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COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

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September 22, 2014

Dr. Bill Dennison, Acting Director
Chesapeake Watershed Cooperative Ecosystem Study Unit
PO Box 775
University of Maryland (Center for Environmental Science)
Cambridge, MD 21613

Dear Dr. Dennison,

Please accept this formal letter expressing the desire of the Virginia Department of Conservation and Recreation's Division of Natural Heritage (VaDCR-DNH) to enroll in the Chesapeake Watershed Cooperative Ecosystem Study Unit (CW-CESU) as a new partner institution. We have read the CW-CESU agreement and agree to support its mission and goals and to fulfill the roles and responsibilities of a nonfederal partner.

Major portions of the application are directly below and letters of support have been sent or are forthcoming.

**Description of the Virginia Department of Conservation and Recreation's
Division of Natural Heritage (with information on its mission, and the
primary focus of collaborative activities to be supported through the CESU.)**

In July of 1988, the Virginia Division of Natural Heritage came under the direction of the Department of Conservation and Recreation (VaDCR) and in 1989 the General Assembly passed the Virginia Natural Area Preserves Act, formally naming VaDCR the agency responsible for the division. The act charges VaDCR with the responsibilities of conserving the biological diversity of Virginia, through biological inventory, maintaining a data bank of the information gathered through this inventory, and establishing a system of preserves dedicated to protecting biodiversity. Additionally, Virginia's Division of Natural Heritage works to preserve biodiversity through project review and through directly advising federal, state, local agencies and conservation organizations that manage biodiversity resources on their lands.

Since 1998, this broad mission has allowed for VaDCR-DNH to work with numerous federal partners to protect biodiversity on federal lands through a range of funded initiatives primarily focused on biological inventory and the provision of technical assistance to protect and manage these resources. Specifically our land-managing federal partners have included the U.S. Department of Interior's Bureau of Land Management and Fish and Wildlife Service, the U.S. Department of Agriculture's Forest Service, the 3 branches of the U.S. Department of Defense. Our projects almost always center on the provision of field biological expertise, particularly involving rare species and natural community inventory and mapping. Often, as a result of these efforts, VaDCR-DNH

*State Parks • Soil and Water Conservation • Outdoor Recreation Planning
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation*

biologists are funded to provide technical recommendations for protection of biodiversity resources found on federal lands.

**Description of the VaDCR-DNH programs of relevance
to federal land management, environmental, and research agencies
that will likely be engaged in CESU activities.**

Currently, VaDCR-DNH employees approximately 45 staff divided into five operational sections: Inventory, Data Management, Project Review, Protection, and Stewardship. Three of these sections (Inventory, Data Management, and Stewardship) work closely with federal partners and are most likely to be engaged in CESU activities. The inventory staff includes field biologists with extensive experience in detecting rare species and classifying and mapping natural communities. Currently there are nine full-time biologists in this section. Data management staff include three staff with biological expertise that focus on analytical work using Geographic Information Systems (GIS). The Stewardship section includes seven biologists that manage the Commonwealth's system of Natural Area Preserve lands but who also work with federal partners in a variety of management to protect biodiversity resources.

**A list and brief description of the VaDCR-DNH staff or faculty
with expertise in disciplines and subject areas of relevance
to federal land management, environmental, and research agencies.**

By section, the staff most likely to be involved in work with federal agencies in the Chesapeake Watershed includes:

Thomas L. Smith, Natural Heritage Director, with VaDCR- DNH since 1990. With a B.S. from Juniata College and an M.S. from Vanderbilt University, Tom has 34 years of experience conducting field surveys and managing state natural heritage programs. Tom worked as a field ecologist for the Tennessee Natural Heritage Program from 1980 – 1982. He served as the Program Director and ecologist for the Eastern Pennsylvania Natural Heritage Program from 1982 – 1990, and has served as the Virginia Natural Heritage Program Director from 1991 to present.

INVENTORY:

Anne Chazal, Field Zoologist, with VADCR-DNH since 1997. During her 17 years at VADCR-DNH Anne has worked across the state conducting inventories for the Commonwealth's rare, threatened and endangered (RTE) animal species. Inventory activities include, for example, seeking new populations of butterflies and moths, surveying for freshwater mussels, and observing pollinators of an endangered plant. She also assists land managers by providing data on RTE animals on their property and advising on best management practices to maintain those populations. She curates collected material, identifies specimens, and reports the findings to both internal and external clients. Prior to her work at VADCR-DNH, she was a research technician at an ecology laboratory (South Carolina) and a student (South Carolina and Alabama), with interests in birds, amphibians, and reptiles and in non-game management.

Gary Fleming, Staff Ecologist, with VaDCR-DNH since 1992. Gary is a senior vegetation ecologist of the Virginia Natural Heritage Program with more than 35 years of experience in botanical and ecological inventory of natural areas in the mid-Atlantic region. During the 1980's, he worked as a contract biologist for The Nature Conservancy Virginia and West Virginia field offices, the Virginia Department of Conservation and Recreation (DCR), and various private companies. Since joining the Natural Heritage Program in 1992, Mr. Fleming has been responsible for field inventory of natural communities in all regions of Virginia; the development of a state-wide vegetation classification based on quantitative data from more than 4600 plot samples; landscape-level ecology studies and vegetation maps for the U.S. Forest Service, National Park Service, Department of Defense, EPA, and other resource managers; and analysis and classification of regional vegetation data for multi-state mapping projects such as the Appalachian Trail and National Capital Region Parks.

Chris Hobson, Field Zoologist, with VaDCR-DNH since 1993. Chris has written numerous reports and authored scientific publications documenting the natural history and ecology of Virginia's fauna. He has continued to add to his knowledge of the invertebrate and vertebrate groups in the mid-Atlantic region, including small mammals, bats, birds, reptiles, amphibians, dragonflies and damselflies, and cave invertebrates among others. Chris has documented several new species to Virginia, including the Southeastern Myotis (*Myotis austroriparius*), the Southern Chorus Frog (*Pseudacris nigrita*), and the Marle Pennant (*Macrodiplax balteata*), and has discovered new undescribed species of millipedes, cave beetles, amphipods, diplurans, and other invertebrates. Most recently, Chris co-authored a Field Guide to Frogs and Toads of Virginia.

J. Christopher Ludwig, Chief Biologist, with VaDCR-DNH since 1988. Chris has 29 years of experience in biological inventories in the eastern United States, including surveys of plants, birds, Lepidoptera, Odonata, and vegetation. Since 1997, he has managed the inventory team and oversees the program's inventory of biological resources. Prior to this, Chris was the program botanist. Chris' also founded and served as director of the Flora of Virginia project in 2001 and he coauthored the 1554-page Flora which was published in 2012.

Karen Patterson, Staff Ecologist, with VaDCR-DNH since 2001. Karen has 20 years of experience in ecological inventory and mapping in the southeastern United States. Prior to coming to the Virginia Natural Heritage Program in 2001, she worked for The Nature Conservancy for over nine years, serving first as Regional Vegetation Ecologist for the southeastern United States, and later as Senior Regional Ecologist. She is one of the authors of the United States National Vegetation Classification and one of the authors of the Classification of Natural Communities of Virginia. Karen has developed, supervised and coordinated natural community inventories and vegetation mapping on many federal land units throughout the southeastern United States, including efforts for the National Park Service, The US Forest Service, and the Dept. of Defense.

Steve Roble, Ph.D., Staff Zoologist, with VaDCR-DNH since 1992. Steve has 40 years of experience in zoological inventory in the eastern United States. Prior to coming to the Virginia Natural Heritage Program in 1992, he worked for the Massachusetts Natural Heritage and Endangered Species Program for over four years, serving as the state's Wetlands Wildlife Biologist. Prior employment included positions with the sections of Birds and Amphibians and Reptiles at the Carnegie Museum of Natural History as well as a biology professor at Indiana University of Pennsylvania. He has authored about 50 papers on various zoological subjects, especially the fauna of Virginia. His current duties include the identification, documentation, and conservation of the habitats of rare species of animals, including both invertebrates and vertebrates, throughout Virginia. He has served as an advisor to various boards and committees in Virginia including the Science Review Board at Shenandoah National Park, Amphibian and Reptile Taxonomic Committee and Invertebrate Taxonomic Committee, both Virginia Department of Game and Inland Fisheries, Coastal Virginia Wildlife Observatory, Virginia Natural History Society, and the Virginia Important Bird Areas Program of the National Audubon Society.

Kristin Taverna, Field Ecologist, with VaDCR-DNH since 2004. Kristin has worked in natural communities throughout the southeast and is one of the authors of the Classification of Natural Communities of Virginia. She has developed and coordinated natural community inventories and vegetation mapping on many federal land units throughout Virginia, including efforts for the National Park Service and the Department of Defense. Kristin was raised in Virginia and studied Environmental Science at the University of Virginia in Charlottesville. She earned an MS in Plant Ecology from the University of North Carolina-Chapel Hill. Her graduate research focused on long-term change in herbaceous vegetation of southeastern Piedmont forests. In addition, she studied landscape vegetation patterns across the North Carolina Piedmont. Both research endeavors culminated in publications in the peer-reviewed journals, *Journal of Ecology* and *Landscape Ecology*.

John Townsend, Staff Botanist, with VaDCR-DNH since 2001. Johnny has background in forestry and botany and has been employed primarily as a field botanist for the past 20 years. Prior to his work with Heritage he worked as curator of the Clemson University herbarium and conducted field work in South Carolina and other southeastern states. He is either the principal author or co-author of 3 papers describing new vascular plant species

and is co-author of the Flora of Virginia, the first modern effort to catalogue and describe the plants of that state; his work on the Digital Atlas of the Virginia Flora provides up to date plant distribution information which supports the Flora of Virginia. He has conducted botanical inventory work over the entire state of Virginia and maintains the Division of Natural Heritage's rare plant list, which is used statewide to target field work on the state's most at-risk species.

Nancy Van Alstine, Field Botanist, with VaDCR-DNH since 1989. Nancy has 25 years of experience surveying for rare, threatened and endangered plant species in Virginia including the federally listed species *Aeschynomene virginica*, *Boechera serotina*, *Cardamine micranthera*, *Echinacea laevigata*, *Helenium virginicum*, *Helianthus schweinitzii*, *Helonias bullata*, *Isotria medeoloides*, *Ptilimnium nodosum*, and *Rhus michauxii*. She has managed and participated in both multidisciplinary and plant-targeted inventory projects in Virginia on lands of the Dept. of Defense, the National Park Service, the US Forest Service, the Bureau of Land Management and the Commonwealth of Virginia. Prior to coming to VaDCR-DNH, she worked for the National Park Service in Alaska assisting with vegetation research projects involving fire history and vegetation succession following wildfires and ground truthing of vegetation types for a GIS database.

DATA MANAGEMENT:

Jason Bulluck, Data Manager, with VaDCR-DNH since 2006. Jason has 13 years experience in biological field data collection, analysis, interpretation, and application to land use and habitat management decisions via Geographic Information Systems. This experience has come through involvement in various academic research; through a 4-year period as an Ecologist in the private sector; and for the past nearly 8 years, as the Virginia DCR, Natural Heritage Information Manager. There, Jason oversees all biodiversity data management; leads GIS modeling such as Species Distribution Modeling work; leads various ongoing statewide conservation planning efforts; manages the exposure and provision of data and information to partners and the public via data sharing and several websites; oversees the maintenance of the Virginia Conservation Lands Database; and various other projects focused on management, analysis and use of Natural Heritage data internally and by partners.

Kirsten Hazler, Ph.D., Landscape Ecologist, with VaDCR-DNH since 2006. Kirsten's diverse experience includes research on songbird habitat selection and breeding success; vegetation mapping for the National Park Service and Ft. A.P. Hill; database development to facilitate data collection and management; and Python scripting to automate GIS processes. She is currently immersed in remote sensing, land cover change assessment, and modelling urban growth.

Joseph T. Weber, GIS Projects Manager, with VaDCR-DNH since 1998. Joe develops products for conservation planning by conducting geospatial analyses to map species habitats, ecological integrity, natural vegetation communities, biodiversity, natural land networks, wetlands, and other ecological resources. His recent work in species distribution modeling utilizes an inductive approach with the Random Forests package for R, for which he developed over 50 environmental variable layers at an extent that included the entire state of Virginia. The environmental variables ranged from those processed simply from available data to others derived through detailed analyses that were projects within themselves.

STEWARDSHIP:

Dot Field, Eastern Shore Region Steward, with VaDCR-DNH since 2001. In her current position, Dot is responsible for the ecological management and oversight of the 9 State Natural Area Preserves on the Eastern Shore (Virginia portion of the Delmarva Peninsula and adjacent Atlantic barrier islands). Dot's research experience lies in coastal and barrier island processes, plant-insect interactions and shrub establishment on barrier islands. Dot serves as the Co-Chair of the Southern Tip Ecological Partnership, as an advisor to the Coastal Virginia Wildlife Observatory, and as the advisor and curriculum developer for the Virginia Master Naturalists Eastern Shore Chapter. Recent projects have included initiating the restoration of over 500 acres of migratory songbird habitat, developing and leading Phragmites control workshops for private landowners and coordinating a regional native plant initiative. Dot has also served on the Northampton County Wetlands Board for 8 years.

Prior to joining VA DCR-DNH, Dot was an Instructor in Biology on the faculty of Virginia Commonwealth University, where she taught general biology, ecology and environmental science.

Kevin Heffernan, Stewardship Biologist, with Virginia DCR-DNH since 1993. During this time Kevin has mapped many acres of the invasive grass species known as Common Reed, *Phragmites australis*, and is currently spearheading an early detection project to detect and eliminate another non-native grass, the Wavyleaf Basketgrass (*Oplismenus hirtellus*). Kevin has participated in many prescribed fires, searched for rare plants, and written numerous technical documents and educational publications. Kevin is the lead author of DCR's Invasive Plants Species List. He currently serves as chairman of the Virginia Invasive Species Advisory Committee, which recently completed the state invasive species management plan for the Virginia Invasive Species Working Group.

Ryan Klopff, Ph.D., Mountain Region Steward, with Virginia DCR-DNH since 2011. He has 10 years of experience practicing and studying restoration ecology in Illinois and Virginia first as a Nature Conservancy steward, then as a Ph.D. student, and most recently as a VA DCR-DNH steward. Ryan manages rare species, communities, and ecosystems at multiple spatial scales across the western provinces of Virginia.

Michael Lott, Northern Region Steward, with VaDCR-DNH since 2012. Mike has 24 years of experience in ecology and environmental review. In his current position, he is primarily responsible for overseeing the biological resources within the Crow's Nest Natural Area Preserve in Stafford County, Virginia. Prior to joining the Virginia Natural Heritage Program, he worked as an Environmental Planner for six years with Stafford County. He also worked as a Research Associate with Florida Atlantic University for eight years where he primarily focused on the life history traits of the invasive ferns *Lygodium microphyllum* and *L. japonicum*.

Rick Myers, Ph.D. Natural Areas Stewardship Manager, with VDCR-DNH since 1998. He has 35 years of experience in forest and natural resources management – both in the Southeast and Midwestern U.S., and has conducted research and directed natural areas stewardship focused on fire ecology and management for the last 24 years. Prior to coming to the Virginia Natural Heritage Program in 1998, he worked for The Nature Conservancy for two years as a contract Fire Ecologist. Prior to that, he completed a doctoral degree program in Fire Ecology at Clemson University, served as an extension forestry specialist at Purdue University in Indiana, and worked as a research forester in South Carolina. Rick has directed management of the Virginia Natural Area Preserve System since 1998, and coordinated the work of a growing staff of regional natural areas stewards currently based in eight field offices across the state. Over the last 17 years, the state natural areas system in Virginia has increased from 18 preserves and 15,000 acres to 61 preserves and 55,000 acres.

Rebecca Wilson, Eastern District Manager/ Eastern Fire Manager, with VaDCR-DNH since 1999. Rebecca served as the Stewardship Assistant from 1999 until 2001 and then as the Chesapeake Bay Region Steward from 2001 – 2014. She was responsible for ten Natural Area Preserves in the Coastal Plain, ranging from Fairfax County to York County, and including preserves in the Northern Neck, the Middle Peninsula, and The Peninsula. She was responsible for monitoring and managing the habitats for rare, threatened, and endangered species and rare or exemplary natural communities. She served as the first advisor for the Northern Neck Master Naturalist Chapter, a position that she held for eight years. Rebecca took on additional prescribed fire responsibilities in 2004 and has served as the Eastern Fire Leader from that time to the present. She is responsible for all aspects of the Eastern Virginia prescribed fire and longleaf pine restoration program, including procuring equipment, hiring seasonal employees, planning and mapping burn units, and overseeing day-of fire and planting operations. Prior to coming to the Virginia Natural Heritage Program, she worked for The National Park Service, where she served as a Biological Technician and Wildland Firefighter for nine years.

Claiborne Woodall, Southwest Regional Supervisor and Region Steward, with VaDCR since 1999. Claiborne has 20 years of experience in natural areas management throughout the eastern United States with a focus on prescribed fire management, invasive species control, and site conservation planning. Prior to coming to the Virginia Natural Heritage Program, Claiborne worked for The Nature Conservancy and Tall Timbers Research Station.

A list of facilities and equipment that would provide support to the research, technical assistance, or educational activities of relevance to federal land management, environmental, and research agencies that will be engaged in CESU activities.

Currently, VaDCR-DNH has a central office in Richmond and nine regional offices throughout the Commonwealth, five of which are located in the Chesapeake Watershed (Stafford, Suffolk, Accomack, Verona, and Roanoke). VaDCR-DNH also made major capital outlays for equipment needed for research and technical assistance. This list include 27 motor vehicles (trucks, cars, fire engines, SUVs and ATVs), 12 watercraft (from a 21 ft. Carolina Skiff and a 20 ft. Boston Whaler to johnboats, canoes and kayaks), an arsenal of fire equipment (pumps, hose arrays, back-pack equipment), GPS units, and other field management tools, as well as full computer workstations and associated equipment/printers/scanners/software licenses for 45 work stations.

Further, VaDCR-DNH has two zoology labs in Richmond with invertebrate reference collections of over 10,000 specimens as well as an in-house herbarium also in Richmond (currently housing over 4000 plant specimens).

A list of past research, technical assistance, and educational services supported through federal financial assistance awards that are of relevance to federal land management, environmental, and research agencies that will be engaged in CESU activities.

Since VaDCR-DNH's beginning, staff at Virginia Natural Heritage have worked closely with federal partners to provide biological inventory and other services associated with biodiversity protection. As a broad sample, by technical report, are 212 projects where VaDCR-DNH provided technical assistance through federal financial support for a selected 18-year period, 1990-2007:

Report Number	Report Title
90-3	An Inventory of the Rare, Threatened and Endangered Species of the Little Creek Amphibious Base
90-4	An Inventory of the Rare, Threatened, and Endangered Species of the NCS Cheatham Annex
90-5	An Inventory of the Rare, Threatened, and Endangered Species of the Naval Auxiliary Landing Field, Fentress
90-6	An Inventory of the Rare, Threatened, and Endangered Species of the Naval Air Station, Oceana
90-7	An Inventory of the Rare, Threatened, and Endangered Species of Camp Pendleton
91-2	Distribution and Habitat of <i>Sorex longirostris fisheri</i>
92-2	A Natural Heritage Resources Inventory of the Fleet Combat Training Center, Dam Neck
92-3	Blue Ridge Interpretive Music Center and Fisher Peak - Rare, Threatened, and Endangered Species Assessment
92-15	1991 Final Report - Natural Heritage Inventory: <i>Gomphus septima</i>
92-16	Natural Heritage Inventory: <i>Cicindela dorsalis dorsalis</i> of the Chesapeake Bay Beaches of Virginia

Report Number	Report Title
92-18	A Natural Heritage Resources Inventory of the Naval Weapons Station Yorktown, York County, Virginia
92-19	A Natural Heritage Inventory for Unknown <i>Helenium virginicum</i> S.F. Blake Populations
92-25	A Natural Heritage Resources Inventory of the Marine Corps Combat Development Command, Quantico, Virginia
92-26	A Natural Heritage Resources Inventory of the Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Virginia
92-27	A Rare Plant Inventory at Fort Belvoir, Virginia
92-32	Shenandoah Related Lands Study for National Park Service, Mid-Atlantic Service
93-1	A Natural Heritage Inventory of Rare, Threatened, and Endangered Plant Species of Naval Security Group Activity, Northwest, Department of the Navy, Chesapeake, Virginia
93-2	An Inventory of Rare, Threatened, and Endangered Plant Species and Significant Natural Communities of the Humpback Rocks Area, Blue Ridge Parkway
93-3	A Status Survey of <i>Scirpus flaccidifolius</i> (Fern.) Schuyler
93-5	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Shenandoah National Park
93-6	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Colonial National Historic Park
93-7	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Appomattox Courthouse National Historical Park
93-8	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Booker T. Washington National Monument
93-9	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Fredericksburg and Spotsylvania National Military Park
93-10	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: George Washington Birthplace National Monument
93-11	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Petersburg National Battlefield Park
93-12	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Richmond National Battlefield Park
93-13	A Natural Heritage Inventory of Mid-Atlantic Region National Parks in Virginia: Summary Report
93-15	A Status Survey of <i>Clematis addisonii</i> Briton
93-17	An Inventory Plan for Southeast Virginia's Critical Natural Areas, Exemplary Wetlands, and Endangered Species Habitats (Albemarle-Estuarine Pamlico Study)
93-19	Conservation Strategies For Shale Barren Rock Cress (<i>Arabis serotina</i> Steele)

Report Number	Report Title
93-20	Classification and Mapping of Ecological Land Types on The James River Face Wilderness, Jefferson National Forest
93-21	An Inventory for <i>Isotria medeoloides</i> (Small Whorled Pogonia) at Two Sites on Quantico Marine Corps Base, Prince William County, Virginia
93-22	An Inventory for <i>Isotria medeoloides</i> (Small Whorled Pogonia) at The Ashland Property, Prince William County, Virginia
93-23	An Inventory for <i>Isotria medeoloides</i> (Small Whorled Pogonia) at Marine Corps Combat Development Command, Quantico, Stafford County, VA
93-25	An Inventory for Threatened and Endangered Plants and Animals, Manassas National Battlefield Park, Virginia, Stuarts Hill and Brawner Farm Tracts
94-1	A Natural Heritage Inventory of Fort A. P. Hill, Virginia
94-2	A Natural Heritage Inventory of The Clinch Ranger District, Jefferson National Forest
94-3	A Natural Heritage Inventory of Ft. Pickett, Virginia
94-4	A Natural Heritage Inventory of Ft. Lee, Virginia
94-5	A Natural Heritage Inventory, Preliminary Status Survey for <i>Pyrus wyandot</i> in Virginia
94-6	A Natural Heritage Inventory, Status Survey for the Regal Fritillary, <i>Speyeria idalia</i> in Virginia, 1993
94-7	Conservation Strategy for the Northeastern Beach Tiger Beetle <i>Cicindela dorsalis dorsalis</i> in Virginia
94-8	Prescribed Burn and Disturbance History Studies at the Narrows: Habitat Studies for the Endangered Peter's Mountain Mallow
94-9	Conservation Planning for the Management and Protection of Natural Areas in the Albemarle-Pamlico Estuarine Study Area of Virginia
94-10	A Natural Heritage Review and Inventory of Proposed Timber Harvest at Fort A. P. Hill, Virginia
94-11	A Natural Heritage Inventory, Status Survey for the Regal Fritillary, <i>Speyeria idalia</i> in Ten Counties in Northern and Southwestern Virginia
94-13	A Natural Heritage Inventory, Status Survey for the Dwarf Wedge Mussel, <i>Alasmidonta heterodon</i> on the Eastern Shore of Virginia
94-14	Forest Vegetation of the Ramsey's Draft and Little Laurel Run Res. N.A. Baseline Ecological Monitoring and Classification
94-16	A Natural Heritage Inventory of the Appalachian Trail in Virginia
94-17	A Natural Heritage Inventory, Status Survey for the Grizzled Skipper, <i>Pyrgus wyandot</i> in Virginia

Report Number	Report Title
94-18	A Natural Heritage Inventory, Status Survey for the Regal Fritillary <i>Speyeria idalia</i> in Virginia
94-19	Population surveys for the Northeastern Beach Tiger Beetle, <i>Cicindela dorsalis dorsalis</i> at Twenty Selected Sites in Virginia
94-20	Landowner Contact For Five Sites Supporting the Smooth Coneflower, <i>Echinacea laevigata</i> in Virginia
94-21	Threat Assessment of Sensitive Joint-Vetch (<i>Aeschynomene virginica</i>) in Virginia
95-2	An Inventory of Shale Barrens on the George Washington National Forest in Virginia
95-3	A Natural Heritage Inventory of the Clinch Ranger District II, George Washington and Jefferson National Forests
95-5	An Inventory of Rare, Threatened and Endangered Plant and Animal Species at Colonial National Historical Park, Yorktown Creek Drainage
95-6	Prescribed Burn Monitoring Studies for Peter's Mountain Mallow <i>Iliamna corei</i>
95-8	An Inventory of Rare, Threatened, and Endangered Plant and Animal Species of Camp Peary
95-13	Status Survey for the Fly Poison Borer Moth <i>Papaipema sp. nov.</i> in Virginia
95-14	An Inventory for Small Whorled Pogonia <i>Isotria medeoloides</i> at Several Sites on Marine Corps Base Quantico, Prince William County, Virginia
95-15	Final Report, Distribution of <i>Rhus michauxii</i> of Ft. Pickett, Virginia
95-16	1995 Inventory for New Population of <i>Aeschynomene virginica</i> (L.) BSP. in Virginia
95-18	Status Survey for the Cherokee Clubtail, <i>Gomphus consanguis</i> , in Virginia
95-19	Status Survey for the Regal Fritillary, <i>Speyeria idalia</i> , in Virginia, 1995
95-20	Status Survey for Bucholz' Dart Moth, <i>Agrotis buchholzi</i> , in Virginia
95-21	A Search for <i>Helenium virginicum</i> Blake in Unsurveyed Sinkhole Ponds in the Shenandoah Valley of Virginia
95-22	Plant Monitoring and Habitat Studies for Peters Mountain Mallow, <i>Iliamna corei</i> , Following Prescribed Burns
96-2	An Inventory for Rare Plants in the Virginia Portion of Harpers Ferry National Historical Park
96-3	A Natural Heritage Inventory of U. S. Army Fort Belvoir
96-4	Distribution, Abundance and Conservation Status of the Northeastern Beach Tiger Beetle (<i>Cicindela dorsalis dorsalis</i>) in Virginia: 1995 Summary Report
96-5	Biological Monitoring at Bethel Beach Natural Area Preserve - 1995
96-6	A Reassessment of the Status of the <i>Helenium virginicum</i> Populations in the Shenandoah Valley of Virginia

Report Number	Report Title
96-8	Ecological Land Units of the Laurel Fork Area, Highland County, Virginia
96-9	A Natural Heritage Inventory of Langley Air Force Base, Virginia
96-10	A Natural Heritage Inventory of the Clinch Ranger District III, George Washington and Jefferson National Forests
96-12	A Natural Heritage Resource Inventory of Fort Story, Virginia
96-13	Natural Heritage Inventory - Wallops Flight Facility
96-14	Special Biological Areas on the Jefferson National Forest
96-17	A Floristic Survey of Ft. Pickett, Virginia
96-19	Southern Watersheds Common Reed Project, Final Report, Prepared for the US EPA and the US Fish and Wildlife Service
96-20	Plant Communities and Ecological Land Units of the Glenwood Ranger District, GWNF, Virginia
96-23	Status and Distribution Survey for Bigger's Cave Amphipod (<i>Stygobromus biggersi</i>) in Virginia
96-25	Conservation Planning For Two Virginia Sneezeweed (<i>Helenium virginicum</i>) Sites
96-26	1996 Inventory for New Populations of <i>Aeschynomene virginica</i> (L.) BSP. in Virginia
96-27	Status Survey For The Cherokee Clubtail (<i>Stenogomphurus consanguis</i>) in Virginia
97-2	An Inventory of Shale Barrens on the George Washington and Jefferson National Forests in Virginia
97-5	A Natural Heritage Zoological Inventory of U.S. Army Fort Belvoir
97-6	A Natural Heritage Inventory of Prince William Forest Park Potential Exchange Parcels
97-7	Natural Heritage Resource Maps, Information and Planning Support for CZM Area Localities
97-9	Natural Heritage Inventory of Groundwater Invertebrates within the George Washington Memorial Parkway and Great Falls Park, Virginia
97-11	Status Survey for the Dismal Swamp Green Stink Bug <i>Chlorochroa dismalia</i> in Virginia
97-13	Protection of Wetland Natural Areas on Virginia's Coastal Zone
97-14	A Natural Heritage Zoological Inventory of Fort Eustis, Virginia
97-15	Conservation Planning for Three Priority Virginia Sneezeweed (<i>Helenium virginicum</i>) Sites
97-17	Status Survey for the Mountain River Cruiser (<i>Macromia margarita</i>) in Virginia, and a Rangewide Assessment of the Status of the Species
97-18	Status Survey for the Cherokee Clubtail (<i>Stenogomphurus consanguis</i>) in Virginia 1997

Report Number	Report Title
97-19	Monitoring of Northeastern Beach Tiger Beetles (<i>Cicindela dorsalis dorsalis</i> Say) on Sites Protected by the Virginia Department of Conservation and Recreation 1996 and 1997 - Final Report
98-5	1997 Conservation Status Assessment for the Green Floater (<i>Lasmigona subviridis</i>) in Virginia
98-7	A Natural Heritage Inventory of Manassas National Battlefield Park
98-8	Status Survey for the Green Floater (<i>Lasmigona subviridis</i>) in Virginia
98-9	Comparative Wetlands Ecology Study of the Great Dismal Swamp, Northwest River and North Landing River in Virginia
98-11	A Natural Heritage Inventory of the Cheatham and Wormley Pond Drainages, Colonial National Historical Park
98-14	Conservation Planning for Natural Areas of Colonial National Historical Park, Virginia
98-16	1998 Inventory for New Populations of <i>Aeschynomene virginica</i> (L.) BSP. in Virginia
98-18	1998 Inventory for Limestone Barrens in Lee County, Virginia
98-19	Results of Surveys for the Pittsylvania Well Amphipod (<i>Stygobromus obrutus</i>) in the Southern Piedmont of Virginia
98-20	Status Survey for the Puritan Tiger Beetle (<i>Cicindela puritana</i>) in the Chesapeake Bay Region of Virginia
98-21	Status Survey for the Brook Floater (<i>Alasmidonta varicosa</i>) in Virginia
98-22	A Survey for <i>Iliamna remota</i> Greene (Kankakee Globe-Mallow) in River-Scoured Habitat Along the James River in Botetourt County, VA
98-23	Conservation Status Assessment for the Grizzled Skipper (<i>Pyrgus wyandot</i>) on National Forest Lands in Virginia
98-24	Surveys for Small Whorled Pogonia (<i>Isotria medeoloides</i>) in Timber Compartments 12, 24, and 35 at Marine Corps Base, Quantico, Virginia
99-1	A Natural Heritage Inventory of Three Cave Beetles of the Genus (<i>Pseudanophthalmus</i>) and An Assessment of Their Habitats
99-2	An Inventory of Shale Barrens on the George Washington and Jefferson National Forests in Virginia – Third Edition
99-3	Classification of Vegetation and Ecological Land Units of the Piney River and Mt. Pleasant Area, Pedlar Ranger District, George Washington and Jefferson National Forests, Virginia
99-4	Plant Communities of Limestone, Dolomite, and other Calcareous Substrates in the George Washington and Jefferson National Forests, Virginia

Report Number	Report Title
99-7	A Natural Heritage Inventory of John H. Kerr Reservoir, Virginia and North Carolina
99-8	Eastern Hemlock Inventory and Assessment for Prince William Forest Park, Virginia
99-10	A Natural Heritage Inventory of Chincoteague National Wildlife Refuge
99-12	Rare Natural Communities Management Guidelines, Rare Plant Species Summary Information, and Rare Plant Species Matrix for Shenandoah National Park, Virginia
99-16	Population Monitoring and Status Assessment for the Regal Fritillary (<i>Speyeria idalia</i>) in Southwestern Virginia during 1998
99-22	Status Survey for the Rare Skipper (<i>Problema bulenta</i>) in Eastern Virginia, 1999
99-23	Status Survey for (<i>Cardamine micranthera</i>) Rollins (Small-Anthered Bittercress) in Virginia
99-25	Conservation Status Assessment for the Regal Fritillary (<i>Speyeria idalia</i>) in Virginia, 1999
99-26	First Supplement to SBA's on the Jefferson National Forest
00-01	Surveys for Small Whorled Pogonia (<i>Isotria medeoloides</i>) in Timber Compartments 2, 11, 31, and 32 at Marine Corps Base, Quantico, Va.
00-04	An Inventory of the Flora of the Fire-Maintained Grasslands and Woodlands at Marine Corps Base, Quantico, Virginia
00-05	Zoological Surveys for the Dwarf Wedgemussel and Lepidoptera At Marine Corps Base, Quantico, Virginia
00-06	Surveys for Rare Insects and Crustaceans in Manassas National Battlefield Park
00-07	Plant Communities and Ecological Land Units of the Peters Mountain Area, James River Ranger District, GW and JNF, Virginia
00-08	Ecological Communities of U. S. Army Garrison, Fort Belvoir
00-10	Biological Diversity Protection on the George Washington National Forest – First Supplement
00-11	Special Biological Areas on the Jefferson National Forest – First Supplement
00-13	Spring Amphipods of the George Washington and Jefferson National Forests, Virginia
00-14	Pitcher Plant (<i>Sarracenia Spp</i>) Inventory of Fort A. P. Hill, Virginia
00-15	2000 Inventory for New Populations of <i>Aeschynomene virginica</i> (L.) BSP. in Virginia
00-17	2000 Inventory for <i>Amaranthus pumilus</i> Raf. in Virginia
00-18	Conservation of Kankakee Mallow (<i>Iliamna remota</i>) in Virginia

Report Number	Report Title
00-19	Current Status and Conservation Strategy for the Eastern Small Footed Myotis (<i>Myotis leibii</i>)
00-20	Conservation Assessment of the Regal Fritillary (<i>Speyeria idalia</i>) in Virginia, 2000
01-01	An Updated Inventory of Rare, Threatened, and Endangered Species and Significant Natural Communities at the Naval Amphibious Base Little Creek South Virginia Beach Annex (Camp Pendleton)
01-02	An Updated Inventory of Rare, Threatened, and Endangered Species and Significant Natural Communities at the Naval Amphibious Base, Little Creek South Virginia Beach Annex (Camp Pendleton)
01-04	Results of mist net surveys for the eastern small-footed myotis (<i>Myotis leibii</i>) at Turkey Run and Great Falls Parks, Virginia, 1999-2000
01-05	A Natural Heritage Inventory at Neck O Land, Colonial National Historical Park
01-06	A Natural Heritage Inventory of Philpott Lake
01-08	A Natural Heritage Inventory of the Back Bay National Wildlife Refuge
01-09	Biological Survey of the Coastal Plain Depression Ponds (Sinkholes) Of Colonial National Historical Park, Yorktown, Virginia – Final Report
01-10	A List of the Vascular Plants of Manassas National Battlefield Park
01-12	Rare Fauna Inventory at Fort Pickett – Maneuver Training Center Blackstone, Virginia
01-14	Ecological Communities of the George Washington and Jefferson National Forests, Virginia
01-18	Conservation Plan for the Saint Francis' Satyr (<i>Neonympha mitchellii francisci</i>) in Virginia
01-21	The Vascular Flora of John H. Kerr Reservoir, VA – Final Report
01-23	An Inventory for Rare, Threatened, and Endangered Species in the Jamestown Island 400 Project Area, Colonial National Historical Park
01-24	Status Survey for the Appalachian Grizzled Skipper (<i>Pyrgus wyandot</i>) in VA.
01-25	Status Survey for Saint Francis' Satyr, <i>Neonympha mitchellii francisci</i> , in Virginia, 2001
01-26	Surveys for Small Whorled Pogonia (<i>Isotria medeoloides</i>) in Timber Compartments 13, 15, 26, 27, 28, 29, 33, and 40 in 2000 and 2001 at Marine Corps Base, Quantico, Virginia
02-01	Plants and Animals Recorded from the Jamestown Island 400 Project Area, Colonial National Historical Park

Report Number	Report Title
02-02	A Natural Heritage Inventory of Rare, Threatened, and Endangered Species at Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress Virginia Beach and Chesapeake, Virginia
02-03	An Inventory of Nocturnal Lepidoptera at Sharp Top Mountain, Peaks of Otter, Blue Ridge Parkway, Virginia
02-07	Ecological Communities of the Jamestown Island 400 th Anniversary Planning Project Area, Colonial National Historical Park, Virginia
02-08	A Natural Heritage Inventory of the Rappahannock River Valley National Wildlife Refuge Potential Acquisition Area
02-09	A Natural Heritage Inventory of the Presquile and James River National Wildlife Refuges
02-10	Status Survey of the Regal Fritillary (<i>Speyeria idalia</i>) in Virginia, 2001
02-11	A Natural Heritage Inventory of Plant and Animal Species at Virginia Army National Guard OMS No. 1 and No. 2 near Sandston, Henrico County, Virginia
02-17	Status Survey for the Appalachian Grizzled Skipper (<i>Pyrgus wyandot</i>) in Virginia
02-19	A Lepidopteran Survey of Turkey Run Park, George Washington Memorial Parkway
02-20	Status Survey of Regal Fritillary (<i>Speyeria idalia</i>) in 2002 on Radford Army Ammunition Plant
03-06	Restoration of Habitat for Smooth Coneflower (<i>Echinacea laevigata</i>) in Virginia – Phase II – Management and Monitoring
03-07	Inventory, Classification, and Map of Forested Ecological Communities at Manassas National Battlefield Park, Virginia
03-09	An Inventory of Rare, Threatened, and Endangered Species and Significant Natural Communities at The Naval Weapons Station Yorktown Complex, Yorktown, Virginia – Final Report
03-11	Surveys for the Northern Virginia Well Amphipod (<i>Stygiobromus phreaticus</i>) At Fort Belvoir, Virginia
03-14	Status Survey of the Regal Fritillary (<i>Speyeria idalia</i>) in 2003 on the Radford Army Ammunition Plant
03-17	Surveys for Small Whorled Pogonia (<i>Isotria medeoloides</i>) in Timber Compartments 6, 22, and 23 in 2003 at Marine Corps Base, Quantico, Virginia
03-18	Progress Report on an Inventory for New Populations of <i>Ptilimnium nodosum</i> (Rose) Mathias (Harperella) in Virginia
03-19	Mapping and Threat Assessment of Phragmites on the Seaside of Virginia's Eastern Shore

Report Number	Report Title
03-21	Classification and Mapping of Wetlands at Manassas National Battlefield Park, Virginia - Brawner Farm and Matthews Hill Tracts
04-04	Areas Recommended for Natural Heritage Surveys at Four Mid-Atlantic National Parks: Fredericksburg and Spotsylvania National Military Park, George Washington Birthplace National Monument, Richmond National Battlefield Park and Petersburg National Battlefield
04-17	Status Survey of the Regal Fritillary (<i>Speyeria idalia</i>) in 2004 on the Radford Army Ammunition Plant
04-18	Surveys for Harperella (<i>Ptilimnium nodosum</i>) at Marine Corps Base, Quantico, Virginia
04-19	Inventories for Selected Natural Heritage Resources at the Meadowood Special Recreation Management Area, Bureau of Land Management, Fairfax County, Virginia – Final Report
05-01	An Inventory for New Populations of <i>Ptilimnium modosum</i> (Rose) Mathias (Harperella) in Virginia
05-02	An Inventory for <i>Rhus michauxii</i> Sarg. (Michaux's Sumac) in the Southern Piedmont of Virginia
05-03	Management Plan for Goodwin Islands: Chesapeake Bay National Estuarine Research Reserve – Virginia
05-04	Management Plan for Catlett Islands: Chesapeake Bay National Estuarine Research Reserve - Virginia
05-05	Lepidoptera and Odonata Surveys of Colonial National Historical Park, James City, Surry, and York Counties, Virginia
05-06	Lepidoptera and Odonata Surveys of George Washington Birthplace and National Monument, Westmoreland County, Virginia
05-09	Status of Seven Atlantic Slope Mussels in the Piedmont and Coastal Plain of Virginia
05-10	Survey of Groundwater Amphipods of the Genus <i>Stygobromus</i> at the Proposed Defense CEETA Remote Delivery Facility, Fort Belvoir, Fairfax County, Virginia
05-15	Status Survey of the Regal Fritillary (<i>Speyeria idalia</i>) in 2005 on the Radford Army Ammunition Plant
05-18	A Botanical Inventory of Fisherman Island National Wildlife Refuge, Virginia
06-01	2005 Inventory for New Populations of <i>Ptilimnium nodosum</i> (Rose) Mathias (Harperella) in Virginia

Report Number	Report Title
06-02	Additional Inventory for <i>Rhus michauxii</i> Sarg. (michaux's Sumac) in the Southern Piedmont of Virginia
06-03	A 2005 Inventory of <i>Corallorhiza bentleyi</i> Freudenstein (Bentley's coralroot) Sites Found Since 2003 in Western Virginia
06-04	Results of Larval, Pupal, and Adult Surveys for Mitchell's Satyr (<i>Neonympha mitchellii</i>) in Virginia, 2005
06-05	Results of Surveys for the Peaks of Otter Salamander (<i>Plethodon hubrichti</i>) in 2005
06-09	Surveys for Regal Fritillary (<i>Speyeria idalia</i>) Larvae in 2006 on the Radford Army Ammunition Plant
07-01	A Natural Heritage Inventory of the Rock Outcrops of Shenandoah National Park – Final Report
07-02	2006 Inventory for New Populations of <i>Ptilimnium nodosum</i> (Rose) Mathias (Harperella) in Virginia
07-03	A 2006 Survey for <i>Corallorhiza bentleyi</i> Freudenstein (Bentley's Coralroot) in Western Virginia
07-04	A Status Survey of Selected <i>Helenium virginicum</i> (Virginia sneezeweed) Sites in the Shenandoah Valley of Virginia
07-06	Management and Education to Control <i>Phragmites</i> on the Seaside of Virginia's Eastern Shore
07-07	A 2004-2006 Survey for <i>Cardamine micranthea</i> Rollins (Small-Anthered Bittercress) in Patrick and Henry Counties, Virginia
07-08	Two-Year Survey for Small Whorled Pogonia (<i>Isotria medeoloides</i> (Pursh) Raf. In Prince William Forest Park, Prince William County, Virginia – Final Report
07-11	Status Survey for the Madison Cave Isopod (<i>Antrolana lira</i>) in Virginia 2005-2007
07-12	Ecological Communities of the Potomac Gorge in Virginia – Vol 1 and 2
07-15	Abundance and Distribution of <i>Phragmites</i> on the Tidal Rappahannock River

Report Number	Report Title
07-16	Results of Larval Surveys for Mitchell;s Satyr (<i>Neonympha mitchellii</i>) in Virginia, 2007
07-18	Surveys for Small Whorled Pogonia (<i>Isotria medeoloides</i>) in Timber Compartments 4, 19, and 20 in 2007 at Marine Corps Base, Quantico, Virginia
07-19	Status Survey for the Appalachian Grizzled Skipper (<i>Pyrgus centaureae Wyandot</i>) in Virginia

A list of current formal agreements and informal relationships with federal agencies that are of relevance to federal land management, environmental, and research agencies that will be engaged in CESU activities.

Among Federal Partner listed on the Chesapeake Watershed CESU website here is the state of our current relationship and agreements:

Department of Interior, National Park Service:

- Open Formal Agreement: Memorandum of Understanding 1443GA514012001,
Relative to: Exchange of data on conservation sites and natural heritage resources in the Blue Ridge Parkway
- Open Formal Agreement: Cooperative Agreement H3992040002,
Relative to: Umbrella agreement allowing payment of work for various projects executed in the National Capital Region of the NPS.
- Open Formal Agreement: General Agreement GA 4846-Q-0001,
Relative to: Umbrella agreement allowing exchange of data between VaDCR-DNH and Shenandoah National Park.
- Open Formal Agreement: Cooperative Agreement P13AC00356,
Relative to: Provision of funding to provide addition to Captain John Smith Water Trail at Crows Nest Natural Area Preserve administered by VaDCR-DNH.

Since 1988, VaDCR-DNH has worked cooperatively and extensively with the Department of Interior, National Park Service to provide vegetation mapping and biological inventories of NPS units in the National Capital, Northeast, and Southeast Region parks. Informal consultations with various park resource personnel are held often and funding for various initiatives has topped \$1,000,000 over the years. Most information exchange concerns the management and protection of Threatened and Endangered species, Natural Community mapping and classification, and management such as invasive species control and prescribed fire needed to protect biodiversity.

Department of Interior, Bureau of Land Management:

Since 1992, VaDCR-DNH has worked on a limited basis with the Department of Interior, Bureau of Land Management. One project was completed in 1994, an inventory for selected rare species at the Meadowood Special Recreation Management Area in Fairfax County, Virginia. Informal consultations with BLM resource personnel are rare.

Department of Interior, U.S. Geological Survey:

Since 1994, VaDCR-DNH has worked on a limited basis with the Department of Interior, U.S. Geological Survey, mostly with the Biological Resources Division. Currently, VaDCR-DNH is contracted by USGS to help complete a survey of groundwater amphipods at Fort A.P. Hill in Caroline County, Virginia. Informal consultations with BLM resource personnel are fairly regular.

Department of Interior, U.S. Fish and Wildlife Service:

- Open Formal Agreement: Agreement 51413-A-J005,
Relative to: Facilitate U.S. Fish and Wildlife Service funding of surveys by VaDCR-DNH biologists for Lee County Cave Isopod.

- Open Formal Agreement: Memorandum of Understanding 50130-7-K005,
Relative to: Facilitate cooperation under the Zone Fire Management Program in using prescribed fire to maintain or restore wildlife habitats, ecosystems, endangered or threatened species, on land of the USF&WS.

- Open Formal Agreement: Cooperative Agreement 51411-1112,
Relative to: Provision of U.S. Fish and Wildlife Service funds to access data from VaDCR-DNH.

Since 1986, VaDCR-DNH has worked cooperatively and extensively with the Department of Interior, U.S. Fish and Wildlife Service to conduct biological inventories and model habitat of rare, Threatened, and Endangered Species, to assist with project reviews that might impact listed species, and to conduct biological inventories on most of the National Wildlife Refuges of Virginia. Informal consultations with various park resource personnel are held almost daily and funding for various initiatives has topped \$400,000 over the years. Most information exchange concerns the protection of resources in light of land development and habitat conversion, as well as the management and protection of Threatened and Endangered species.

Department of Defense - DUSD (Installations and Environment):

Since 1989, VaDCR-DNH has worked cooperatively and extensively with natural resource personnel at all of the major DOD installations in Virginia, conducting biological inventories. Informal consultations with various park resource personnel are frequent and funding for various initiatives has topped \$700,000 over the years. Most information exchange concerns the protection of resources in light of land development and habitat conversion, as well as the management and protection of Threatened and Endangered species.

Department of Defense – U.S. Army Corps of Engineers, Civil Works:

- Open Formal Agreement: Memorandum of Agreement 94-03-10,
Relative to: Provision of natural heritage resource information on wetlands and all lands administered by the U.S. Army Corps of Engineers

Since 1990, VaDCR-DNH has worked cooperatively with natural resource personnel at Kerr Reservoir in southern Virginia, conducting major biological inventories that culminated in two large technical reports on the natural heritage resources and flora of Kerr lands. Informal consultations with ACOE resource personnel are infrequent and funding for various initiatives has been limited over the years. Most information exchange concerns the management and protection of Threatened and Endangered species.

Department of Commerce, National Oceanographic and Atmospheric Administration:

Since 1991, VaDCR-DNH has worked cooperatively with Virginia Coastal Zone Management Program staff on a variety of protection projects on the southern tip of the Eastern Shore of Virginia and we are part of the Southern Tip partners, a consortium of federal and state agencies concerned with protect the resources of this region. This work has resulted in the direct acquisition of four state Natural Area Preserves, Magothy Bay, Cape Charles, Picketts Harbor and Savage Neck Dunes.

Department of Agriculture, U.S. Forest Service

- Open Formal Agreement: Challenge Cost Share Agreement 13-CS-11080825-003,
Relative to: Cooperation and exchange of resources in various aspects of prescribed fire management and wildfire suppression.

Since 1991, VaDCR-DNH has worked cooperatively and extensively with the USDA U.S. Forest Service to assist in the inventory, management, and protection of biodiversity in the George Washington and Jefferson National Forests. Informal consultations with various park resource personnel are held frequently but funding for various initiatives has been limited to under \$100,000 over the years. Most information exchange concerns the management and protection of natural heritage resources on USFS lands (1.6 million Virginia acres).

Department of Agriculture, Natural Resources Conservation Service

- Open Formal Agreement: Cooperative Agreement 65-33A7-6-158,
Relative to: Provision of data for evaluation of potential impacts and protection of threatened and endangered species and other natural heritage resources
- Open Formal Agreement: Cooperative Agreement 65-33A7-12-604,
Relative to: Provision of a Virginia Wetlands Catalog, where a comprehensive statewide wetlands base map will display wetlands prioritized based on their potential preservation and restoration values.

Since 1992, VaDCR-DNH has worked cooperatively with the USDA U.S. Forest Service to provide information for use in project review as well as to provide wetlands modeling information as given in the cooperative agreement above. Informal consultations with various park resource personnel are held infrequently.

Futher application requirements.

- We confirm that we are willing to accept a limited overhead rate of 17.5% and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance, and educational services (this overhead rate applies to the entire institution/organization for CESU activities).
- We designate Chris Ludwig (J. Christopher Ludwig, Chief Biologist, VaDCR-DNH, 600 E. Main Street, 16th floor, Richmond, VA 23219, (804) 371-6206, fax (804) 371-2674, chris.ludwig @ dcr.virginia.gov) as our technical representative to serve on the CESU steering committee, participate in CESU annual/semi-annual partner meetings, and facilitate internal and external communication, promotion, and response to CESU correspondence and administrative actions (e.g., announcements, new member applications, processing agreements/amendments, five-year reviews).
- We agree to relay agency-specific research, technical assistance, and educational needs and associated funding opportunities to other institutional/organizational members (e.g., faculty, students).

Thank you for accepting this formal letter expressing the desire of the Virginia Department of Conservation and Recreation's Division of Natural Heritage (VaDCR-DNH) to enroll in the Chesapeake Watershed Cooperative Ecosystem Study Unit (CW-CESU) as a new partner institution. If we can be of further assistance or answer questions that remain, please feel free to contact me.

With the signature below, we commit institutional resources in a binding multi-year federal cooperative and joint venture agreement.

Sincerely,

A handwritten signature in black ink that reads "Thomas L. Smith". The signature is written in a cursive style with a large, stylized initial 'T'.

Thomas L. Smith,
Natural Heritage Director