Natural Heritage – Locality Liaison/Habitat Restoration

Final Report for FY2020 VCZMP Grant No. NA20NOS419Task #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 FY2020 grant year, the Department of Conservation and Recreation-Division of Natural Heritage (DCR-DNH) reviewed 1,081 projects for impacts to natural heritage resources in the coastal zone (37% of the projects reviewed statewide) as defined by the Department of Environmental Quality (DEQ) Coastal Zone Management (CZM) Program. During FY2020, 601 coastal projects were submitted through the NHDE, 56% of all the projects submitted for review in the coastal zone. 102 of the projects reviewed in the coastal zone were solar projects, representing a continuing trend of solar development in Virginia. Specific project highlights within this report represent the diversity of projects reviewed including an offshore wind facility with onshore transmission lines, a highway improvement plan in Fairfax County, a proposed subdivision in Prince William County, a data sharing agreement with the Chesapeake Bay Foundation, and a wetland restoration project in Fairfax County.

Coastal localities and other conservation partners participated in 11 training sessions for the Natural Heritage Data Explorer (NHDE) website (https://vanhde.org) including 28 from state agencies, 9 from local governments, 24 from consulting companies, 11 from land trusts, 2 from Planning District Commissions, 7 from federal agencies, 4 from Virginia Indian tribes and 7 members of the public. At the end of FY2020, there were 42 coastal localities, 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 96% of coastal zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 86% of the Land Trusts as of September 30, 2021. The Locality Liaison and project review staff renewed or initiated 34 data licenses throughout this year within the coastal zone, including localities, consultants, land trusts, and Virginia Indian tribes.

Presentations included an overview of DCR-DNH's Natural Heritage Program, the Locality Assistance Program and data and functionality of the Natural Heritage Data Explorer (NHDE) website, which includes ConserveVirginia v2.0/v3.0, the Predicted Suitable Habitat Summary layers 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. Natural Heritage information was updated quarterly on the NHDE website and shapefiles including the updated information are also distributed to licensed users.

The Natural Heritage Locality Liaison (Locality Liaison) attended meetings, presentations and workshops throughout the year, and presented information on Natural Heritage resources at the Rappahannock Tribe Traditional Ecological Knowledge (TEK) Conservation Workshop on May 14, 2021 and at the Elizabeth River Watershed Action Plan on July 13, 2021.

The Locality Liaison worked with other Heritage staff and staff from the DCR-Public Communications and Marketing Office and the CZM Program to redesign the Locality Assistance Program webpage. The Locality Liaison also posted quarterly coastal species highlights to the Locality Assistance webpage (http://www.dcr.virginia.gov/natural-heritage/localityliaison).

Introduction

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 Natural Heritage 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 CZM Program and the Chesapeake Bay Program have developed flood risk management and climate change initiatives generating interest in land use issues within the coastal zone defined by the DEQ CZM. 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

Tyler Meader serves as the Natural Heritage 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 Information Management staff, Project Review Assistants, and various Natural Heritage biological inventory, protection and stewardship 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 FY2020 included 72 transportation projects in the coastal zone. During this grant year, DCR-DNH reviewed a total of 1,081 projects in the coastal zone. This represents 37% of the projects reviewed statewide by DCR-DNH. 102 of the projects reviewed in the coastal zone were solar projects, representing a continuing trend of solar development in Virginia.

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 Program relies on DCR-DNH to review permit by rule applications for 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 assessments of species listed under the federal Endangered Species Act. The USFWS Information, Planning, and Conservation (IPaC) System website on-line screening process includes DCR-DNH predicted 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 and applying for grants.

The DCR-DNH has a Memorandum of Agreement (MOA) with the Virginia Department of Wildlife Resources (VDWR) for sharing of data and species coordination between the two agencies. The DCR VDOT data exchange MOA was updated in February 2020 which outlines the integration of Natural Heritage data into their internal database for environmental screening purposes. Based on that internal screening process, projects needing further coordination are submitted by VDOT using the Natural Heritage Data Explorer. Also, under an MOA 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- Offshore Wind

Coastal Virginia Offshore Wind –City of Chesapeake and City of Virginia Beach

Beginning in June of 2021, DCR-DNH reviewed the Coastal Virginia Offshore Wind (CVOW) Project four times, most recently in September 2021. The CVOW Project includes the

installation of wind turbines 27 miles offshore as well as routing onshore transmission lines to an existing substation. DCR-DNH reviewed a small portion of the onshore CVOW project within state lands for the Department of General Services in June, 2021. DCR-DNH reviewed multiple potential route options as part of the review process for Environmental Resources Management, the Bureau of Ocean Energy Management and Dominion Energy Virginia.

Detailed comments for each review included natural heritage resources documented within the route alternatives, recommendations on how to avoid and minimize impacts to natural heritage resources, recommendations for surveys to more accurately assess impacts to documented and potential occurrences of natural heritage resources, analysis of impacts to Ecological Cores, and recommendations to coordinate with appropriate state and federal agencies based on the legal status of some of the resources documented within the project site. The comment letter from the review provided to Environmental Resources Management can be found in Appendix A.

Highway Improvement Plan

I-495 NEXT and I-495 and I-270 Managed Lanes Study – Fairfax County

DCR-DNH provided comments to an environmental consultant in September 2021 for the planned construction of new express traffic lanes and associated infrastructure, called I-495 NEXT. This project has significant overlap with the I-495, I-270 Managed Lanes Study project that DCR-DNH has repeatedly reviewed. Portions of these projects occur within the Potomac Gorge Conservation Site, a conservation site with an outstanding (B1) biodiversity rank. DCR-DNH has reviewed both projects several times since the original submittal in April 2018, and continues to provide comments as the project footprints change. The comments have highlighted the rare plants and natural communities that occur within the project site, as well as several rare plants which have historically been documented in the project area. DCR-DNH has recommended limiting the project footprint as much as possible as well as recommending a survey for additional occurrences of natural heritage resources in areas proposed for disturbance, including the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL). During a review of the I-495 NEXT project in October 2020 and due to a new screening layer for coordination with karst biologists, DCR-DNH incorporated comments about a documented cave within the project site, as well as recommendations to minimize impacts to the resource. DCR-DNH also received the full "Rare, Threatened and Endangered Plant Survey Report" prepared for the Maryland Department of Transportation-State Highway Administration as part of the I-495 and I-270 project. DCR-DNH has provided comments on the plant survey, and continues to recommend surveys for non-plant natural heritage resources that may be found within the project footprint. The comment letter for the September 2021 I-495 NEXT project can be found in Appendix B.

Land Protection

Hoadly Falls Proposed Subdivision – Prince William County

In November 2020, DCR-DNH received a proposed subdivision project submitted for review by DEQ, located in Prince William County. Within the project footprint were two documented populations of Small whorled pogonia (*Isotria medeoloides*, G2?/S2/LT/LE), a state and

federally listed species. The population within the project site was known to the environmental consultant, DCR-DNH, DEQ and the US Fish and Wildlife Service (USFWS). A survey from 2017 was provided with the project submittal. Based on USFWS guidelines of two years for a Small whorled pogonia survey to remain valid, DCR-DNH recommended an updated survey be conducted to confirm the extent of the documented populations and to determine if additional occurrences of the species could be documented, since this species can remain dormant in the soil for up to five years. More than twice as many occurrences of Small whorled pogonia were documented within the two populations during the updated survey.

DCR-DNH continued to stay involved with the project, scheduling a meeting with DEQ to express concerns about potential impacts to the project, and participating in a meeting with DEQ, USFWS and the environmental consultant about the project about potential buffer zones around the populations. The Locality Liaison and Project Review Coordinator recently participated in a site visit on September 10, 2021 with the environmental consultant, DEQ and USFWS to gain a better understanding of the site conditions. Coordination is ongoing to create appropriately shaped buffers necessary to protect the populations of Small whorled pogonia. The original comment letter for this project can be found in Appendix C, as well as a photo from the site.

Habitat Restoration

Data Sharing Agreement with Chesapeake Bay Foundation-Agriculture Team

In May 2021, access to NHDE was requested by members of the Chesapeake Bay Foundation-Agriculture Team (CBF-Ag Team) in order to help inform stream restoration plans and stream buffer design. After internal discussion, access to NHDE was provided and members of the CBF-Ag Team attended an NHDE training session. Providing the CBF-Ag Team access to NHDE is expected to lead to increased protection of natural heritage resources and their habitat. More information about the Chesapeake Bay Foundation's Agricultural Cost-Share Program in Virginia can be found at https://www.cbf.org/about-cbf/locations/virginia/issues/virginias-agricultural-cost-share-program.html, and a screenshot from the webpage is included as Appendix D.

Huntley Meadows Wetland Restoration Project-Fairfax County

In September 2021, DCR-DNH commented on a proposed wetland restoration project in Fairfax County. The proposed wetland restoration projects were originally submitted in the wrong locations and generously drawn, and lacked detail about the project plan. Due to a high number of natural heritage resources within the project area, extensive coordination began to determine the exact area of impact and the specifics of the project plan. After a meeting with the project manager, and subsequent emails containing project coordinates, the precise project areas were determined as well as the scope of planned restoration work. The project proponent planned to install ditch plugs within drainage canals to force water into overbank wetlands instead of draining the site, increasing flow into depressional swamps supporting hydrophytic vegetation. After coordinating the updated project locations and project plans with DCR-DNH biologists, further discussion determined that the documented natural heritage resources within and nearby

the project site would not be adversely impacted by the proposed restoration project. The comment letter for this project can be found in Appendix E.

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, 2021, DCR-DNH databases contain information about 10,365 specific occurrences of natural heritage resources**,** 2,603 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. Conservation sites are 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. DCR-DNH currently tracks over 2,230 conservation sites, of which 680 are in the coastal zone. These sites are continuously being updated by DCR-DNH staff.

The Virginia Natural Heritage Data Explorer (NHDE) allows Internet users to access Natural Heritage data on a remote website (vanhde.org). This ArcServer GIS informational tool last updated in September of 2021 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.

Approximately 2023 projects have been submitted through NHDE during FY2020 with 601 occurring in the coastal zone. Improvements to internal project review efficiency have been achieved through enhanced database query functions including the tracking of predicted suitable habitat models intersects in project review tracking database, and working to increase the number of projects reviewed electronically through NHDE. During this grant year, 341 projects within the coastal zone were identified as "no comment" projects for natural heritage resources through the NHDE automated reporting system. This type of screening saves time for DCR-DNH staff and allows project proponents to move forward quickly without additional coordination with Natural Heritage.

NHDE was updated in June 2020 to include a new value and field for ranking conservation sites, part of a larger effort to identify Essential Conservation Sites (ECS). ECS are the subset of conservation sites that contain one or more "irreplaceable" or "critical" natural heritage resources. Irreplaceable element occurrences (EO's) are the only known viable representative of its element in the state, and Critical EO's are one of only two known viable representatives of its element in the state. The Documented Natural Heritage Screening layer denotes ECS status in the "Essential Conservation Site?" field with a YES or NO value, where YES indicates the presence of at least one irreplaceable or critical EO at that site. Comments on the ECS status of a conservation site have been in included in comment letters when appropriate.

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.

NHDE was also updated in July 2021 to include the Nature-based Recreation Access Model, a part of ConservationVision. The Nature-based Recreation Access Model quantifies the availability of opportunities for nature-based recreation on Virginia's public lands and waters, and identifies areas where more opportunities are needed. The model is broken out into land and water based recreation needs, which include metrics such as travel time to the resources, size of the resource or access points to the resource, activities offered, and current recreation pressure.

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 NHDE website also contains the ConserveVirginia layer and a Predicted Suitable Habitat Summary (PSHS) layer. The PSHS layer summarizes 179 individual species Predicted Suitable Habitat (PSH) layers into one layer, including species listed as threatened and endangered and globally rare species. An individual species PSH layer is a raster layer, which identifies areas most likely to have suitable habitat for that species. PSH layers were developed using known occurrences, a Species Distribution Model, and expert opinion. During this grant cycle, 14 new species were modeled and 3 species models were updated.

The DCR-DNH project review process has changed to incorporate the PSHS layer. Projects boundaries are screened against the PSHS layer, and are now buffered by 100 feet instead of two miles for screening against documented natural heritage resource layers. Projects that intersect with the PSHS layer are further reviewed by inventory biologists to determine whether a survey is needed for the resource(s). The use of the PSHS has resulted in a more informed screening process and reduced the number of projects submitted to Natural Heritage by partners that are unlikely to impact natural heritage.

ConserveVirginia is Governor Ralph Northam’s land conservation strategy and is based on a data driven process for identifying Virginia’s highest priority lands for protection. Research and spatial analysis of many conservation values are summarized into seven categories and mapped as: Agriculture & Forestry, Natural Habitat & Ecosystem Diversity, Floodplains & Flooding Resilience, Cultural & Historic Preservation, Scenic Preservation, Protected Landscapes Resilience, and Water Quality Improvement. Conserve Virginia v3.0 was released in September 2021, which included three new data sources to the Water Quality Improvement layer, as well as data updates to the Agriculture & Forestry layer, Scenic Preservation layer, and the Protected Landscapes Resilience layer. The "ConserveVirginia Map" is a summary of all seven category inputs and can be used as an initial screening to determine if a potential land protection project qualifies as a ConserveVirginia priority.

Training sessions for the NHDE were held virtually through GoToMeeting platform on an every-other-month basis. In addition, three one-on-one sessions were scheduled with representatives of Virginia Indian Tribes, an NHDE training session was held for members of the public, and an additional training session was held with members of the Isle of Wight Environmental Planning

Division. NHDE training is provided by the project review staff, primarily the Locality Liaison. The general training sessions are open to all organizations. During this grant year, 11 separate training sessions for NHDE were held for coastal zone participants.

Participants in Locality Liaison Presentations

Presentations included an overview of DCR-DNH's Natural Heritage Program, the Locality Assistance Program and data and functionality of the Natural Heritage Data Explorer (NHDE) website, which includes ConserveVirginia, the PSHS layers 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 virtual training sessions included 28 from state agencies, 9 from local governments, 24 from consulting companies, 11 from land trusts, 2 from Planning District Commissions, 7 from federal agencies, 4 from Virginia Indian tribes, and 7 members of the public, which represents a 107% increase from FY19. An NHDE training session focused solely on the publically accessible layers on the website was also conducted for interested members of the public. A list of the organizations that participated in these training sessions can be found in Appendix F.

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. DCR-DNH reviewed 10 projects for localities within the coastal zone; this does not include projects submitted by consultants on behalf of localities. Positive working relationships with localities have led to the inclusion of language in comprehensive plans that provides additional consideration and protection of natural heritage resources. These positive relationships have also led to DCR-DNH's involvement during early planning stages of proposed projects, when recommendations to avoid and minimize impacts to natural heritage resources are often the most effective. The Locality Liaison continues to update contact information for locality staff as well as comprehensive plan update timelines. During this grant cycle, DCR-DNH also began copying the relevant county administrators when sending comment letters for solar projects, so that the localities can be better informed about potential solar developments. King and Queen County is one of two remaining coastal localities that have not expressed interest in having access to DCR-DNH data. An email response from the county administrator at King and Queen County about a proposed solar project provided the opportunity to again offer access to DCR-DNH data. No response has yet been received.

At the end of FY2020, there were 42 coastal localities, 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 96% of coastal zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 86% of the Land Trusts as of September 30, 2021. The current status of localities with access to Natural Heritage information is contained within the website map at (http://www.dcr.virginia.gov/natural-

heritage/localitiesmap). Please also see Appendix G for a map of the Virginia localities with Natural Heritage information. The Locality Liaison and project review staff renewed or initiated 34 data licenses throughout this year within the coastal zone, including localities, consultants, land trusts, and Virginia Indian tribes

The Locality Liaison attended the Freeman Avenue Bridge Agency Scoping Meeting on October 8, 2020, the Flood Risk Reduction in Back Bay, VA Scoping Meeting on October 29, 2020, Marsh Terraces in Back Bay Design Scoping Meeting on November 7, 2020, the Biodiversity without Boundaries Conference on April 26 and 28, 2021, the State Agency CVOW Project meeting on May 25, 2021 and the Middle Peninsula Restoration Workshop from September 21-13, 2021.

The Locality Liaison presented Natural Heritage information at the Rappahannock Tribe TEK Conservation Workshop on May 14, 2021, and the Elizabeth River Watershed Action Plan on July 13, 2021.

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.

During this grant year, DCR-DNH reviewed proposed projects at York River State Park, Belle Isle State Park, and First Landing State Park. Information and recommendations were provided about documented occurrences of natural heritage resources and/or the potential for natural heritage resources within the parks to avoid 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 (preservation, creation and enhancement) 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.

Virginia Solar Pollinator Resource Tool

The Environmental Review Coordinator and other Heritage staff continued the work on the enhancement of the Pollinator-Smart Resources (https://www.dcr.virginia.gov/natural-heritage/pollinator-smart including the comprehensive manual (Version 1.1). To increase awareness of the Virginia Pollinator Smart Program, the Environmental Review Coordinator and

other Heritage staff participated in multiple webinars during the grant period including the DEQ Brownfields Conference, DEQ Climate Change Training, the 2021 Solar Summit and the League of Conservation Voters Pollinator Event. In addition, on April 13, 2021 the team presented the Virginia Pollinator-Smart Solar Program to the Dominion Energy Innovation Team for possible inclusion in proposed development projects. The Pollinator Smart Team also provided a presentation on April 28, 2021 at the NatureServe Biodiversity without Boundaries on the Pollinator Smart Program with a focus on the Native Seed Program created by the Arkansas Heritage Commission as a model for the future development of the Virginia Native Seed Industry. On July 23, 2021, the Pollinator Smart Team and Suntribe consultants hosted a site visit of the Gold Certified Pollinator-Smart Cople Elementary School Solar Facility in Westmoreland County, highlighting the success of the facility from a pollinator smart perspective in its second growing season and the educational opportunity for students. In September 2021, the Pollinator Smart team planned the first Pollinator Smart Native Seed Growers Business Development Committee Meeting. Virginia Pollinator Smart resources, documents and Pollinator Smart Facility photos can be found in Appendix H.

Locality Liaison Webpage Project

The Locality Liaison worked with other DCR-DNH staff, the DEQ-CZM Coastal Planner, and staff from the DCR Public Communications and Marketing Office to redesign the Locality Assistance Program webpage (https://www.dcr.virginia.gov/natural-heritage/localityliaison). Over the course of several months and multiple meetings, baseline visitation numbers, information content and layout elements were gathered, discussed and edited. The redesign increased the visual appeal and layout of the site, as well as editing and updating much of the information contained within the site. Before and after images of the website can be found in Appendix I.

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 Locality 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 Locality Liaison will continue to reach out to localities in the coastal zone to update information for a current point of contact for each locality due to potential staffing changes. The Locality Liaison will provide assistance to localities in the development of ordinances or regulations necessitating the review of Natural Heritage information for certain projects, including renewable energy projects. Land trusts and Virginia Indian tribes will also be targeted that do not currently have access to natural heritage information.

NHDE training will continue to be available every other month to provide interested users with the ability to access natural heritage information. The Locality Liaison will also develop public training videos that focus on the publically accessible layers and functionalities of NHDE.

42 coastal zone localities with documented natural heritage resources currently have access to the NHDE or digital shapefile of Natural Heritage data. License agreements with localities are valid for a period of two years. During this grant period, the Locality Liaison has continued a process of ensuring that all of the license agreements with coastal localities are valid and up-to-date, and will continue to work to maintain updated license agreements.

The Locality Liaison web page will be updated with the quarterly coastal species highlight section (Appendix J) and the map of localities with Natural Heritage data. The Locality Liaison webpage will also be updated to include a short video of still images and drone footage of Natural Heritage resources and habitat from the coastal zone. The Locality Liaison along with the project review staff will continue to work to improve the environmental review process.

Appendix A

Letter for Coastal Virginia Offshore Wind

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

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July 13, 2021

Sara Throndson
Environmental Resources Management, Inc.
222 South 9th Street, Suite 2900
Minneapolis, MN 55402

Re: Dominion CVOW Transmission Routing PN0522898

Dear Ms. Throndson:

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.

Cable Landing to Harpers Road Route 1, Cable Landing to Harpers Road Route 2
According to the information currently in our files, the Oceana Ponds and Forest 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. Oceana Ponds and Forest Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance and is considered as an irreplaceable conservation site. The natural heritage resources of concern for this route at this site are:

Ludwigia brevipes	Long beach seedbox	G2G3/S2/NL/NL
Perimyotis subflavus	Tri-colored bat	G2G3/S1S3/SOC/LE

Long beach seedbox is a state rare herb in the evening-primrose family that inhabits interdunal swales, low wet places, pond shores, gravel pits and wetlands underlain by sand. It has fleshy leaves and four-part yellow flowers (Ludwig, 1996) that bloom from June to September (Radford et. al, 1968). Long beach seedbox is found in the coastal plain of Virginia, particularly in the southern coastal plain. Surveys for this species should be conducted during the flowering /fruiting period from June to September.

The Tri-colored bat is a very small bat distinguished from other Myotis species by tricolored individual back hairs and inhabits open woods near water, rock cliffs, buildings and caves in the summer. Since 2008 there has been a significant decline in population numbers (greater than 90%) for this bat species due to white nose syndrome. The Tri-colored bat were state listed as "endangered" on April 1, 2016 by the Virginia Department of Wildlife Resources (VDWR).

DCR recommends an inventory for the Long beach seedbox within the Oceana Ponds and Forest Conservation Site to confirm the presence and extent of the documented occurrence. With the survey results we can more accurately evaluate potential impacts to the natural heritage resource and offer specific protection recommendations for minimizing impacts to the documented resources, including adjusting the proposed route to avoid rare plant populations on the western side of the conservation site. DCR-Division of Natural Heritage biologists are qualified to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss availability and rates for field work.

Due to the legal status of the Tri-colored bat, DCR also recommends coordination with the VDWR, 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).

In addition, the proposed project will fragment Ecological Cores **(C4, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that 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 erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. 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 reduce deleterious effects and preserve the natural patterns and connectivity of habitats that are key components of biodiversity. DCR recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

Harpers Road to Fentress Route 1, Harpers Road to Fentress Hybrid Route
According to the information currently in our files, the West Neck Conservation Site and the North Landing River Conservation Site are located within the proposed route. West Neck Conservation Site has

been given a biodiversity significance ranking of B4, which represents a site of moderate significance. The natural heritage resource of concern for this route at this site is:

Trillium pusillum var. *virginianum*	Virginia least trillium	G3T2/S2/SOC/NL

Virginia least trillium is a state rare perennial herb that primarily inhabits somewhat acidic, moist to saturated soils, although it does not grow in standing water. The plant is most often found on the margins of swamps, on high spots within swamps or in ground-water seepage areas. Direct destruction of individuals, loss of habitat, and alterations of water quality are the primary threats to this species (Clark and Potter, 1995). This herb species blooms from late March to May (Radford et. al., 1968). Surveys should be conducted during the earlier stages of the flowering period from late March to late April. Please note that this species is currently tracked as a species of concern by the United States Fish and Wildlife Service (USFWS), however this designation has no official legal status.

DCR recommends an inventory for Virginia least trillium within the West Neck Creek Conservation Site to confirm the presence and extent of the documented occurrence. With the survey results we can more accurately evaluate potential impacts to the natural heritage resource and offer specific protection recommendations for minimizing impacts to the documented resources.

Please note, the above comments for West Neck Conservation Site and the survey recommendation for Virginia least trillium also apply to the other proposed routes that cross West Neck Conservation Site in the same alignment: **Harpers Road to Fentress Route 2, Harpers Road to Fentress Route 4, Harpers Road to Fentress Route 5**.

North Landing River Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern for this route at this site are:

Euphyes dukesi	Duke's skipper	G3/S2/NL/NL
Trillium pusillum var. *virginianum*	Virginia least trillium	G3T2/S2/SOC/NL
Non-riverine Swamp Forest (Tupelo – Bald Cypress Type)		G2G3/S1S2/NL/NL
Bald Cypress – Mixed Tupelo Swamp		G3G4/S3S4/NL/NL

In addition, the proposed project will fragment Ecological Cores **(C5)** and dependent on the width of the right-of-way or crossing method within Gum Swamp, may fragment Ecological Cores **(C2, C3)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Harpers Road to Fentress Route 2

According to the information currently in our files, the North Landing River Conservation Site is located within the project area. North Landing River Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern for this route at this site are:

Euphyes dukesi	Duke's skipper	G3/S2/NL/NL
Bald Cypress – Mixed Tupelo Swamp		G3G4/S3S4/NL/NL

In addition, the proposed project will fragment Ecological Cores **(C2, C4, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla),

one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

The proposed route will cause significant fragmentation of one or more highly significant cores with very high to outstanding ecological integrity. Further investigation of these fragmentation impacts is warranted and DCR-DNH can conduct a formal fragmentation analysis upon request. This analysis would estimate direct impacts to cores and habitat fragments and indirect impacts to cores. The final products of this analysis would include an estimate of the total impact of the project in terms of acres. For more information, please contact Joe Weber, DCR Information Manager at Joseph.Weber@dcr.virginia.gov.

Harpers Road to Fentress Route 3
According to the information currently in our files, the West Neck Conservation Site and the North Landing River Conservation Site are located within the proposed route.

West Neck Conservation Site has been given a biodiversity significance ranking of B4, which represents a site of moderate significance. The natural heritage resource of concern for this route at this site is:

Southern Coastal Plain Mesic Mixed Hardwood Forest	G3/S2S3/NL/NL

The Southern Coastal Plain Mesic Mixed Hardwood Forest is dominated by American beech (*Fagus grandifolia*) and various oaks, most commonly white oak (Quercus alba), water oak (Quercus nigra), and swamp chestnut oak (Quercus michauxii). This community type occupies mesic uplands, ravines, lower slopes, swamp "islands," and well-drained "flatwoods" on deep acidic, relatively nutrient-poor soils of the Coastal Plain from southeastern Virginia to South Carolina. It grades into drier forests in which Southern red oak (*Quercus falcata)*, Shortleaf pine *(Pinus echinata)*, and Loblolly pine (*Pinus taeda)* are common. In the southeastern Virginia Coastal Plain, American hornbeam (*Carpinus caroliniana*), American holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), sourwood (*Oxydendrum arboreum*), silky camellia (*Stewartia malacodendron*), and big-leaf snowbell (*Styrax grandifolius*) are characteristic small trees. The herb layer is usually open or sparse, but contains scattered individuals and patches of Christmas fern (Polystichum acrostichoides), New York fern (*Thelypteris noveboracensis*), slender spikegrass (*Chasmanthium laxum*), partridge-berry (Mitchella repents), and other species. The Southern Coastal Plain Mesic Mixed Hardwood Forest has been greatly reduced in Virginia by agriculture and development, and many of the remaining stands have been degraded by repeated logging. (Fleming, 2012, NatureServe, 2011)

North Landing River Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern for this route at this site are:

Euphyes dukesi	Duke's skipper	G3/S2/NL/NL
Bald Cypress – Mixed Tupelo Swamp		G3G4/S3S4/NL/NL

In addition, the proposed project will fragment Ecological Cores **(C2, C4, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Harpers Road to Fentress Route 4

According to the information currently in our files, the North Landing River Conservation Site is located within the proposed route. North Landing River Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern for this route at this site are:

Euphyes dukesi	Duke's skipper	G3/S2/NL/NL
Bald Cypress – Mixed Tupelo Swamp		G3G4/S3S4/NL/NL

In addition, the proposed project will fragment Ecological Cores **(C1, C2, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Harpers Road to Fentress Route 5

According to the information currently in our files, the North Landing River Conservation Site is located within the proposed route. North Landing River Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern for this route at this site are:

Euphyes dukesi	Duke's skipper	G3/S2/NL/NL
Crotalus horridus	Canebrake rattlesnake	G4/S1/NL/LE

In addition, the proposed project will fragment Ecological Cores **(C1, C2, C3, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection. Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Due to the legal status of the Canebrake rattlesnake, DCR recommends coordination with the VDWR, 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).

All Routes

Due to the potential for these project areas to support populations of rare bats, DCR recommends a habitat assessment if proposed tree clearing includes the removal or disturbance of large Bald cypress, Water tupelo, or Swamp tupelo trees to identify any potential roost sites. With the habitat assessment results, we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

In addition, according to a DCR zoologist, there is a potential for Little Metalmark (*Calephelis virginiensis*, G4/SH/NL/NL) and additional populations of Duke's skipper (*Euphyes dukesi*, G3/S2/NL/NL) to occur within the proposed routes if suitable habitat exists on site. The Little Metalmark is a butterfly of the southeastern United States, from Virginia to Florida and west to Texas (Cech and Tudor, 2005)). In Virginia, it is documented only in three southeastern counties (VDCR-DNH and VDGIF, 2013). It is a very small butterfly, which almost resembles a moth by resting with its wings open pressed against the underside of leaves thus revealing its orange, black, and metallic markings. The Little Metalmark prefers open areas with its host plants, usually pine flatwoods, savannas and roadsides. Yellow Thistle (*Cirsium horridulum*) was considered the sole host plant, but others have more recently been cited (VDCR-DNH and VDGIF, 2013). Where found, the Little Metalmark can be

quite common although it may be much less common at the periphery of its range. The loss of habitat through succession or development is likely the main threat to this species (VDCR-DNH and VDGIF, 2013).

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 Dibrome is used (NatureServe, 2009).

Due to the potential for all routes to support populations of Little metalmark and additional populations of Duke's skipper, DCR recommends an inventory for the resources in the study area. DCR recommends surveying for Duke's skipper in wetlands associated with West Neck Creek, North Landing River, Pocaty River and the Intracoastal Waterway where the larval food plant Shoreline sedge (*Carex hyalinolepis*) is found. DCR recommends surveying for Little metalmark in upland areas containing Yellow thistle (*Cirsium horridulum).* 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 to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss availability and rates for field work.

Furthermore, if **Harpers Road to Fentress Route 1, Harpers Road to Fentress Route Hybrid Route,** or **Harpers Road to Fentress Route 3** are selected, DCR recommends an inventory of the documented significant natural communities (e.g., Bald Cypress-Mixed Tupelo swamp) within those proposed routes to determine the condition and extent of the significant natural communities.

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.

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 $780.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The VDWR maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from https://vafwis.dgif.virginia.gov/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dwr.virginia.gov. According to the information currently in our files, there is potential for the northern long-eared bat (*Myotis septentrionalis*) to occur within the project area. Due to the legal status of the northern long-eared bat and the associated final 4(d) rule effective February 16, 2016, if tree removal is proposed for the project DCR recommends coordination with the USFWS and the VDWR to ensure compliance with protected species legislation.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader
Natural Heritage Locality Liaison

CC: Troy Andersen, USFWS
Amy Ewing, VDWR

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Virginia Department of Conservation and Recreation - Division of Natural Heritage and Virginia Department of Game and Inland Fisheries. 2013. Atlas of Rare Butterflies, Skippers, Moths, Dragonflies, and Damselflies of Virginia. Accessed at**www.vararespecies.org** on April 13, 2015.

Appendix B

Letter for I-495 NEXT

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Nathan Burrell
Deputy Director of Government and Community Relations

Thomas L. Smith
Deputy Director of Operations

September 15, 2021

Robert Hayler
Dewberry, Inc.
8401 Arlington Boulevard
Fairfax, VA 22031

Re: 495 NEXT

Dear Mr. Hayler:

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 Potomac Gorge 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. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL
Boechera dentata	Short's rock cress	G5/S1/NL/NL
Silene nivea	Snowy Campion	G4?/S1/NL/NL
Central Appalachian / Piedmont Low-Elevation Rich Boulderfield Forest		G3G4/S2S3/NL/NL
Coastal Plain / Outer Piedmont Basic Mesic Forest		G4?/ S3/NL/NL

Northern Coastal Plain / Piedmont Mesic Mixed Hardwood Forest G5/S5/NL/NL

In addition, Tall Thistle (*Cirsium altissimum*, G5/S1/NL/NL), Wild cucumber (*Echinocystis lobata*, G5/SH/NL/NL), Smartweed Dodder (*Cuscuta polygonorum*, G5/S1/NL/NL), Northern rattlesnake-master (*Eryngium yuccifolium var. yuccifolium*, G5T5/S2/NL/NL), One-sided shinleaf (*Orthilia secunda*, G5/SH/NL/NL) and Pizzini's Amphipod (*Stygobromus pizzinii*, G3G4/S1S2/NL/NL) have been historically documented within the project site.

Furthermore, according to a DCR biologist, there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the project site.

DCR recommends avoidance of documented occurrences of natural heritage resources by limiting the project footprint as much as possible including along the steep bluff on the eastern side in Virginia. DCR has reviewed the "Rare, Threatened and Endangered Plant Survey Report" prepared for Maryland Department of Transportation, November 2020. DCR recommends avoiding impacts to the documented occurrences of *Phacelia covillei* mentioned in the survey report.

Due to the potential for this site to support additional populations of natural heritage resources that are not included in an RTE plant survey, DCR recommends an inventory for these resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss availability and rates for field work.

In addition, the Virginia DCR, Division of Natural Heritage karst staff screened this project against the Virginia Speleological Survey (VSS) database, the Virginia DMME sinkhole coverage, and other karst layers for documented sensitive karst features.

One documented cave is reported within the project area. Legion bridge Cave is reported at the following location:

Location coordinates redacted

The entrance has the appearance of a nearly perfect equilateral triangle about four feet high. It is located about 15 feet from the edge of the river at normal flow. The cave is a pocket formed in the boulder pile at the bottom of a prominent cliff. It appears to have been used as a shelter by people in the past, likely anglers. The back of the cave has been modified with mortar and rock. This shelter cave is estimated to be about 15 feet long. Virginia DCR-DNH recommends that any construction avoid this feature. The stabilization of the soil around the site should be prioritized during every phase of the project and all standard erosion control measures that are appropriate for the site should be used at all times to help reduce any potential impact to resources.

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) 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. 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.

In addition, the proposed project will fragment Ecological Cores (**C4**) as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that 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 erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. 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; by retaining natural corridors that allow movement 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 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 $120.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain

information not documented in this letter. Their database may be accessed from https://vafwis.dgif.virginia.gov/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dwr.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader
Natural Heritage Locality Liaison

Cc: Troy Andersen, USFWS
Wil Orndorff, DCR-Karst

Appendix C

Letter for Hoadly Falls Proposed Subdivision

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Nathan Burrell
Deputy Director of Government and Community Relations

Thomas L. Smith
Deputy Director of Operations

November 20, 2020

Deneisha Cox
DEQ-NRO
13901 Crown Court
Woodbridge, VA 22193

Re: WP4-20-2006, Hoadly Falls Phase I

Dear Ms. Cox:

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 Hoadly Falls 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. Hoadly Falls Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resource of concern at this site is:

Isotria medeoloides	Small whorled pogonia	G2?/S2/LT/LE

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 U.S. Fish and Wildlife Service (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 documented occurrences of Small whorled pogonia and the potential for this site to support additional populations of natural heritage resources, DCR recommends an updated inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

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

Due to the legal status of Small whorled pogonia, DCR also recommends coordination with USFWS to ensure compliance with protected species legislation.

In addition, the proposed project will fragment an Ecological Core C3 as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that 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 erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. 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 reduce deleterious effects and preserve the natural patterns and connectivity of habitats that are key components of biodiversity. DCR recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

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

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Updated 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.

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

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader
Natural Heritage Locality Liaison

CC: Troy Andersen, USFWS

Literature Cited

Ware, D.M.E. 1991. Small whorled pogonia. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia.

Figure 1. Photo of Small whorled pogonia

Appendix D

Chesapeake Bay Foundation-Agricultural Cost-Share Program in Virginia Webpage

VIRGINIA'S AGRICULTURAL COST-SHARE PROGRAM

Keeping pollution out of creeks and streams that flow through farmland plays a major role in cleaning up our rivers and the Chesapeake Bay.
PHOTO CREDIT: © 2010 JUSTIN BLACK/ILCP

Farm conservation practices prevent polluted runoff from fouling local streams and the Bay. Virginia's Agricultural Cost-Share Program provides financial and technical support to farmers to implement these projects.

Agriculture covers the largest land area of any industry in Virginia. Not surprisingly, it is also the largest source of nutrient and sediment pollution reaching local streams and the Chesapeake Bay. Even though many well-operated farms employ sound conservation practices that protect water quality, many more farmers would like to put these practices in place but need technical and financial support.

That's where Virginia's Agricultural Cost-Share Program comes into play. Established in 1984, this program has helped thousands of farmers implement conservation practices that prevent pollution from reaching waterways. These "best management practices" or BMPs include fencing livestock out of streams, planting buffers of trees and native plants along waterways, nutrient management plans that ensure farmers use the right amount of fertilizer, and many other practices essential to protecting our streams and the Bay. The program also provides technical support to help farmers properly install these projects in the best locations. When working with farmers, CBF field staff often recommend this program as a source of assistance.

Investments in these practices lead to cleaner water, create jobs, and help the local economy. A network of small businesses—from contractors to lumber yards to tree nurseries—benefit when a farmer installs a one of these projects. Nutrient management plans allow farmers to maximize yield so they save on fertilizer costs while maintaining production. Studies have shown that implementing farm conservation practices at levels necessary to restore the Chesapeake Bay would create nearly 12,000 jobs and that every $1.00 invested in Bay restoration will generate $4.00.

How Virginia's Cost-Share Program Works

VACS is administered by the Virginia Soil and Water Conservation Board and the Virginia Department of Conservation and Recreation through 47 local soil and water conservation districts. The primary source of funding for VACS is the Water Quality Improvement Fund (WQIF) and the Virginia Natural Resources Commitment Fund (VNRCF), a sub-fund of WQIF created in 2008 to specifically support agricultural best management practices.

Each soil and water conservation district is allocated a set amount of cost-share funding. Projects are prioritized on a district by district basis, with decisions on project approval made by the local soil and water conservation board. The boards are made up of local community members.

Cost-share payments vary by practice, from 50 percent up to the full cost of implementation, and there is a maximum payment of $100,00 per year for an individual. To be eligible, projects must be on farms that cover at least five acres and earn $1,000 of income, and they must address an existing water quality problem.

VACS funding has historically fluctuated widely from year to year. The state estimates that investments in agricultural best management practices through the program have totaled $171.6 million since 1988. The General Assembly allocated $83.8 million to support VACS in fiscal year 2020, an unprecedented level of investment.

ISSUES

- Issues Facing Virginia
  - Virginia's Path to Clean Water
  - Agricultural Cost-Share Program
  - Atlantic Coast Natural Gas Pipeline
  - Fones Cliffs
  - Stormwater Local Assistance Fund

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In the News

09/20/21: CBF Praises Watershed Farm Leaders' Letter Urging More Money for USDA Conservation Programs

09/16/21: Maryland Environmental Groups Respond to Newly Released Draft Wastewater Permit for Valley Proteins' Eastern Shore Rendering Plant

09/15/21: A Tree Grows In Dairy Land

09/07/21: CBF Applauds Governor Wolf's Call for $737 Million to Support Farmers' Clean Water and Climate Change Efforts

08/27/21: Congress Must Help Save the Chesapeake Bay

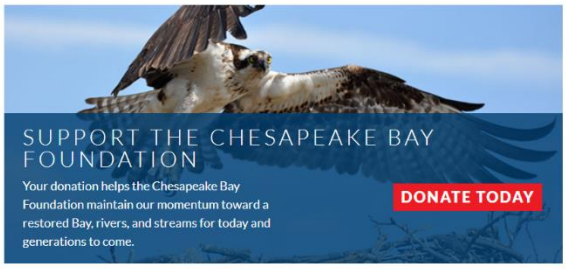
08/26/21: What Is Regenerative Agriculture, and Why Is It Re-Emerging Now?

Why Agricultural Cost-Share is Important to Meeting Virginia's Blueprint Goals

Virginia reduced the amount of nitrogen pollution from its agriculture sector by approximately 760,000 pounds between 2010 and 2018. To reach its Clean Water Blueprint goals by 2025, the Commonwealth is relying on farms to cut an additional 6.6 million pounds of nitrogen. That amount accounts for 77 percent of the remaining nitrogen reductions statewide.

VACS is a critical part of Virginia's plan to meet its pollution reduction goals by 2025. It helps farmers across the Commonwealth adopt sound, cost-effective conservation practices such as installing cover crops, as well as projects with long-term benefits, including fencing cattle out of streams and planting streamside trees and grasses. These are among the best steps Virginia can take to restore the Bay and local streams.

While there have been many positive improvements to the VACS program in the last several years, robust, reliable funding for best management practices is essential for meeting the water quality goals outlined in the Commonwealth's final Clean Water Blueprint. The plan estimates that nearly $100 million will be needed for cost-share annually. The Blueprint also notes that, in order to accelerate the implementation of agricultural conservation practices, a higher percentage of cost-share funding should be directed to the Chesapeake Bay watershed.



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Appendix E

Letter for Huntley Meadows Park

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Nathan Burrell
Deputy Director of Government and Community Relations

Thomas L. Smith
Deputy Director of Operations

September 10, 2021

Jenn Favela
Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 100
Gainesville, VA 20155

Re: 23503.01, Huntley Meadows Park

Dear Ms. Favela:

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.

Northeast Project Site, Southeast Project Site
Biotics documents the presence of natural heritage resources within the project boundary including a 100ft buffer. However, due to the scope of the activity we do not anticipate that this project will adversely impact these natural heritage resources.

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 $120.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to

the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from https://vafwis.dgif.virginia.gov/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dwr.virginia.gov. A documented occurrence of a statelisted animal is located within the submitted project boundary including a 100-foot buffer. Therefore, DCR recommends coordination with the VDWR, 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, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader
Natural Heritage Locality Liaison

CC: Amy Martin, VDWR

Appendix F

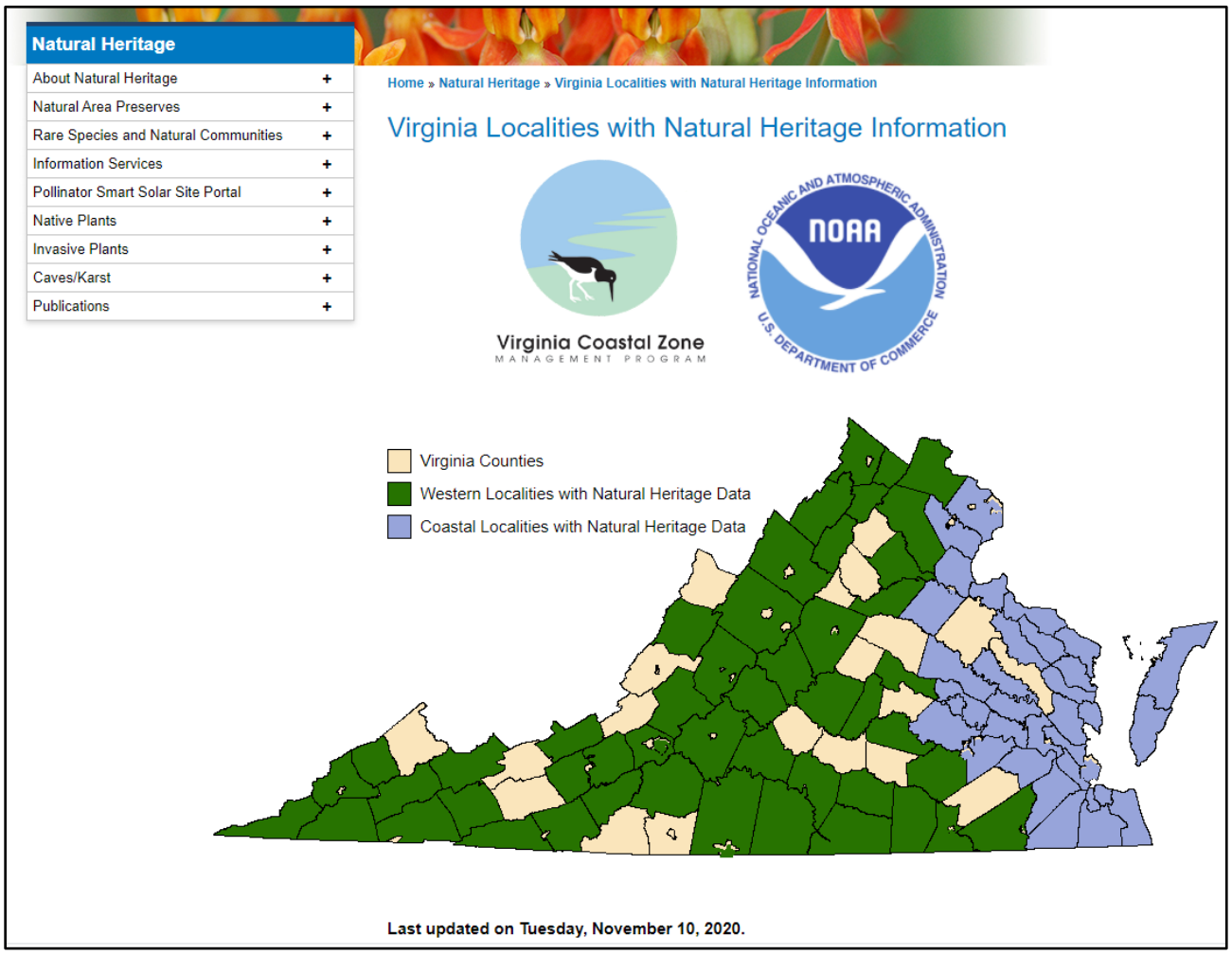
List of Coastal Training Participants for FY20

AECOM
Alliance for the Shenandoah Valley
American Battlefield Trust
Accomack-Northampton Planning District Commission
Apex Clean Energy
Arcadis
Birdseye Renewable Energy
Cardno
Chesapeake Bay Foundation
Chickahominy Tribe
Chickahominy Tribe-Eastern Division
City of Norfolk-Department of Transit
Community Energy
Capital Region Land Conservancy
Cultural Heritage Partners, PLLC
DCR-DNH
DCR-Land Protection
DCR-PCMO
DCR-Planning and Recreational Resources
DCR-State Parks
DEQ-Central Office
DEQ-Tidewater Regional Office
Dewberry
Department of General Services, Bureau of Real Estate Services
Elizabeth River Project
Environmental Protection Agency
Environmental Resources Management
Federal Highway Administration-Eastern Federal Lands, Highway Division
Friends of the Lower Appomattox River
GAI Consultants
Geosyntec Consultants, Inc.
Hanover Caroline Soil and Water Conservation District
Hexagon Energy
Historic Virginia Land Conservancy
Isle of Wight
James City County-Community Development
Kimley-Horn
Lodestar Energy
Mill Creek Creative
NAVFAC MIDLANT Environmental JEB Little Creek - Fort Story

Newport News Waterworks
Northern Neck Planning District Commission
Northern VA Conservation Trust
NOVA Parks
Rappahannock Tribe
Shenandoah Valley Conservation Collaborative
Smithsonian Conservation Biology Institute
Stantec
Tri-County Soil and Water Conservation District
The Berkley Group
Timmons
The Nature Conservancy
United States Department of Agriculture
USDA-NRCS
VDACS-STS
Virginia Conservation Network
Virginia Department of Forestry
Virginia Department of Historic Resources
Virginia Department of Transportation-Environmental Division
VDOT-Fredericksburg District
VDOT-Northern Virginia District
Westwood
Whitman, Requardt & Associates, LLP
Wetland Studies and Solutions, Inc.
York County

Appendix G

Map of Localities with Natural Heritage Information



Appendix H

Virginia Solar Pollinator Resource Tools

Virginia Department of Conservation and Recreation
CONSERVE. PROTECT. ENJOY.

Search DCR Site

About DCR | State Parks | Natural Heritage | Soil and Water Conservation | Recreation Planning | Dam Safety and Floodplains | Land Conservation

Natural Heritage

- About Natural Heritage +
- Natural Area Preserves +
- Rare Species and Natural Communities +
- Information Services +
- Pollinator Smart Solar Site Portal -
  - Comprehensive Manual (PDF)
  - Scorecards
  - Solar Site Native Plant Finder
- Native Plants +
- Invasive Plants +
- Caves/Karst +
- Publications +

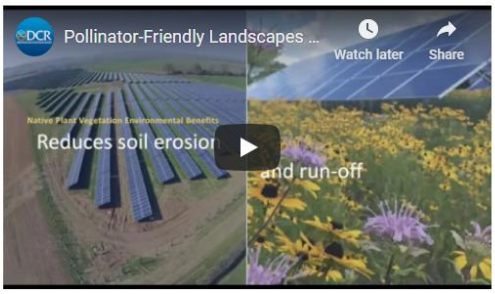
Home » Natural Heritage » Solar Site Pollinator-Smart

Virginia Pollinator Smart

The emerging solar power industry holds in its hands an extraordinary opportunity as decision-makers, engineers and designers consider the impact of their facilities on the landscape. Expertly crafted mixes of native plants can transform a solar facility into a thriving ecosystem that supports pollinator species, birds, and other wildlife, while enhancing facility economic efficiencies.

Learn more about the benefits of native plants on solar sites...

On April 1, 2020 Pollinator-Smart Team members presented a webinar titled "Pollinator Landscapes for Solar Facilities and Beyond" to over 260 participants in lieu of an in-person presentation at the Environment VA Symposium that was cancelled due to COVID-19. This webinar introduces the mechanics of the Virginia Pollinator-Smart Solar Program and goes "beyond" solar by applying the same concepts to other areas of development - such as brownfields, roadsides and transmission lines. Below is a recorded YouTube video of the presentation.



Guidance for Establishing and Maintaining a Pollinator-Smart/Bird Habitat Solar Site

Virginia's Pollinator-Smart program is designed to provide incentives and tools for solar industry to adopt a native plant strategy to meet soil and water control regulations, community needs, and the needs of our biosphere. Below are links to supporting documents for creating pollinator-friendly habitat on a solar facility and meeting the criteria of the Pollinator-Smart certification program.

Developed with input from many stakeholders, natural resource scientists, and environmental policy experts, the materials presented here provide detailed guidance for planning, designing, installing, and maintaining a Pollinator-Smart habitat at a solar facility.

- **Comprehensive Manual** (PDF)
- **Vegetation Monitoring Manual** (PDF)
- **Native Plants Seed Business Plan** (PDF)
- Pollinator-Smart Scorecards
  - **New site** (PDF)
  - **Established site** (PDF)

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Gold Certified Cople Elementary School Solar Facility in Westmoreland, County (developed by SunTribe). Photo is after first growing season. Click to enlarge.

VA Pollinator Smart Program and Localities

Below is a recorded YouTube video of the September 8, 2020 virtual stakeholder meeting, targeted specifically to city and county governments and local boards. The presentation introduced the Virginia Pollinator-Smart Program and discussed the benefits of participation and ways it can be used to achieve local goals.

Some Virginia localities have local ordinances and policies that include recommendations for planting native pollinator species. These are developed for each locality specifically, by local governing bodies and procedures. For informational purposes, here are some examples provided at the the links below:

- City of Chesapeake Solar Energy Policy - June 27, 2019 (PDF)
- Halifax County Ordinance No. 2020-23 - Solar Energy Facilities - enacted August 3, 2020

Virginia Invasive Plant Species List

The DCR Invasive Plant Species List is the result of risk assessment conducted on hundreds of non-native plant species. The list currently identifies 90 species as invasive in Virginia. Invasive species are defined here as non-native species that cause harm to the ecosystem and native species, create economic damage and losses, or pose direct harm to humans. Invasive plant species threaten Pollinator-Smart goals if they are not properly managed at a site.

Establishing a Virginia Native Seed Industry

A goal of the Pollinator-Smart program is to kickstart a robust native seed industry that would be able to serve the coming demand for tens of thousands of acres of native plant materials. The Native Plants Seed Business Plan (PDF) builds on knowledge generously provided by established members of the native seed industry and outlines the steps toward a Virginia-based industry that could also serve other surrounding states.

DEQ Solar Site web page

In Virginia, the Department of Environmental Quality has oversight of the establishment of solar facilities. To learn about the permit requirements and opportunities for the solar industry in Virginia, visit the DEQ Solar Energy page.

Questions/Comments

If you have questions or comments on the Pollinator-smart program, please contact us at pollinator.smart@dcr.virginia.gov

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Virginia Solar Site Pollinator/Bird Habitat Scorecard

VERSION 2.0a

VIRGINIA POLLINATOR-SMART/
BIRD HABITAT SCORECARD
Proposed or Retrofit Solar Sites

DEFINITIONS

Open Area: Any area beyond the panel zone, within the property boundary.

Panel Zone: The area underneath the solar arrays, including inter-row spacing.

Project Area: Open Area + Panel Zone + Screening Zone.

Screening Zone: A vegetated visual barrier.

Solar Native Plant Finder: The Virginia Solar Site Native Plant Finder (tool), an online research tool developed by the DCR Natural Heritage Program.

Virginia Pollinator-Smart Seed Mix: A seed mix that includes native local ecotypes and conforms with the Solar Native Plant Finder.

RESOURCES

Virginia Solar Site Native Plant Finder
Virginia's Pollinator-Smart Solar Portal
Comprehensive Manual
Monitoring Plan

INSTRUCTIONS

ATTACHMENTS PROVIDED

- Project Vicinity Map/Planting Plan
- Seed Mix and Seeding Rates
- Vegetation Management Plan
- Vegetation Monitoring Plan
- Invasive Species Mapping
- Research Collaboration Documentation
- Site Photos

PROJECT DETAILS & CONTACT INFORMATION

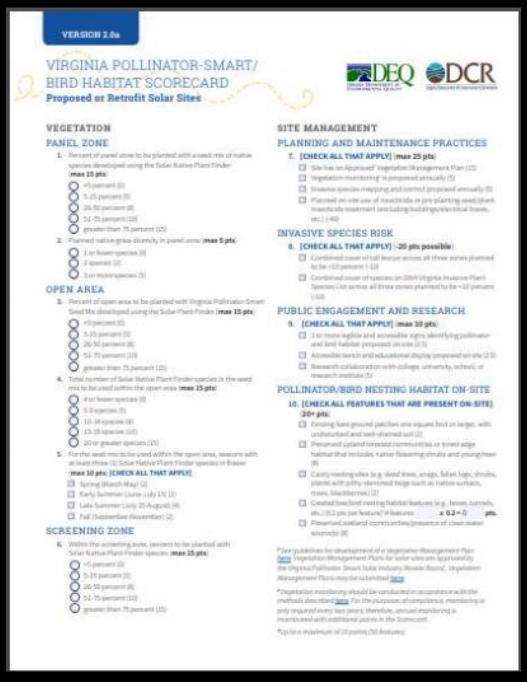
DATE:
SITE OWNER OR DESIGNEE:
PROJECT ADDRESS:
PROJECT SIZE (ACLAND MW):
POINT OF CONTACT:
EMAIL/PHONE:
VEGETATION CONSULTANT:
SEED SUPPLIER (IF KNOWN):
TARGET SEEDING DATE:

FINAL SCORE

0

Certified VA Pollinator-Smart: 80-99 pts
Gold Certified VA Pollinator-Smart: 100+ pts

CLAIM FORM



VERSION 2.0a

VIRGINIA POLLINATOR-SMART/
BIRD HABITAT SCORECARD
Proposed or Retrofit Solar Sites

VEGETATION

PANEL ZONE

1. Percent of panel zone to be planted with a seed mix of native species developed using the Solar Native Plant Finder (**max 15 pts**):
   - ○ <5 percent (0)
   - ○ 5-25 percent (5)
   - ○ 26-50 percent (8)
   - ○ 51-75 percent (10)
   - ○ greater than 75 percent (15)
2. Planned native grass diversity in panel zone (**max 5 pts**):
   - ○ 1 or fewer species (0)
   - ○ 2 species (2)
   - ○ 3 or more species (5)

OPEN AREA

3. Percent of open area to be planted with Virginia Pollinator-Smart Seed Mix developed using the Solar Plant Finder (**max 15 pts**):
   - ○ <5 percent (0)
   - ○ 5-25 percent (5)
   - ○ 26-50 percent (8)
   - ○ 51-75 percent (10)
   - ○ greater than 75 percent (15)
4. Total number of Solar Native Plant Finder species in the seed mix to be used within the open area (**max 15 pts**):
   - ○ 4 or fewer species (0)
   - ○ 5-8 species (5)
   - ○ 10-14 species (8)
   - ○ 15-19 species (10)
   - ○ 20 or greater species (15)
5. For the seed mix to be used within the open area, sowrons with at least three (3) Solar Native Plant Finder species in flower (**max 10 pts**: **[CHECK ALL THAT APPLY]**
   - ☐ Spring (March-May) (3)
   - ☐ Early Summer (June-July 15) (3)
   - ☐ Late Summer (July 15-August) (4)
   - ☐ Fall (September-November) (2)

SCREENING ZONE

6. Within the screening zone, percent to be planted with Solar Native Plant Finder species (**max 15 pts**):
   - ○ <5 percent (0)
   - ○ 5-25 percent (5)
   - ○ 26-50 percent (8)
   - ○ 51-75 percent (10)
   - ○ greater than 75 percent (15)

SITE MANAGEMENT

PLANNING AND MAINTENANCE PRACTICES

7. **[CHECK ALL THAT APPLY]** (**max 25 pts**):
   - ☐ Site has an Approved Vegetation Management Plan (10)
   - ☐ Vegetation monitoring* is proposed annually (5)
   - ☐ Invasive species mapping and control proposed annually (5)
   - ☐ Planned on-site use of insecticide or pre-planting seed/plant insecticide treatment (excluding buildings/electrical boxes, etc.) (-40)

INVASIVE SPECIES RISK

8. **[CHECK ALL THAT APPLY] (-20 pts possible)**:
   - ☐ Combined cover of tall fescue across all three zones planned to be >10 percent (-10)
   - ☐ Combined cover of species on 2049 Virginia Invasive Plant Species List across all three zones planned to be >10 percent (-10)

PUBLIC ENGAGEMENT AND RESEARCH

9. **[CHECK ALL THAT APPLY]** (**max 10 pts**):
   - ☐ 1 or more legible and accessible signs identifying pollinator and bird habitat proposed on-site (2.5)
   - ☐ Accessible bench and educational display proposed on-site (2.5)
   - ☐ Research collaboration with college, university, school, or research institute (5)

POLLINATOR/BIRD NESTING HABITAT ON-SITE

10. **[CHECK ALL FEATURES THAT ARE PRESENT ON-SITE] (20+ pts)**:
    - ☐ Existing bare ground patches one square foot or larger, with undisturbed and well-drained soil (2)
    - ☐ Preserved upland forested communities or forest edge habitat that includes native flowering shrubs and young trees (8)
    - ☐ Cavity-nesting sites (e.g. dead trees, snags, fallen logs, shrubs, plants with pithy-stemmed twigs such as native sumacs, roses, blackberries) (2)
    - ☐ Created bee/bird nesting habitat features (e.g., boxes, tunnels, etc.) (0.2 pts per feature)* # features: x 0.2 = 0 pts.
    - ☐ Preserved wetland communities/presence of clean water sources) (8)

*See guidelines for development of a Vegetation Management Plan here. Vegetation Management Plans for solar sites are (approved by the Virginia Pollinator-Smart Solar Industry Review Board). Vegetation Management Plans may be submitted here.

*Vegetation monitoring should be conducted in accordance with the methods described here. For the purposes of compliance, monitoring is only required every two years; therefore, annual monitoring is incentivized with additional points in the Scorecard.

*Up to a maximum of 10 points (50 features)

Virginia Pollinator-Smart Comprehensive Manual

Natural Heritage

- About Natural Heritage +
- Natural Area Preserves +
- Rare Species and Natural Communities +
- Information Services +
- **Pollinator Smart Solar Site Portal** -
  - Comprehensive Manual (PDF)
  - Scorecards
  - Solar Site Native Plant Finder
- Native Plants +
- Invasive Plants +
- Caves/Karst +
- Publications +

Home » Natural Heritage » Virginia Solar Site Native Plant Finder

Virginia Solar Site Native Plant Finder

The Solar Site Native Plant Finder is designed to aid solar site developers by providing a database of native plant species that are commercially available. The database contains information useful in designing a high-quality habitat for pollinators, birds, beneficial insect predators, and other wildlife. Learn more about the **benefits of using native vegetation on solar sites.** More tools and information are on the **Pollinator Smart portal page**.

Using the Finder

For information about a particular native plant species, enter a common or scientific name in the top form, **Search by Name**. Species names in the solar plant finder application are from the Flora of Virginia (2012) and the companion Virginia Flora App (iOS and Android). Help for finding correct scientific names for plant species is also in the **Digital Atlas of Virginia**. Links to the corresponding Digital Atlas page are in query reports.

To generate a list of plants that could suit your specific needs, fill in any field in the Search by Characteristics form, and click "Submit." You may get very specific in listing characteristics. More than one field can be filled in for your query. For example, you might want a list of native plants specific to Halifax County (Location) that are less than 3 feet tall (Max Height) and occur in a sunny (Light Requirement), dry habitat (Moisture Requirement).

The database contains 1600 native plant species. By default, the finder form is set to search for commercially available species. You can change the setting to see all species in the database selecting the blank option. Selecting 'No' will display those species for which we do not currently have identified as available. For each species in the finder, names of providers and links to their websites appear in the query results under "More details."

Query results are printable from your browser's Print menu. To create a spreadsheet of the results, copy and paste the results table into a spreadsheet program, such as Excel or Sheets.

For questions or issues related to the finder, email **pollinator.smart@dcr.virginia.gov.**

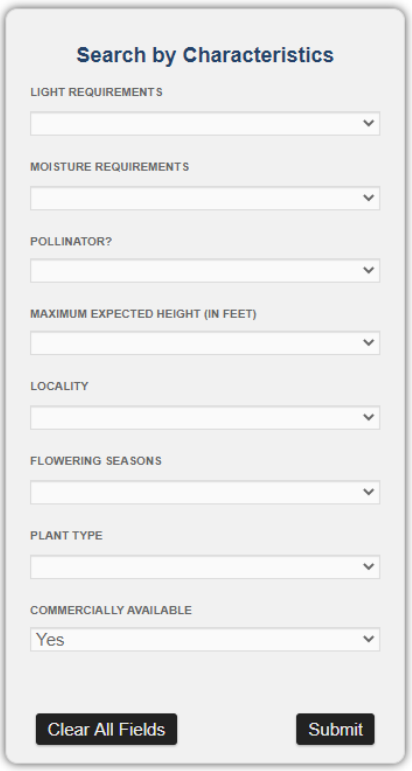
How to Use the Solar Site Native Plant Finder (PDF).

Search by Name

COMMON NAME

SCIENTIFIC NAME

Clear All Fields | Submit



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600 East Main Street, 24th floor | Richmond, VA 23219-2094 | 804-786-6124

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Figure 1. Pollinator Smart-Cople Elementary School Solar Panels before planting

Figure 2. Pollinator Smart-Cople Elementary School Solar Facility after second growing season

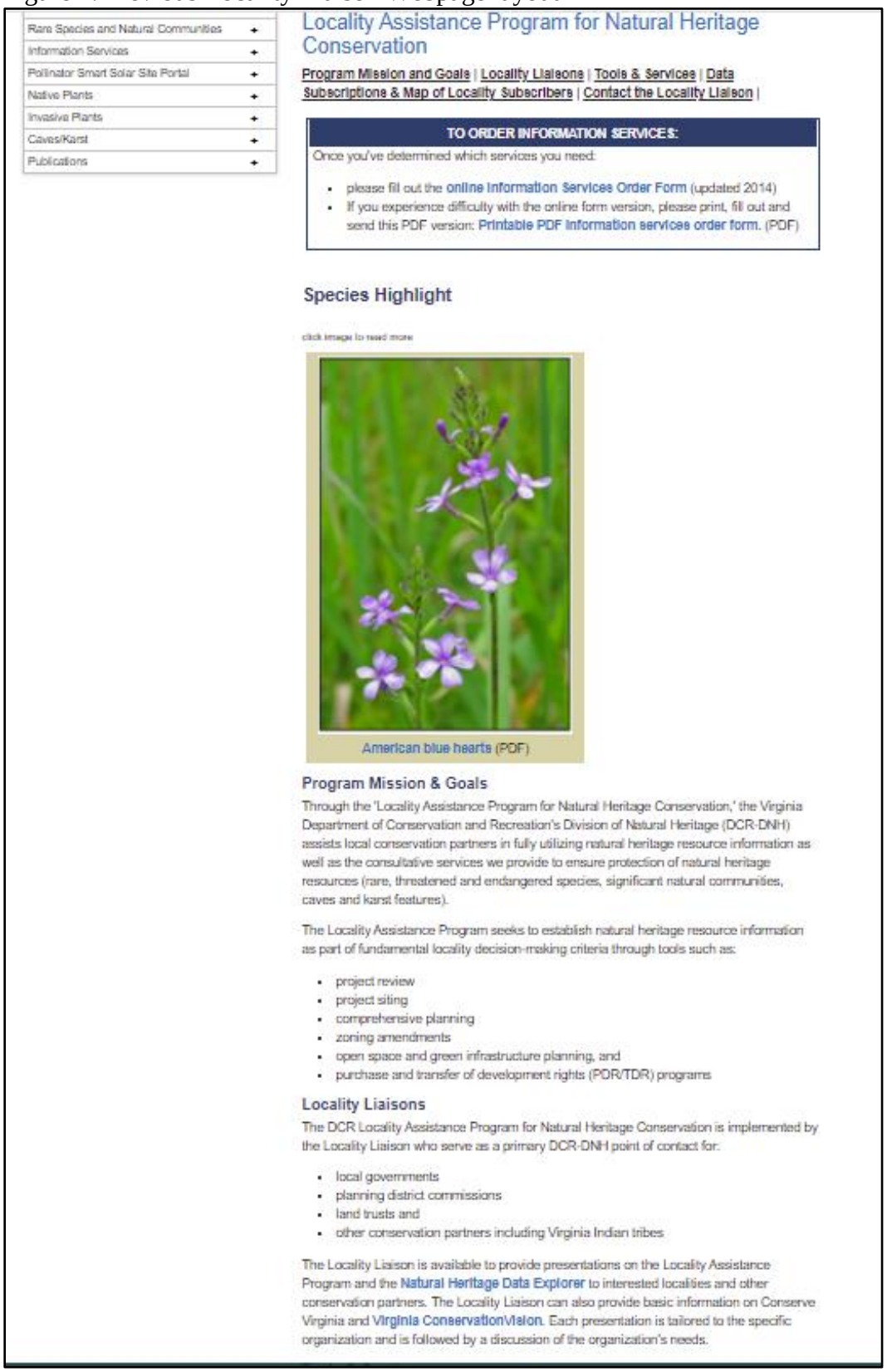
Figure 3- Monarch Butterfly at Gold Certified Pollinator Smart Cople Elementary School Solar Facility

Figure 4. Drone image of the Pollinator Smart Cople Elementary School Site

Appendix I

Locality Liaison Webpage Project

Figure 1. Previous Locality Liaison Webpage layout



Tools & Services

The Locality Assistance Program offers a suite of optional tools and services to localities and other local conservation partners. The Locality Liaison can provide assistance in selecting amongst the various options in order to tailor the program to local needs.

A full list of the tools and services available in the DCR Locality Assistance Program for Natural Heritage Conservation can be found here.

- Natural Heritage Resource data in GIS form (shapefile) or access to the Project Review
- Guidance for establishment of local policies to incorporate natural heritage resource data into project review and approval
- Inventory of Natural Heritage Resources (fee charged)
- Virginia Wetlands Catalogue; an inventory of wetlands and potential wetlands prioritized for conservation and restoration purposes by parcel, subwatershed, and wetland boundaries.
- Virginia ConservationVision - A digital atlas for green infrastructure planning

Chris Hobson, NH field zoologist, inventorying for rare species

Data Subscriptions & Map of Locality Subscribers

Many localities and other conservation partners throughout Virginia have Natural Heritage Resource Data Subscriptions.

Montane Depression Wetland Community

The subscription provides users with data concerning natural heritage resources. Data is available in the form of a shapefile to integrate into an existing GIS, or by access to the Natural Heritage Data Explorer. Subscriptions are free to local governments and other non-profit organizations. A data license agreement (PDF) is required. Subscriptions last one year, and quarterly updates are provided.

You can access our new Information services form to request services.

View a map of local governments that currently have data subscriptions to determine if localities in your area have natural heritage data to utilize in decision-making.

Contact Your Locality Liaison

photo of tiger beetle © DCR-DNH,
Steve Roble, Northeastern beach tiger beetle (Cicindela dorsalis dorsalis)

Please contact your Locality Liaison for additional information or to schedule a presentation for your locality or organization.

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tiger beetle habitat

Virginia Coastal Zone
MANAGEMENT PROGRAM

This project was funded in part by the Virginia Coastal Program at the Department of Environmental Quality through Grant NA16NOS419 task #5 of the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, under the Coastal Zone Management Act of 1972, as amended.

Figure 2. Updated Locality Liaison Webpage Layout

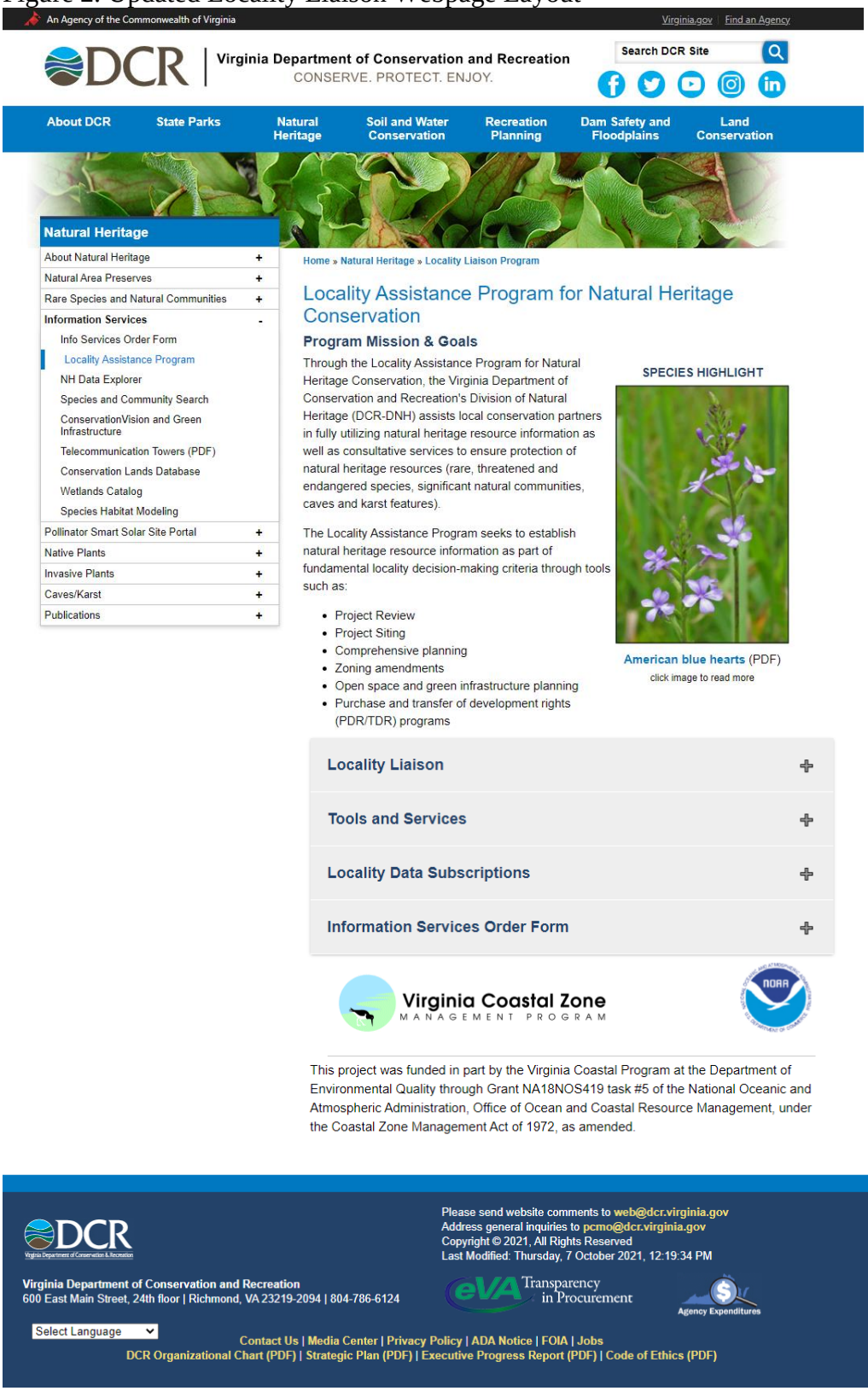

Figure 3. Locality Liaison dropdown tab display

Locality Liaison

The DCR Locality Assistance Program for Natural Heritage Conservation is implemented by the locality liaison who serves as a primary DCR-DNH point of contact for:

- Local governments
- Planning district commissions
- Land trusts
- Other conservation partners including Virginia Indian Tribes

The locality liaison is available to provide presentations on the Locality Assistance Program and the **Natural Heritage Data Explorer** to interested localities and other conservation partners. The locality liaison can also provide basic information on **ConserveVirginia** and **Virginia ConservationVision**. Each presentation is tailored to the specific organization and is followed by a discussion of the organization's needs.

Please contact your Locality Liaison for additional information or to schedule a presentation for your locality or organization.

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© DCR-DNH, Steve Roble; Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*)

© DCR-DNH, Steve Roble; tiger beetle habitat

Figure 4. Tools and Services dropdown tab display

Tools and Services

The Locality Assistance Program offers a suite of optional tools and services to localities and other local conservation partners. The locality liaison can provide assistance in selecting from the various options in order to tailor the program to local needs.

A full list of the tools and services available in the DCR Locality Assistance Program for Natural Heritage Conservation are listed below.

NH field zoologist inventorys for rare species.

Tools

- **Natural Heritage Data Explorer** - Online interactive data mapping tool
- **ConserveVirginia** - A map of Virginia's highest conservation value lands
- **Virginia Wetlands Catalog** - An inventory of wetlands and potential wetlands prioritized for conservation and restoration purposes by parcel, subwatershed, and wetland boundaries.
- **Virginia ConservationVision** - A digital atlas for green infrastructure planning
- **Inventory** of Natural Heritage Resources (fee charged)

Services

- Initial meeting with DCR-NH staff to include power point presentation outlining DCR-NH program, with detailed information about inventory (highlighting species documented or likely to occur in locality), data management and environmental review process
- Training to provide explanations of Natural Heritage data and available Natural Heritage tools
- Provide Natural Heritage Resource data in GIS form (shapefile) or access to the Natural Heritage Data Explorer
- Review proposed development projects to avoid and minimize impacts to natural heritage resources
- Recommend language for the locality's comprehensive plan and other key planning documents, such as PDR and TDR programs, overlay districts, etc.

Figure 5. Locality Data Subscriptions dropdown tab display

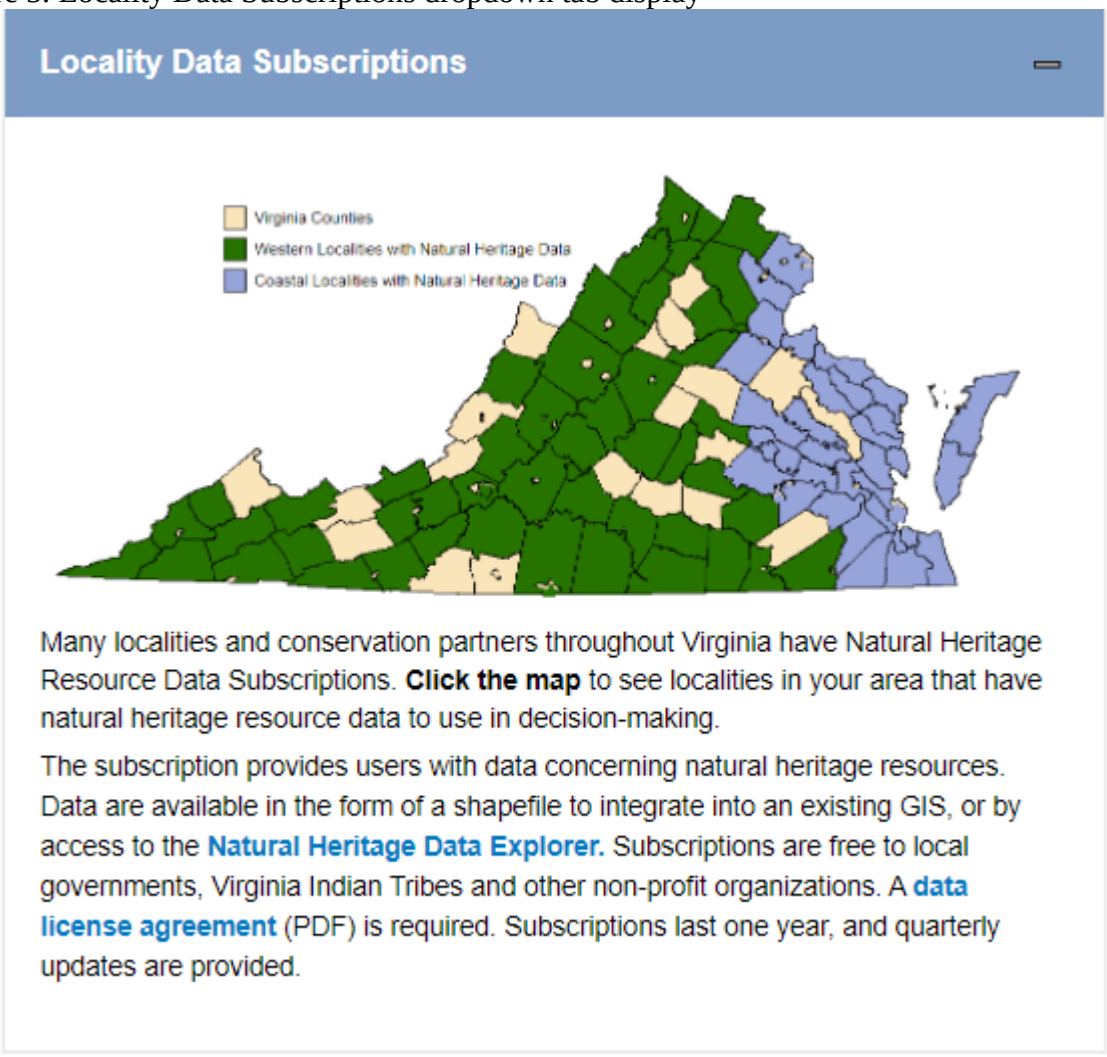
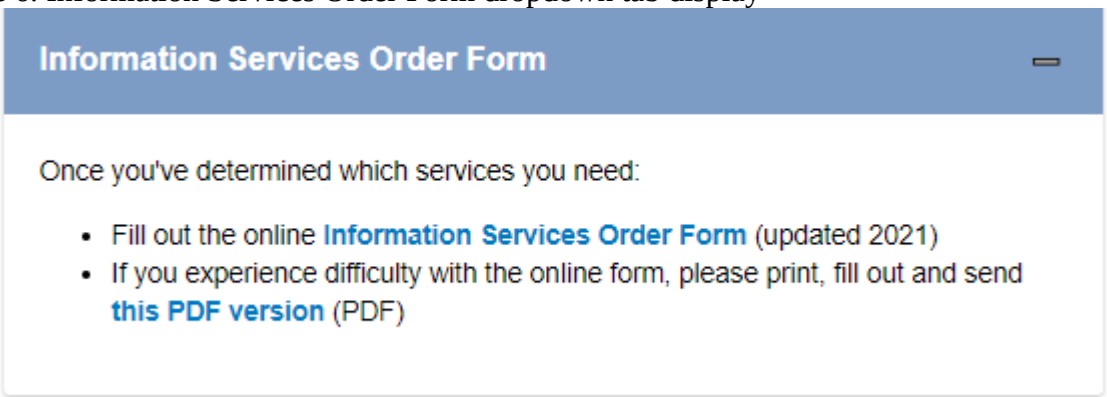


Figure 6. Information Services Order Form dropdown tab display



Appendix J

Quarterly Coastal Species Highlights

Species Highlight: Dwarf wedgemussel (*Alasmidonta heterodon*)

Global Rarity Rank: G1G2- Critically Imperiled

State Rarity Rank: S1- Critically Imperiled

Legal Status: Federally and State Listed Endangered

The Dwarf wedgemussel is a freshwater mussel that 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 Wildlife Resources (VDWR).

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. Extant populations of Dwarf wedgemussel are documented from the counties of Stafford, Spotsylvania, Louisa, Lunenburg, Nottoway and Sussex, and historic populations are documented from the counties of Albemarle, Orange, Culpeper, Hanover, and Fauquier.

Recommendations for avoiding impacts to this resource includes the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations during development activities, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow.

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.

U.S. Fish and Wildlife Service. 1993. Dwarf Wedge Mussel (*Alasmidonta heterodon*) Recovery Plan. Hadley, Massachusetts. p. 52.

Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. Fisheries 18: 6-9.

Natural Heritage Resource Highlight: North Atlantic Upper Beach/Overwash Flat

Global Rarity Rank: G4-Apparently Secure State Rarity Rank: S3-Vulnerable Legal Status: Not Listed

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The Marine System is represented by a single group containing vascular plants, which are associated with sparsely to patchily vegetated ocean shores and flats behind breached foredunes. Similar vegetation occurs from Maine south to South Carolina. Upper-beach habitats are situated just above the mean high tide limit, but are flooded by high spring tides and storm surges. Constant salt spray maintains generally moist conditions, and habitats may be spatially dynamic due to frequent reshaping of oceanfront topography by catastrophic storms. Substrates consist of unconsolidated sand and shell sediments that are constantly shifted by winds and floods. Dynamic disturbance regimes largely limit vegetation to pioneering, salt-tolerant, succulent annuals. American sea rocket (*Cakile edentula*) and/or saltwort (*Salsola koli)* are usually most numerous and characteristic. Other scattered associates include small sea-purslane (*Sesuvium maritimum*), sea-beach knotweed (*Polygonum glaucum*), bushy knotweed (*Polygonum ramosissimum var. prolificum*), sea-blites (*Suaeda linearis* and *Suaeda maritima*), and sea-beach orach (*Atriplex mucronata*). Small clumps of bitter seabeach grass (*Ponicum amarum var. amarum*) and saltmeadow cordgrass (*Spartina patens*) are also frequent. In Virginia, these communities are distributed along the barrier islands of the Eastern Shore (Accomack and Northampton Counties) and on Cape Henry and False Cape (City of Virginia Beach).

Upper beach / overwash flat habitats are critical to several globally rare, federally listed species, including the Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*). The threatened plant Sea-beach amaranth (*Amaranthus pumilus*) occurred historically on overwash flats in both Eastern Shore counties. The Loggerhead sea turtle (Caretta caretta) and the Piping plover *(Charadrius melodus melodus)* utilize beaches and overwash flats for nesting. Extensive construction of high, artificial dunes along the Atlantic coast has reduced the extent of these habitats by increasing oceanside beach erosion and eliminating the disturbance regime that creates and maintains overwash flats.

References: Clampitt (1991), The Nature Conservancy (1997).

Species Highlight: Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis)*

Global Rarity Rank: G4T2-Imperiled **State Rarity Rank:** S2- Imperiled

Legal Status: Federally and State Listed Threatened

© DCR-DNH, Steve Roble

The Northeastern beach tiger beetle historically ranged from coastal Massachusetts to Cape May County, New Jersey, with a disjunct population occurring along shorelines of the Chesapeake Bay. Currently, only the Chesapeake Bay populations (including the Virginia occurrences) and one occurrence in Massachusetts remain (NatureServe, 2009). Along the Chesapeake Bay, this species inhabits wide, highly dynamic, sandy beaches with back beach vegetation. Adults are most active in the summer, actively hunting for insects along the beach (NatureServe, 2009). The larvae live in burrows in the sand where they sit and wait for passing prey to feed on. Larvae are present on the beaches year round, though they hibernate beginning in early fall (NatureServe, 2009). Please note that this species is currently classified as threatened by the United States Fish and Wildlife Service (USFWS) and the Virginia Department of Agriculture and Consumer Services (VDACS).

Threats to the Northeastern beach tiger beetle include shoreline development, beach stabilization, high recreational use, pesticides, and natural events including winter beach erosion, flood tides, and hurricanes (Knisley, 1991). Disturbance to dynamic, sandy beaches in areas where they occur may detrimentally impact tiger beetles through habitat degradation and individual mortality.

Literature Cited

Knisley, C.B. 1991. Northeastern beach tiger beetles. In Virginia's Endangered Species:

Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. pp. 233-234.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: March 31, 2010).

Species Highlight: American blue-hearts (*Buchnera americana*)

Global Rarity Rank: G5?-Secure **State Rarity Rank:** S1S2- Critically Imperiled-Imperiled

Legal Status: No state or federal legal protection status

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American blue-hearts occurs in seasonally moist to dry soils of barrens, clearings, old fields, meadows, and roadsides; occurs on calcareous or mafic substrates in the mountains and Piedmont and on acidic, sandy or clayey soils in the Coastal Plain (Weakley et al., 2012). It has also been documented in such disturbed areas as railroad rights-of-way (TNC, 1996). This species blooms from July through September (Gleason, 1952).

As of 2021, 17 occurrences of this state rare plant were documented by the Virginia Natural Heritage Program, 8 historic (last field observation > 30 years) and 9 extant. This species has been documented within the coastal zone from the counties of Fairfax, Prince George and Prince William as well as the City of Petersburg. Threats include loss of habitat due to conversion and succession as well as competition from non-native invasive species.

Literature Cited

Gleason, H.A. 1952. Illustrated Flora of the Northeastern United States and Adjacent Canada. Hafner Press. New York, NY. p. 246.

The Nature Conservancy. 1996. Biological and Conservation Data System. Arlington, Virginia, USA.

Weakley, A.S., J.C. Ludwig and J.F. Townsend. 2012. *Flora of Virginia.* Botanical Research Institute of Texas Press, Fort Worth. p. 322.