in the soil for long periods of time. Direct destruction, as well as habitat loss and alteration, are principle reasons for the species’ decline (Ware, 1991). The Virginia Field Office of the USFWS recommends that field surveys for this species be conducted in areas of Virginia south of Caroline County from May 25 through July 15 and in areas of Virginia from Caroline County and north from June 1 through July 20 (K. Mayne, pers. com. 1999). Please note that this species is currently classified as threatened by the USFWS and as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS).

Due to the potential for this site to support populations of Small whorled pogonia, DCR recommends an inventory for the resource in the project site. 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 supports the planned habitat survey for Small whorled pogonia mentioned in section 6 -Avoidance Measures of the “*Preliminary Assessment of*

*Threatened and Endangered Species*” prepared by Katie Crum at Kimley-Horn and Associates, Inc. on October 4, 2017 and updated March 13, 2018.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at [chris.ludwig@dcr.virginia.gov](mailto:chris.ludwig@dcr.virginia.gov) or 804-371-6206 to discuss arrangements for field work. A list of other individuals who are qualified to conduct inventories may be obtained from the USFWS.

To minimize adverse impacts to the aquatic ecosystems 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 Dwarf wedgemussel, DCR also recommends coordination with the USFWS and the VDGIF, Virginia's regulatory authority for the management and protection of this species to ensure compliance with protected species legislation. Finally, DCR recommends the development of an invasive species management plan for the project and the planting of native pollinator plants in the buffer areas of the planned facility which bloom throughout the spring and summer.

Furthermore, the proposed project will fragment a C2, C4 and C5 core 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](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 from 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).

Under a Memorandum of Agreement established between the VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH and USFWS. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

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 project information and 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 VDGIF 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](mailto:Ernie.Aschenbach@dgif.virginia.gov).

Thank you for the opportunity to comment on this project.

CC: Troy Andersen, USFWS  
Amy Ewing, VDGIF  
Mary Major, DEQ

#### Literature Cited

Michaelson, D.L. and R.J. Neves. 1995. Life history and habitat of the endangered Dwarf wedgemussel *Alasmidonta heterodon* (Bivalvia:Unionidae). *Journal of the North American Benthol Society* 14(2): 324-340.

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# **Appendix B**

Letter for  
Columbia Gas Transmission Line  
WB Xpress Project  
(Chantilly Compressor Station and Chantilly Lateral, Fairfax County)

Molly Joseph Ward  
Secretary of Natural Resources

Clyde E. Cristman  
Director



Rochelle Altholz  
Deputy Director of  
Administration and Finance

David C. Dowling  
Deputy Director of  
Soil and Water Conservation  
and Dam Safety

Thomas L. Smith  
Deputy Director of Operations

**COMMONWEALTH of VIRGINIA**  
DEPARTMENT OF CONSERVATION AND RECREATION

October 13, 2017

Karen Beatty  
Environmental Resources Management, Inc.  
121 W. Trade Street, Suite 2320  
Charlotte, NC 28202

Re: WB Express Project

Dear Ms. Beatty:

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.

**Dysart Valve Site – Shenandoah County, Columbia Furnace Valve Site-Shenandoah County (new site), Strasburg Compressor Station-Shenandoah County, Shenandoah River West Valve Site-Warren County (new site) and Nineveh Meter Station- Warren County**

These project areas are situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. 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. Based on this review, DCR does not anticipate adverse impacts to documented karst features from the gas pipeline improvements at these five sites in Shenandoah and Warren Counties.

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](mailto: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 stormwater discharge, copies of VDOT Form EQ-120 will suffice. New "Karst Assessment Guidelines" developed by the Virginia Cave Board for land development can be found at [http://www.dcr.virginia.gov/natural\\_heritage/documents/karst\\_assessment\\_guidelines.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/karst_assessment_guidelines.pdf).

In addition, the Nineveh Meter Station and the Shenandoah River West Valve Site are 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 the DCR Karst Protection Coordinator Wil Orndorff ([Wil.Orndorff@dcr.virginia.gov](mailto:Wil.Orndorff@dcr.virginia.gov) or 540-230-5960). Due to the legal status of the Madison Cave isopod, DCR recommends coordination with the US Fish and Wildlife Service (USFWS) and Virginia Department of Game and Inland Fisheries (VDGIF) to ensure compliance with protected species legislation.

**Loudoun Compressor Station-Loudoun County**

According to the information currently in our files, the Little River Stream Conservation Unit (SCU) is located downstream from 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 also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Little River SCU has been given a biodiversity ranking of B2, which represents a site of very high significance. The natural heritage resources associated with this site are:

<i>Lasmsgona subviridis</i>	Green floater	G3/S2/NL/LT
	Aquatic Natural Community	G2/S2/NL/NL
	Aquatic Natural Community	G3G4/S3S4/NL/NL

The Green floater, a rare freshwater mussel, ranges from New York to North Carolina in the Atlantic Slope drainages, as well as the New and Kanawha River systems in Virginia and West Virginia (NatureServe, 2009). In Virginia, there are records from the New, Roanoke, Chowan, James, York, Rappahannock, and Potomac River drainages. Throughout its range, the Green floater appears to prefer the pools and eddies with gravel and sand bottoms of smaller rivers and creeks, smaller channels of large rivers (Ortman, 1919) or small to medium-sized streams (Riddick, 1973). Please note that this species has been listed as state threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species.

The documented Aquatic Natural Communities are 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, one stream is a grade A- and the other 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. The first stream reach also holds an “Exceptional” stream designation and the second stream reach 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, these streams contribute to high Biological Integrity at the watershed level (6<sup>th</sup> 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 Communities and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

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 Green floater, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

### **Chantilly Compressor Station and Chantilly Lateral -Fairfax County**

According to information currently in our files, Purple milkweed (*Asclepias purpurascens*, G5?/S2/NL/NL) has been documented within the project area in two locations, one newly documented. Purple milkweed occurs in prairies, woodland openings/edges, and thickets, and in wet situations as well as on dry, rocky ridgetops, along roadsides and rights-of-way (NatureServe, 2004). The plant flowers in June and July. It occurs in eastern North America from Ontario and New Hampshire south to Georgia and west as far as South Dakota and Texas. However, distribution is spotty in parts of the range, especially along the northeastern seaboard, in the southeast (Virginia to Mississippi), and in the northern Midwest. Purple milkweed is currently known from 10 locations in Virginia.

At the intersection of the two ROWs northwest of the proposed staging area, DCR recommends avoidance of purple milkweed by keeping to existing road locations. For the second newly documented location, south of Pleasant Valley Road in the easement, (see attached map) DCR recommends avoidance by expanding the existing gravel road to the north side only.

The Ellick Woodlands Natural Area Preserve is located immediately adjacent to the project area and is owned by the Fairfax County Parks Authority and jointly managed by the Fairfax County Parks Authority and DCR. DCR recommends continued coordination with the DCR Northern Region Natural Area Steward, Mike Lott (540-658-8690) and the Fairfax County Parks Authority.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and 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 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.

A fee of \$125.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24<sup>th</sup> Floor, Richmond, VA 23219**. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2013. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) 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](mailto:Ernie.Aschenbach@dgif.virginia.gov).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA  
Coastal Zone Locality Liaison

CC: Wil Orndorff-DCR-Karst  
Troy Anderson, USFWS  
Ernie Aschenbach, VDGIF  
Mike Lott, DCR

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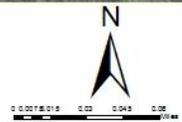
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**DCR**  
 Department of Conservation & Recreation  
 CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES  
 Virginia Natural Heritage Program

**74487, ERM WB Express  
 New Purple Milkweed location**

Map created October 13, 2017 by DCR-DNH  
 Base imagery VGINVBMP orthoimagery 2013 - 2015



# **Appendix C**

## Letter for Independence Boulevard

Molly Joseph Ward  
*Secretary of Natural Resources*

Clyde E. Cristman  
*Director*



Rochelle Altholz  
*Deputy Director of  
Administration and Finance*

David C. Dowling  
*Deputy Director of  
Soil and Water Conservation  
and Dam Safety*

Thomas L. Smith  
*Deputy Director of Operations*

**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

August 3, 2018

Larissa Ambrose  
DEQ-TRO  
5636 Southern Boulevard  
Virginia Beach, VA 23462

Re: DEQ 16-218F, Independence Boulevard

Dear Ms. Ambrose:

The Department of Conservation and Recreation's Division of Natural Heritage's (DCR) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. 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.

As a follow-up to our phone conversation with the Newport News City Attorney on June 12, 2018 and subsequent coordination with the state attorney general's office, DCR reiterates our previous comments and provides the following additional comments for the Independence Boulevard Project:

In response to the statement contained in the March 13, 2018 final response letter from the consultant to DEQ regarding the Virginia Department of Game and Inland Fisheries (DGIF) recommendation of placing a conservation easement on the property (see below)

DGIF

**"We recommend that a Conservation Easement be placed over these parcels, rather than deed restrictions, as easements are more permanent in nature and are becoming the standard instrument over lands be used for other mitigatory practices, such as mitigation banking."**

The property proposed for conservation is owned by the Newport News Waterworks (NNWW) as part of the watersheds draining to the drinking water reservoirs. The NNWW was established under a charter establishing legal obligations and limitations placed on NNWW regarding management of the land under their ownership. Creating an easement would instill ownership rights to another party, which legally would conflict with their charter. In addition, state code prohibits municipalities from granting easements longer than 40 years. NNWW, therefore, cannot issue a permanent easement on the property.

and verbally stated by the Newport News City Attorney during the June 12, 2018 conference call that "the state code prohibits municipalities from granting easements longer than 40 years" please find attached the VA attorney general's 2000 and 2017 opinions refuting this claim. It is the attorney general's opinion that

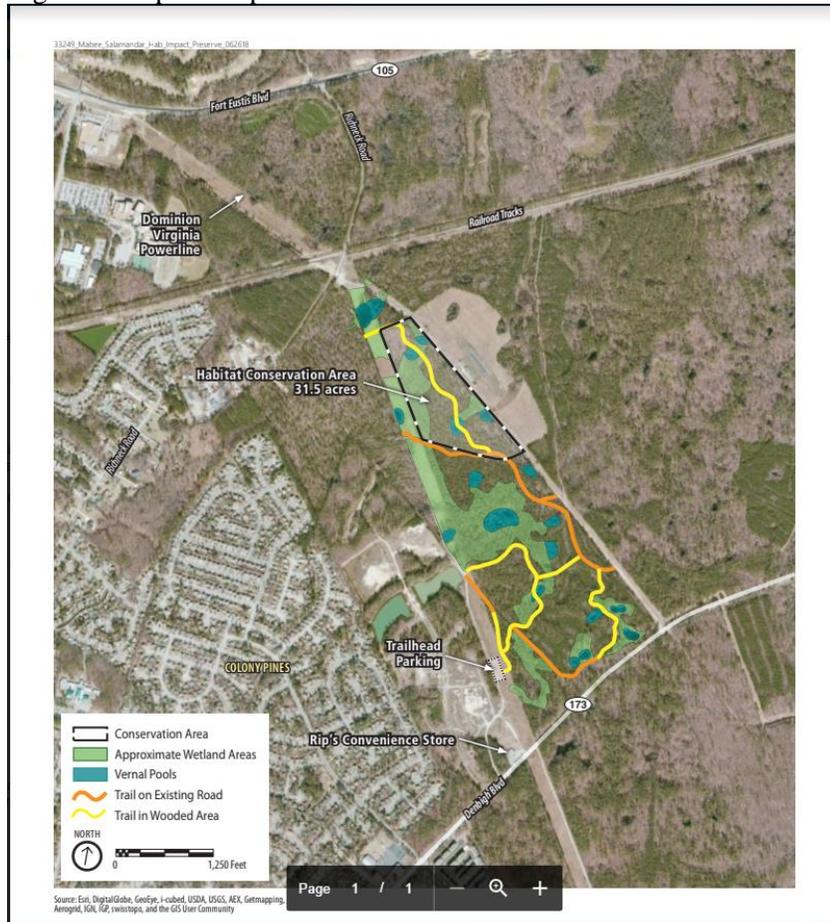
municipalities can grant easements in perpetuity and this 40-year limitation does not apply to conservation easements. Evidence supporting this opinion is the conservation and open space easement placed on the Grafton Ponds Natural Area Preserve property in York County, owned by Newport News Water Works and managed by DCR in perpetuity.

Please note, DCR understands the conservation value in protecting the 31.5 acres with potential Mabee's salamander habitat to mitigate for the proposed impacts from the Independence Boulevard project and therefore does not recommend denial of the issuance of the Virginia Water Protection Permit. However, DCR could more fully support this mitigation proposal if a higher level of protection was placed on the property using a conservation easement instead of deed restrictions.

Furthermore, based on the information provided during the July 19, 2018 site visit of the proposed Newport News Water Works Trail System project as identified on the map below including the 31.5 acre Mabee's salamander habitat conservation area for the Independence Boulevard project, DCR offers the following comments:

- DCR requests a map displaying the location of the connector trail via the powerline right-of-way between the north and south trail systems and an overlay of the Independence Boulevard project limits on the map.
- More detail on potential impacts from the proposed trail project including impacts to vernal pools, types of materials proposed for the wetland crossings, etc.
- DCR requests a copy of the proposed *Fimbristylis perpusilla* plant survey for the project and recommends the survey be inclusive of all potential rare plant species known from the area including Pondspice (*Litsea aestivalis*).
- The proposed trails have potential to bring in more predators and exotic plants impactful to native species. DCR recommends the development and implementation of an invasive species management plan including methods for treating documented invasives within the project area including *Phragmites*, *Microstegium* and *Lespedeza* and long-term management for the property.
- Clarification whether this project and potential impacts will be included as part of the Independence Boulevard project or permitted as a single and complete project by DEQ.
- DCR is supportive of the overall educational opportunities associated with the proposed project.

Figure 1-Map of Proposed Trails



Thank you for the opportunity to provide additional information for this project.

Sincerely,

S. René Hypes  
Natural Heritage Project Review Coordinator

## **Appendix D**

Letter for Rural Road Flooding Study-Pungo Ferry Road

Molly Joseph Ward  
Secretary of Natural Resources

Clyde E. Cristman  
Director



Rochelle Altholz  
Deputy Director of  
Administration and Finance

David C. Dowling  
Deputy Director of  
Soil and Water Conservation  
and Dam Safety

Thomas L. Smith  
Deputy Director of Operations

COMMONWEALTH of VIRGINIA  
DEPARTMENT OF CONSERVATION AND RECREATION

November 28, 2017

Taylor Beard  
Kimley-Horn and Associates  
4500 Main Street, Suite 500  
Virginia Beach, VA 23462

Re: 116049085, Rural Road Flooding Study-Pungo Ferry Road

Dear Ms. Beard:

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.

According to the information currently in our files, the North Landing River: Pocosins Conservation Site is located within the project site. 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. North Landing River: Pocosins Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern at this site are:

<i>Euphyes dukesi</i>	Dukes' skipper	G3/S2/NL/NL
<i>Euphyes pilatka</i>	Palatka skipper	G3G4/S1/NL/NL
<i>Lobelia elongata</i>	Long-leaf lobelia	G4G5/S1/NL/NL
<i>Cladium jamaicense</i>	Sawgrass	G5T5/S1S2/NL/NL
<i>Ludwigia alata</i>	Winged seedbox	G3G5/S1/NL/NL
<i>Kalmia carolina</i>	Carolina laurel	G4/S2/NL/NL
	Wind-Tidal Oligohaline Marsh (Big Cordgrass Type)	G2G3/S2/NL/NL
	Pond Pine Woodland / Pocosin	G2?/S1/NL/NL

Furthermore, the Canebrake rattlesnake (*Crotalus horridus*, G4T4/S1/NL/LE) has been historically documented within the project site.

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. Due to the legal status of the Canebrake rattlesnake, DCR recommends coordination with the Virginia Department of Game and Inland Fisheries (VDGIF), Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

The North Landing River Natural Area Preserve has been documented within the project site. DCR recommends coordination with Darren Loomis, the DCR-Southeast Region Steward at [Darren.loomis@dcr.virginia.gov](mailto:Darren.loomis@dcr.virginia.gov) or (757)925-2318.

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 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.

A fee of \$120.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24<sup>th</sup> Floor, Richmond, VA 23219**. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2013. Late payment may result in the suspension of project review service for future projects.

The VDGIF 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](mailto:Ernie.Aschenbach@dgif.virginia.gov).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA  
Coastal Zone Locality Liaison

CC : Amy Ewing, VDGIF  
Darren Loomis, DCR-DNH

## **Appendix E**

Letter for Rural Road Flooding Study-Indian River Road

Molly Joseph Ward  
Secretary of Natural Resources

Clyde E. Cristman  
Director



Rochelle Altholz  
Deputy Director of  
Administration and Finance

David C. Dowling  
Deputy Director of  
Soil and Water Conservation  
and Dam Safety

Thomas L. Smith  
Deputy Director of Operations

COMMONWEALTH of VIRGINIA  
DEPARTMENT OF CONSERVATION AND RECREATION

November 29, 2017

Taylor Beard  
Kimley-Horn and Associates  
4500 Main Street, Suite 500  
Virginia Beach, VA 23462

Re: 116040895, Rural Road Flooding Study-Indian River Road

Dear Ms. Beard:

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.

According to the information currently in our files, the North Landing River: West Neck Creek Conservation Site is located within the project site. 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. North Landing River: West Neck Creek Conservation Site has been given a biodiversity significance ranking of B4, which represents a site of moderate significance. The natural heritage resource of concern at this site is:

*Euphyes dukesi*

Dukes' skipper

G3/S2/NL/NL

The Duke's skipper is a small, orange-brown and yellow butterfly species which ranges along coastal areas from southeastern Virginia to central Florida, and up the Mississippi River valley from Louisiana to Illinois, and with a pocket in northwestern Ohio and northeastern Indiana (Glassberg, 1999). Dukes' Skippers prefer wet, marshy areas. They are found in swamps, open marshes, and wet roadside ditches, while expansive estuarine or coastal marshes are preferred. Dukes' Skippers prefer broad-leaved sedges such as Shoreline Sedge (*Carex hyalinolepis*) (VDCR, 2015). In Virginia, it is only recorded from the southeastern outer coastal plain. Females lay their eggs on the undersides of leaves of specific sedge (*Carex*) species; the larvae are dependent on these host sedges.

The Duke's skipper is primarily threatened by habitat destruction and fragmentation, especially the elimination of the host sedge species (Clark and Potter, 1995; NatureServe, 2009). Mosquito spraying may be a threat if Dibrom is used (NatureServe, 2009).

Furthermore, the Rare skipper (*Problema bulenta*, G2G3/S1S2/SOC/NL) has been historically documented within the project site. The Rare skipper is a small, yellow-orange butterfly species that inhabits tidal marshes from New Jersey south to Georgia (NatureServe, 2009). In Virginia, it is recorded from tidal sections of the James and York River drainages. This species occurs in wetlands along tidal rivers, but may range out as much as half a kilometer in search of nectar (NatureServe, 2009). The best nectar flower is swamp milkweed, but common milkweed, dogbane, and buttonbush are also highly favored. The caterpillars probably feed on giant cordgrass (*Spartina cynosuroides*) and species of wild rice (*Zizania* and *Zizaniopsis*) (Glassberg, 1999).

Threats to the Rare skipper include mosquito spraying and habitat loss (NatureServe, 2009). Please note that this is designated as a species of concern by the U.S. Fish and Wildlife Service (USFWS); however, this is not a legal status.

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the resources in the project site. 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 J. Christopher Ludwig, Natural Heritage Inventory Manager, at [chris.ludwig@dcr.virginia.gov](mailto:chris.ludwig@dcr.virginia.gov) or 804-371-6206 to discuss arrangements for field work.

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.

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.

A fee of \$95.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24<sup>th</sup> Floor, Richmond, VA 23219**. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2013. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) 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](mailto:Ernie.Aschenbach@dgif.virginia.gov). This project is located within 2 miles of a documented occurrence of a state listed animal. Therefore, DCR recommends coordination with the VDGIF, Virginia's regulatory

authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA  
Coastal Zone Locality Liaison

CC: Troy Andersen, USFWS  
Amy Ewing, VDGIF

#### Literature Cited

Clark, K.H. and J.L. Potter. 1995. North Landing River Natural Area Preserve Resource Management Plan, First Edition. Natural Heritage Technical Document 95-9. Virginia Department of Conservation and Recreation, Richmond, Virginia. February 1995.

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## **Appendix F**

Letter for Chippokes Plantation State Park Shoreline Repair

Molly Joseph Ward  
Secretary of Natural Resources

Clyde E. Cristman  
Director



**COMMONWEALTH of VIRGINIA**  
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz  
Deputy Director of  
Administration and Finance

David C. Dowling  
Deputy Director of  
Soil and Water Conservation  
and Dam Safety

Thomas L. Smith  
Deputy Director of Operations

June 14, 2018

Brian Owen  
MSA, P.C.  
5032 Rouse Drive  
Virginia Beach, VA 23462

Re: Chippokes Plantation State Park Shoreline Repair

Dear Mr. Owen:

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.

According to the information currently in our files, the Lower College Run Conservation Site is located within the project site. 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. Lower College Run Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource of concern at this site is:

*Stachys matthewsii*

Yadkin hedge-nettle

G1G2/S1/SOC/NL

Yadkin hedge-nettle, a member of the mint family (Lamiaceae), is a rhizomatous perennial that grows to about 1 meter tall. Like most mints, the leaves are opposite and the stems are square. The leaves are 5-10cm long and the flowers are pink to dark pink. This plant blooms in early summer. It is shade-intolerant, occurring along forest edges in wet meadows, and in clearings of the southern Piedmont, as well as on calcareous river shores of the Coastal Plain. This rare species is known only from southern Virginia and coastal North Carolina. It was first collected in Surry County, Virginia and has been subject to much taxonomic and nomenclatural confusion until recently (Weakley et al., 2012). Surveys for this species should be conducted during June and July. In 2014, 4 extant occurrences of this state rare plant were documented in Virginia.

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the Yadkin hedge-nettle 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 J. Christopher Ludwig, Natural Heritage Inventory Manager, at [chris.ludwig@dcr.virginia.gov](mailto:chris.ludwig@dcr.virginia.gov) or 804-371-6206 to discuss arrangements for field work.

In addition, the Atlantic sturgeon (*Acipenser oxyrinchus*, G3/S2/LE/LT) has been documented within the James River. Atlantic sturgeon is a large fish that reaches a maximum length of about 4.3 meters and may live for several decades. The adults migrate between fresh water spawning areas and salt water non-spawning areas. They feed primarily on benthic invertebrates and small fishes as available.

Stocks on the Atlantic slope have been severely reduced by overfishing (mainly late 1800s and early 1900s), pollution, sedimentation, and blockage of access to spawning areas by dams (Gilbert 1989, Burkhead and Jenkins 1991, Marine and Coastal Species Information System 1996). In Chesapeake Bay and elsewhere in the range, hypoxic events have increased and may degrade nursery habitat for Atlantic sturgeon (Secor and Gunderson 1997). Habitat loss due to dam construction and water pollution are thought to be major factors impeding full recovery of populations (Smith 1985, cited by Johnson et al. 1997; Gilbert 1989). A late maturation age and use of estuaries, coastal bays, and upstream areas of rivers for spawning and juvenile development make stocks vulnerable to habitat alterations in many areas (NatureServe 2012). Please note that this species is currently classified as endangered by the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) and threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

DCR has concerns about the use of breakwaters for erosion control due to starving of sand down drift of the breakwaters as observed at the Savage Neck Dunes Natural Area Preserve in Northampton County. DCR recommends identifying a reference site near the project area in order to identify the goal of the project and the potential outcome of the project.

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. Due to the legal status of the Atlantic sturgeon, DCR also recommends coordination with NOAA Fisheries and Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with protected species legislation.

Please note this project is within a section of the James River, which has been designated as a scenic river in the state of Virginia. Due to this designation, DCR recommends you contact Lynn Crump of the DCR-Division of Planning and Recreation at 804-786-5054 or [Lynn.Crump@dcr.virginia.gov](mailto:Lynn.Crump@dcr.virginia.gov).

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.

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

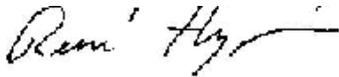
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The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at 804-367-2733 or [Ernie.Aschenbach@dgif.virginia.gov](mailto: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  
Project Review Coordinator

CC: Christine Vaccaro, NOAA Fisheries-Protected Species Division  
Amy Ewing, VDGIF  
Lynn Crump, DCR-DPRR  
Troy Andersen, USFWS

## Literature Cited

- Burkhead, N. M., and R. E. Jenkins. 1991. Fishes. Pages 321-409 in K. Terwilliger (coordinator). Virginia's Endangered Species: Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.
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- Weakley, A.S., J. C. Ludwig, and J.F. Townsend. 2012. Flora of Virginia. Bland Crowder, ed. Foundation of the Flora of Virginia Project Inc., Richmond. Fort Worth: Botanical Research Institute of Texas Press.

# **Appendix G**

## Virginia Solar Pollinator Resource Tool

# Virginia Solar Site Pollinator/Bird Habitat Scorecard

Version 1.0-March 2018

As envisioned, a solar site with excellent habitat is vegetated with native species including a mix of warm season grasses and a diversity of pollinator plants amidst and surrounding the solar panels (Here called the “panel zone”). In this zone, the herbaceous vegetation is mowed only during the dormant season. Invasive species and fescue are eliminated from this zone.

Native plants including woody species where appropriate are used on “buffer land” surrounding the “panel zone”. Added features such as nest boxes and interpretive signage are used.

Insecticides are not applied in any area of the installation. Invasive and non-native plant species are controlled through integrated management approaches with limited usage of herbicides when required.

The site has implemented a detailed establishment, monitoring, and maintenance plan

When employed at a solar facility, these measures will provide benefits to the environment in a number of key areas including 1) storm water retention, 2) biodiversity/wildlife/bird habitat enhancement, 3) carbon sequestration, and 4) pollinator services.

Scoring criteria:

1. Within the panel zone, percent of overall site cover with native plant species listed in the Virginia Solar Site Native Plant Finder (max. 60 points):
2. Within the panel zone, percent of cover in native species used by pollinators as listed in the Virginia Solar Site Native Plant Finder (max. 50 points):
  - 1-15 percent cover 5 points
  - 16-30 percent cover 15 points
  - 31-50 percent cover 30 points
  - 50 percent cover or greater 50 points
3. Within the panel zone, percent of cover for remaining vegetation in warm season grasses listed in the Virginia Solar Site Native Plant Finder (max. 30 points):
  - 1-15 percent cover 5 points
  - 16-30 percent cover 15 points
  - 31-50 percent cover 30 points
  - 50 percent cover or greater 15 points
4. Within the panel zone, number of native species with >2 percent cover used by pollinators as listed in the Virginia Solar Site Native Plant Finder (max. 20 points):
  - 1-9 species 5 points
  - 10-19 species 10 points
  - 20 or more species 20 points
5. Seasons that will have at least 3 blooming species with >2 percent cover each (max. 30 points):
  - Spring (March-May) 10 points
  - Early Summer (June-July 15) 10 points

Late Summer (July15-Aug) 5 points

Fall (Sept-Nov) 5 points

6. Management practices implemented for promoting pollinator habitat (max. 45 points):
  - Mowing in dormant season only 10 points
  - Development of detailed establishment plan 5 points
  - Development of detailed monitoring plan 10 points
  - Development of detailed and adaptive management plan including invasive species control 10 points
  - >1 Bee nesting habitat feature (boxes/tunnels) per acre 5 points
  - >1 Bird nest box per acre 5 points
7. Vegetation buffer/screen area with flowering plant species listed in the Virginia Solar Site Native Plant Finder as used by pollinators (max. 20 points):
  - 10-50 percent cover 10 points
  - 50 percent cover or greater 20 points
8. Remaining vegetation buffer/screen area in other native species (max. 20 points):
  - 10-50 percent cover 10 points
  - 50 percent cover or greater 20 points
9. Signage/Education about bird and pollinator habitat/benefits (max. 10 points):
  - 2 or more signs legible and accessible identifying pollinator habitat 5 points
  - Accessible Bench and education display 5 points
10. Pesticide risk:
  - a. Planned on-site insecticide use -40 points
11. Incompatible plant species risk:
  - Combined cover of fescue >10% -25 points
  - Combined cover of species on DNH invasive plants list >10% -25 points

Maximum points available: 285

Meets Standard: 145 Provides Exceptional Habitat: 230

# Appendix H

## List of Coastal Training Participants for FY17

Virginia Department of Game and Inland Fisheries  
DCR – Soil & Water Conservation  
DCR – Division of Natural Heritage  
Middlesex County Planning  
Draper Aden and Associates  
B&B Consultants, Inc.  
Terracon Consultants, Inc.  
JMT  
Historic Virginia Land Conservancy  
Clark Nexsen  
Cardno  
Kerr Environmental Services Corp.  
Falling Springs LLC  
Henrico County Planning Department  
VOF Tappahannock  
Bowman Consulting  
Environmental Services, Inc.  
VDOT  
Colonial Soil and Water Conservation District  
Roseburg Resources  
BonaVenture Realty Group  
Federal Highway Administration  
Virginia Department of Health  
DCR-Dam Safety  
James River SWCD  
Eastern Shore SWCD  
Three Rivers SWCD  
Hanover Caroline SWCD  
Peanut SWCD  
Prince William SWCD  
Henricopolis SWCD  
Northern Neck SWCD  
Tri County SWCD  
Tidewater SWCD

# Appendix I

## Map of Localities with Natural Heritage Information

Natural Heritage	
About Natural Heritage	+
Natural Area Preserves	+
Rare Species and Natural Communities	+
Information Services	+
Native Plants	+
Invasive Plants	+
Caves/Karst	+
Publications	+

Home » [Natural Heritage](#) » [Virginia Localities with Natural Heritage Information](#)

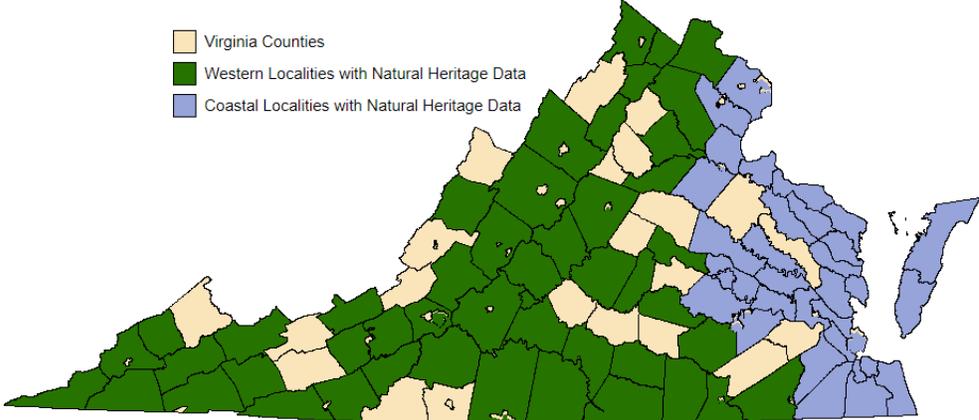
### Virginia Localities with Natural Heritage Information




Virginia Coastal Zone  
MANAGEMENT PROGRAM

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NOAA  
U.S. DEPARTMENT OF COMMERCE

- Virginia Counties
- Western Localities with Natural Heritage Data
- Coastal Localities with Natural Heritage Data



Last updated on Tuesday, November 13, 2018.

Virginia Localities with Natural Heritage Information

# Appendix J

## Quarterly Coastal Species Highlight

**Natural Heritage**

- About Natural Heritage +
- Natural Area Preserves +
- Rare Species and Natural Communities +
- Information Services -
  - Info Services Order Form
  - Local Assistance
  - NH Data Explorer
  - Species and Community Search
  - Virginia Solar Site Native Plant Finder
  - Virginia Solar Site Pollinator/Bird Habitat Scorecard (PDF)
  - Conservation/Vision and Green Infrastructure
  - Telecommunication Towers (PDF)
  - Conservation Lands Database
  - Wetlands Catalog
  - Species Distribution Modeling
- Native Plants +
- Invasive Plants +
- Caves/Karst +
- Publications +

Home » Natural Heritage » Locality Liaison Program

### Locality Assistance Program for Natural Heritage Conservation

Program Mission and Goals | Locality Liaisons | Tools & Services | Data Subscriptions & Map of Locality Subscribers | Contact the Locality Liaison |

**TO ORDER INFORMATION SERVICES:**

Once you've determined which services you need:

- please fill out the [online Information Services Order Form](#) (updated 2014)
- If you experience difficulty with the online form version, please print, fill out and send this PDF version: [Printable PDF Information services order form](#). (PDF)

### Species Highlight

click image to read more



Swamp pink (PDF)

**Species Highlight:** Swamp Pink (*Helonias bullata*)

**Global Rarity Rank:** G3 – Vulnerable

**State Rarity Rank:** S2S3 - Vulnerable to Imperiled in the state

**Legal Status:** Federally Threatened, State Endangered



Swamp-pink is a perennial herb with short thick or tuberous rhizomes. It inhabits groundwater-influenced, perennially saturated, nutrient-poor headwater wetlands such as acidic sandy seeps and seepage swamps; often rooted in sphagnum hummocks (Weakley, 2012). Swamp pink is sensitive to hydrologic alterations to its habitat. The major direct threat to this species is habitat loss. Indirect threats result from activities that affect the hydrologic regime including such upslope activities as timber harvesting, land clearing and development, and agriculture. Downstream threats to the hydrology of a swamp-pink habitat arise from flooding caused by road crossings with culverts that become blocked and beaver activity (Van Alstine, 1994). In Virginia, swamp-pink is mostly found in the western Coastal Plain, but disjunct populations occur in Augusta County near the edge between the Ridge and Valley and Northern Blue Ridge regions.

Swamp-pink flowers which are terminal racemes, are pink to lavender and fragrant. The flowers occur in late April-May 31 when the emerging, bright green, young basal rosettes are also highly evident before the competing herbaceous vegetation has fully expanded, and light levels are high before canopy leaf-out. The basal leaves of swamp pink are present all year.

Please note that this species is currently classified as threatened by the United States Fish and Wildlife Service (USFWS) and as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS).

## Quarterly Coastal Species Highlight