Ann Jennings
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Wildlife Resources

Ryan J. Brown
Executive Director

December 17, 2021

Matt Fitzpatrick, Ph.D., Director
Chesapeake Watershed Cooperative Ecosystem Study Unit
University of Maryland (Center for Environmental Science)
Appalachian Laboratory
301 Braddock Road
Frostburg, MD 21532

Dear Dr. Fitzpatrick:

Please accept this letter as the formal expression of desire of the Virginia Department of Wildlife Resources (DWR or Department) to enroll in the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW-CESU) as a new non-federal 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 non-federal partner.

All information requested in the CESU New Partner Application and Approval Process Memo is contained herein, including letters of support.

- **Description of the institution/organization, its mission, and the primary focus of collaborative activities to be supported through the CESU in the context of the CESU mission.**

  The DWR exercises conservation, management, regulatory, and enforcement jurisdiction over all wildlife that occurs in the Commonwealth, including state and federally threatened and endangered species, but excluding listed insects of the Class Insecta and plants. The agency's mission statement is to:
  - **Conserve** and manage wildlife populations and habitat for the benefit of present and future generations.
  - **Connect** people to Virginia's outdoors through boating, education, fishing, hunting, trapping, wildlife viewing, and other wildlife-related activities.
  - **Protect** people and property by promoting safe outdoor experiences and managing human-wildlife conflicts.

The DWR's Wildlife and Aquatic Wildlife Resources divisions engage in work that most closely reflect the primary focus of collaborative activities to be supported through the CESU. The DWR is obligated by Virginia statute (Code of Virginia §29.1-109(A)) to use the best available science to manage wildlife populations and habitat. The Wildlife Division's (WD) overarching responsibilities center on conserving and perpetuating diverse and sustainable wildlife populations and connecting people to Virginia's wildlife and habitats through meaningful educational and recreational experiences. The WD oversees and implements the monitoring, management, and conservation of the Commonwealth's full array of terrestrial wildlife, including state or federally endangered or threatened species (hereafter referred to as listed species). The WD also has management responsibilities over Virginia's listed sea turtles and marine mammals. The WD implements a variety of habitat management, conservation and restoration initiatives on DWR-owned lands, and in partnership with other governmental entities (e.g., U.S. Forest Service, Natural Resources Conservation Service). Subject matter experts in the WD serve as technical consultants to private landowners in efforts that support conservation and restoration of a variety of habitat types (e.g., wetlands, early successional). The WD coordinates all of the Agency's wildlife health initiatives, including responses to emerging diseases. Currently, the WD is comprised of approximately 122 positions.

The Aquatic Wildlife Resources Division (AWRD) seeks to fulfill the following goals: (1) ensure that Virginia's aquatic wildlife populations and habitats are healthy and sustainable and (2) promote an appreciation for the relevance and value of Virginia's aquatic resources by connecting Virginians to a wide variety of aquatic resources and recreational opportunities. Responsibilities of the AWRD include fisheries management, fish culture and stocking, nongame aquatic resource conservation (including listed aquatic species), wildlife information and environmental services (management of the DWR's wildlife spatial database and coordination of NEPA and other environmental reviews), and capital program administration and implementation (facility and infrastructure development and restoration. Currently, the AWRD is comprised of approximately 129 positions.

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

The WD and AWRD have worked extensively with federal, non-federal and academic partners through a range of funded initiatives primarily focused on protecting biodiversity in Virginia and on informing, implementing and evaluating natural resource management decisions. Our land-managing federal partners have included the U.S. Fish and Wildlife Service (USFWS), the National Park Service (NPS), the U.S. Forest Service (USFS), the U.S. Geological Survey (USGS, including the Cooperative Fish and Wildlife Research Unit at Virginia Tech), the U.S. Department of Agriculture (USDA), the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the U.S. Department of Defense (USDoD), and the U.S. Army Corps of Engineers (USACOE). Non-federal partners include, but are not limited to, the Virginia Department of Conservation and Recreation (DCR), the Virginia Department of Environmental Quality (including the Virginia Coastal Zone Management Program, of which the DWR is a formal partner), the Virginia Marine Resources Commission (MRC), the Virginia Department of Forestry (DoF), Center for Conservation Biology, Virginia Aquarium and Marine Science Center, and The Nature Conservancy (TNC). The Department's primary academic partners include Virginia Tech, the College of William and Mary, Virginia Commonwealth University, Virginia Institute of

Marine Science, Old Dominion University, James Madison University, and West Virginia University.

Below is a general list of relevant activities WD and AWRD biologists engage in that are most relevant to the CESU mission:

Inventory - Through its field biologists or contracts, the WD and AWRD conducts and coordinates surveys of the distribution and abundance of wildlife species across Virginia. This information is fundamental to understanding the status of each species, and relationships among species and habitats, throughout the state, and to ensuring the maintenance of biodiversity throughout the Commonwealth. Inventories are also coordinated with other divisions, agencies, and organizations, further allowing the Division to prioritize its efforts to complement, without unnecessarily duplicating, efforts by those entities.

Research - Beyond a basic awareness of the distribution of each species within Virginia, wildlife management programs must incorporate more specific information about the status and ecology of these species. Through its field biologists, contractors, and collaboration with other divisions, agencies, and organizations, the WD and AWRD participate in scientific research designed to broaden the knowledge base used to make informed management decisions and effective regulatory proposals. These programs employ scientific principles and procedures developed and recognized by the professional wildlife management community, as required by the Code of Virginia (previously noted, §29.1-109(A)).

Monitoring - Long-term monitoring of species and communities plays a key role in the management, conservation, and recovery of protected species. While inventory and research provide critical information, long-term monitoring is effective in tracking listed species and population trends, impacts of significant habitat changes, and effects of outside influences. In addition, monitoring of ecosystems in which rare and imperiled species reside allows WD and AWRD biologists to track impacts of diseases and to document changes in species composition of communities based on natural or human induced changes in habitats.

Recovery Planning and Management - Virginia has over 100 species listed by the DWR, NOAA, or the USFWS as endangered or threatened. As the most imperiled of Virginia's species, recovery planning and management of these species through research, habitat management and restoration, and cooperative projects with private or public landowners to restore and protect these species and their habitats are key components of maintaining optimum populations of wildlife and preventing species extirpation/extinction. The WD and AWRD biologists participate on federal species recovery teams and direct the development and implementation of state recovery plans and programs for listed species as resources allow. Habitat restoration and conservation is an important aspect of the recovery of endangered and threatened species. The DWR has pursued innovative Safe Harbors and Conservation Agreements with landowners to improve and protect key habitats. One of the first Safe Harbor Agreements in the eastern U.S. was facilitated by the DWR to effectively protect and manage habitat for the federally endangered Red-cockaded Woodpecker. Division biologists also work within the Department to identify acquisition

opportunities and funding sources to protect essential habitats for imperiled species.

Land Protection - WD personnel collaborate with others within the Department to identify priority acquisition needs that further the mission of the agency. Of particular interest is the acquisition and conservation of lands supporting endangered or threatened species. However, the WD is also working with landowners in the development of conservation easements and other protection tools (e.g., gating of bat caves). Voluntary programs, such as Safe Harbors Agreements for endangered species, are also effective tools in engendering landowner participation in the recovery and conservation of habitats for listed and rare species.

Interagency Consultation - As in other areas within DWR, WD and AWRD biologists are called upon routinely to participate in interagency species, habitat, or regional planning initiatives. Staff participation in these planning efforts ensures that DWR's interests are represented and considered in each of these initiatives and that the agency's activities support, when appropriate, these efforts. Examples of key interagency initiatives include the Virginia Coastal Avian Partnership, which is addressing the need for conservation planning on the state's coastal plain, as well as the need to monitor and manage the numerous bird species that utilize this geographic area for breeding, wintering, and as migration stopover sites; Partners in Flight, which is addressing the documented population declines of nearly 100 neotropical migratory bird species including shorebirds, hawks, and songbirds; the Partners for Amphibian and Reptile Conservation, established to support regional and national conservation of amphibians, reptiles, and their habitats as integral parts of ecosystems and cultures; development of the Department's *Guidelines for Wildlife (birds and bats) Impact Assessment, Monitoring, and Mitigation at Proposed Wind-Energy Facilities in Virginia: Mountain Regions*; participation on the DEQ's Regulatory Advisory Panel to develop permits-by-rule for small renewable energy development facilities in Virginia; and numerous species- and ecosystem-specific working groups which address monitoring, management, and conservation needs for a wide array of taxa. The scale and scope of these initiatives have a multiplying effect in the development of statewide and regional conservation and management programs, and the synergy of these partnerships has resulted in accomplishments well beyond those that could be achieved by the DWR alone.

Below is a list of programs that fall under the WD and/or AWRD that are most relevant to the CESU mission:

Watchable Wildlife Program - In 2001, the DWR established the Watchable Wildlife Program within the WD to provide technical assistance to public and private land stewards who wish to improve their land for wildlife viewing; to address urban wildlife issues through workshops, publications, and web-based information; to sponsor and/or attend wildlife-related public events; and to enhance viewing opportunities on the agency's Wildlife Management Areas (WMAs). The program's most notable accomplishment has been the development of the Virginia Birding and Wildlife Trail (VBWT), which is comprised of three geographically distinct trails (i.e. coastal, piedmont, and mountain) each consisting of numerous loops that highlight Virginia's diverse wildlife and natural habitats, long history, and rich culture. The VBWT is the first statewide program of its kind in the United States and features a trail guide that is available online

(https://dwr.virginia.gov/vbwt/). While the Trail is a key tool in providing new recreational opportunities within the state, it also serves as an instrument for increasing awareness and appreciation of Virginia's wildlife resources. Through the development and implementation of the Trail, the DWR has engaged more than 500 agencies, businesses, industries, and organizations as partners, many of whom had not worked previously with the agency. Department staff have used this forum to educate these new and renewing constituencies about the mission, goals, and activities of the DWR.

In 2021, the DWR adopted the Virginia Wildlife Viewing Plan, designed to guide the agency in engaging with and supporting wildlife viewing. This resource is the culmination of a collaborative effort between the Department and Virginia Tech's Department of Fish and Wildlife Conservation and will steer the DWR's efforts related to wildlife viewing through 2031. Additional details on the plan and the plan itself can be found at dwr.virginia.gov/wildlife-watching/wildlife-viewing-plan/.

Environmental Services Section - The Environmental Services Section (ESS), which is housed within the AWRD, participates in interagency planning and project reviews by conducting database and field surveys; by analyzing data and proposals submitted by applicants, consultants, other private interests, or government agencies; by negotiating with developers, environmental consultants, and regulatory agency personnel; and by preparing recommendations for project modification or mitigation to minimize and compensate for impacts on wildlife populations and habitats. In conducting these reviews, primary issues of concern to the DWR include impacts upon wildlife and their habitats and protection of endangered or threatened species. Sediment and erosion control, air and water quality protection, and disposal or handling of hazardous or toxic materials, as these issues impact wildlife resources, also are of concern. The ESS staff are responsible for completing the computerized database reviews; WD and AWRD biologists conduct the site-specific project reviews and fieldwork, and prepare draft project comments; and ESS staff oversee the DWR's environmental program, monitor and coordinate individual project reviews, conduct interagency negotiations, and prepare final agency positions and comments.

Virginia Fish and Wildlife Information System - In 1994, the DWR launched an Internet-version of the Virginia Fish and Wildlife Information System (VAFWIS), which is accessed daily by biologists and staff from the Department and numerous other agencies, organizations and private consultants for use in environmental reviews/permitting, education, research, planning, zoning, and other purposes. VAFWIS provides wildlife species distribution and habitat association information, locations of species occurrences, threatened and endangered species locations, and threatened and endangered species waters. This system is an essential tool for responding to demands for large quantities of biological data in a timely manner and provides an efficient way to share data with other agencies and organizations. Databases and spatial data layers continue to be created and updated for the integration of individual wildlife and habitat related information systems into more comprehensive systems for broader querying and reporting capabilities, and to facilitate resource mapping. These systems provide user friendly, powerful interfaces between the agency's users and the information systems developed by DWR staff. External cooperators are encouraged to expand use of these data in land management decision-making processes. Moreover, the public has access to this service from which it

can gather geographic and biological information on all wildlife species, but is restricted from obtaining specific location data on state and federally listed species. In addition, the VAFWIS-GIS section provides a variety of mapping services to the public and educational institutions. VAFWIS biologists support statistical and data interpretation needs as requested and develop data collection and reporting standards to facilitate information compilation, computerization, and sharing. VAFWIS can be accessed at https://services.dwr.virginia.gov/fwis/.

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

  Below is a list of staff most likely to be involved in work with federal agencies in the Chesapeake Watershed:

  David Norris, Regional Wildlife Manager, employed by the DWR since 1996. David served as the Wetlands Project Leader from 1996 until 2020, and then as the Regional Wildlife Manager. As wetland project leader, David was responsible for wetland habitats statewide. He has restored wetland habitats from the Eastern Shore of Virginia to Craig County, and has provided wetlands technical assistance on state, federal, and private lands statewide. He has also assisted on the acquisitions of several key wetland properties in Virginia. As a Wildlife Regional Manager, David is responsible for all aspects of wildlife management within the southeastern part of Virginia. He directs the work of the statewide Watchable Wildlife Program, the state Herpetologist and three district wildlife biologists. David has also been involved with the temporary relocation of a seabird breeding colony from the Hampton Roads Bridge–Tunnel to an adjacent island and barges. Prior to working with the DWR, David was in charge of wildlife management areas in southeast Nebraska for five years for the Nebraska Game and Parks Commission.

  Gary Costanzo, Ph.D., Manager of the Migratory Bird and Wetlands Programs, employed by the DWR since 1990. Gary works closely with many professional agencies and organizations in Virginia and the Atlantic Flyway in the development of long-term management plans, monitoring programs, and management-oriented research related to migratory game bird populations and their habitats. Recent projects include work on American Black Ducks, Canada Geese, Clapper Rails and American Woodcock. Prior to accepting his current position, he served as the Department's Waterfowl Biologist. His previous job experience includes work for the U.S. Fish and Wildlife Service (and USGS) at their Research Centers in Patuxent, Maryland, and Jamestown, North Dakota, along with work in other state agencies and in private industry.

  Ben Lewis, Waterfowl Biologist, employed by the DWR since 2011. Ben has 15 years of experience with waterfowl research, monitoring and habitat management. Ben is responsible for coordinating and implementing population monitoring, research, management and conservation initiatives for waterfowl populations in Virginia. Ben serves as chair for both the Black Duck committee of the Atlantic Flyway Technical Section and the Black Duck Action Team of the Chesapeake Bay Program Habitat Goal Implementation Team. Prior to joining the DWR, Ben worked as the Mid-Atlantic Regional Biologist for Ducks Unlimited, completed a wintering waterfowl habitat carrying capacity project on the Eastern Shore of Virginia as a

Graduate Research Assistant and conducted waterfowl nesting ecology research on the prairie potholes of North Dakota.

Sergio Harding, Nongame Bird Conservation Biologist, employed by the DWR since 2005. Prior to this, he was employed as data manager for the Natural Heritage Program of the MA Division of Fisheries and Wildlife, where he also designed and conducted avian surveys. Sergio has 28 years of experience in avian inventory in the eastern United States spanning various systems, including deciduous and mixed forest, pine savanna, grassland, early-successional upland and emergent marsh. In his current position he has led, designed and conducted avian field surveys and research, both individually and collaboratively with partners (including NPS, USFS, USFWS, Virginia Commonwealth University); provided technical consultation on habitat management and co-authored management publications; authored numerous outreach publications and articles; assisted with regulatory review; and led the Virginia Golden-Winged Warbler Partners working group (including Appalachian Mountains Joint Venture (AMJV), Natural Resources Conservation Service, National Wild Turkey Federation, Appalachian Trail Conservancy, USFS, TNC, Virginia Commonwealth University) and co-led the Loggerhead Shrike Working Group (including state wildlife management agencies, academics, non-governmental organizations). He is/has served on numerous partner-based avian conservation committees, including the AMJV technical committee and various AMJV teams, Southeast Partners in Flight Working Group, Rusty Blackbird Working Group, Golden-winged Warbler Working Group and Southern Appalachians Golden-winged Warbler Working Group.

Jeff Cooper, Nongame Bird Conservation Biologist, employed by the DWR for 20 years. He has worked with birds for over 30 years which include eagles, raptors, vultures, passerines, and marsh birds. He has worked extensively in Virginia with Bald and Golden Eagles. Major areas of work with Bald Eagles in the Chesapeake Bay Region include federal and state de-listing from the list of threatened and endangered species, investigating aircraft strike risk with Bald Eagles and aircraft, Bald Eagle winter concentration area along Virginia's tidal rivers, and winter ranging behavior. Jeff's work with Golden Eagles was focused on investigating winter ranging behavior and minimizing the risk that wind energy poses on Golden Eagle populations. He also co-developed, initiated and helped conduct a large scale investigation of blood lead levels in avian scavengers in Virginia. He has co-authored over 17 peer reviewed publications related to his work with raptors. Jeff has also worked extensively with passerines (wildlife management area inventories, MAPS banding stations), secretive marsh bird surveys, Peregrine Falcons, and investigating Black Vulture movements. He works extensively with land owners, businesses, non-governmental organizations, and governmental agencies to implement management strategies for species conservation and to resolve conflicts with wildlife. Jeff works with a wide array of conservation partners some of which include the USFWS, USDA-Wildlife Services, College of William and Mary, West Virginia University, USGS, Conservation Science Global, numerous military installations, and Virginia state agencies.

Ruth Boettcher, Coastal Nongame Biologist, employed by the DWR since 2001. Ruth is based on the Eastern Shore of Virginia, and her area of responsibility includes the lower Delmarva Peninsula and adjacent seaward marshes and barrier islands as well the waters, shorelines, islands and major tributaries of the Chesapeake Bay. Her work focuses primarily on all aspects of nongame waterbird (i.e. shorebirds, seabirds, long-legged wading birds and rails)

conservation, research, monitoring and management. Ruth works in partnership with the USFWS and TNC to survey and monitor the breeding success of the federally and state threatened Piping Plover, the state threatened Wilson's Plover and the American Oystercatcher in the barrier island/saltmarsh complex seaward of the lower Delmarva Peninsula. She also helps coordinate and participates in Virginia's coast-wide colonial waterbird breeding surveys, conducts annual seabird breeding surveys, and played a key role in the temporary relocation of the Commonwealth's largest seabird colony from the Hampton Roads Bridge – Tunnel to an adjacent island and barges. She conducted research on the reproductive success of American Oystercatchers in the Chesapeake Bay, assessed the hatching success of wading birds on the Eastern Shore and has published and co-authored multiple peer-reviewed papers. Ruth serves as the Virginia representative on the Atlantic Flyway Nongame Migratory Bird Technical Section (NGTS) and is the co-chair of NGTS's Waterbird Committee. She is also a representative on the Atlantic Coast Joint Venture Technical Committee and is a member of the American Oystercatcher Working Group and the Black Rail Working Group. Her other responsibilities include providing administrative and field support to Virginia's marine mammal and sea turtle stranding networks and overseeing sea turtle nest monitoring efforts in Virginia. Prior to her arrival in Virginia, she served as the Sea Turtle Project Coordinator for the North Carolina Wildlife Resources Commission for five years.

John Kleopfer, State Herpetologist, employed by the DWR since 2005. From 1990-2000, J.D. was employed by the Virginia Living Museum as the Curator of Aquariums and Herpetology. In 2000, he went to work for the USFWS in Grand Junction Colorado as a Wildlife Biologist in their Ecological Services department. His current duties cover a wide variety of topics ranging from assisting law enforcement with wildlife tracking investigations to conducting surveys and monitoring of Species of Greatest Conservation Need in Virginia's Wildlife Action Plan. Since joining the Department, he has also published over 20 manuscripts in peer-reviewed journals and his work has been featured in numerous newspapers and popular magazines. Of the more significant publications are *A Guide to the Frogs and Toads of Virginia*, *A Guide to the Turtles of Virginia*, *A Guide to the Snakes and Lizards of Virginia,* and *A Guide to the Salamanders of Virginia*. J.D. has presented at dozens of professional and public forums, including the 2012 World Congress of Herpetology in Vancouver, Canada. He routinely coordinates with several non-profit, governmental and non-governmental agencies, including both Southeast and Northeast chapters of PARC (Partners in Amphibian and Reptile Conservation).

Rick Reynolds, Wildlife Biologist, employed by the DWR since 1990. Rick has over 40 years of experience surveying, monitoring, and conducting research on birds, mammals and herpetofauna in eastern and western United States. Prior to coming to the DWR, he worked in California, Nevada, and Oregon with multiple agencies including the U.S. Forest Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game. He has authored or co-authored manuscripts covering several taxa with emphasis on Virginia mammals. Rick's current duties include surveying, monitoring, and managing the rare nongame mammals of Virginia. He currently serves on the White-nose Syndrome Surveillance and Monitoring Working Group, and the Recovery and Conservation Working Group, is past-president of the Northeast Bat Working Group, and is the state representative for several federally listed species including Indiana, gray, and northern long-eared bats.

Mike Fies, **Wildlife Research Biologist**, employed by the DWR since 1983. Mike has 38 years of experience working as a wildlife research biologist for the Virginia Department of Wildlife Resources and is currently the state Furbearer Project Leader. His job responsibilities include conducting research, monitoring populations, developing management recommendations, resolving wildlife conflicts, and providing information to the public related to Virginia's furbearer species. Mike has also served as the agency's Small Game Project Leader and conducted numerous field studies on bobwhite quail. He has also studied Appalachian cottontails, snowshoe hares, and northern flying squirrels. While conducting and coordinating research projects, Mike has worked with many other agencies, including the USFS, USFWS, USDA-Wildlife Services, NPS, DoD, Conservation Management Institute, and various wildlife agencies in other states. Mike also works with several universities on collaborative research projects and has partnered with other conservation organizations in various studies. He serves on the Association of Fish and Wildlife Agencies Furbearer Technical Working Group, Northeast Furbearer Resources Technical Committee, and the Southeast Furbearer Working Group.

Jay Howell, Small Game Project Leader, employed by the DWR since 2006. Jay has 20 years of experience with population surveys, data analysis, and database design. He has served as chair of the Research Committee and as the Northeastern Association of Fish and Wildlife Agencies' representative to the steering committee of the Northern Bobwhite Technical Committee. He currently operates several statewide small game surveys as well as coordinating Virginia's participation in the Coordinated Implementation Program for the Northern Bobwhite Conservation Initiative.

Marc Puckett, Small Game Project Leader and Private Lands Biologist Manager, employed by the DWR since 1996. He served as a DWR private lands biologist, district wildlife biologist and since 2008 as small game project leader. Marc studied bobwhite quail for his Master's degree in relation to modern agriculture. He specializes in habitat management of forested and agricultural ecosystems, specifically relating to private landowners. He has led multiple workshops on habitat management for landowners and wildlife and forestry professionals. Marc has participated in research projects pertaining to bobwhite quail and southeastern fox squirrels. He served on the steering committee of the National Bobwhite Technical Committee from 2010 – 2016, two years as chair. He served as an officer with the Virginia Chapter of the Wildlife Society for four years, one as president. Since 2010, Marc has helped lead a multi-partner team of five private lands biologists working closely with the Virginia Natural Resources Conservation Service, the Conservation Management Institute of Virginia Tech, and Quail Forever. He has also been involved in partner projects with the National Wild Turkey Federation, Ft. Pickett Army Maneuver Training Center, DCR, and DoF.

Stephen Living, **Habitat Education Coordinator**, employed by the DWR since 2006. Stephen promotes beneficial habitat practices across the Commonwealth and highlight the excellent habitat work of the Department and its partners. Stephen has been with the agency for 15 years and has previously served as a Regional Lands and Access Manager (8 years) and as a Biologist in the Watchable Wildlife program (7 years). He has extensive habitat experience, including longleaf pine restoration, wetland management, prescribed fire and timber management. Stephen worked extensively with the Interagency burn partnership in eastern Virginia, working to leverage resources to implement prescribed fire across an array of

agency and partner lands. Stephen oversaw efforts to provide access to a variety of wildlife, water-based and outdoor related recreational opportunities at Agency lands and facilities and in cooperative agreement with localities. Stephen has worked with a variety of species including: bald eagles, peregrine falcons, prothonotary warblers and red-cockaded woodpeckers. His professional experience includes work as a consultant in habitat management and invasive species control, environmental education and university level instruction; as well as experience leading a wide variety of natural history trips.

Clint Morgeson, Regional Aquatics Manager, employed by the DWR since 2020. In his capacity as Regional Aquatics Manager, Clint oversees the management of inland aquatic resources in eastern Virginia, including Chesapeake Bay tributaries, coordinates with partner agencies and groups for effective resource management, and represents the agency in multiple advisory groups and committees. Prior to beginning his position at the DWR, Clint worked for the North Carolina Wildlife Resources Commission as a fisheries biologist in the coastal and piedmont regions of the state and as a large rivers ecologist for the Illinois Natural History Survey focused on aquatic invasive species management.

Alan Weaver, **Fish Passage Coordinator**, employed by the DWR since 1993. He focuses on restoring diadromous fishes in Virginia Chesapeake Bay tributaries through dam removals, fishway construction, and migratory fish monitoring and protection. He is currently chairing the Virginia Alosa Task Force and he represents the DWR on the CBP Fish Passage Work Group. He was a key participant in the Fish Passage Workgroup's development of the Chesapeake Bay Fish Passage Prioritization tool that ranks fish passage projects based on multiple ecological metrics. He is also an active member of the Virginia Stream Barriers Task Force. He has published fish passage monitoring and Alosine monitoring research in scientific journals. Alan has collaborated with numerous state, federal, local, non-governmental organizations and private partners to implement dam removals and fishway construction over the past 28 years. Examples include the MRC, USFWS, NOAA, American Rivers, James River Association, and Stafford County. He worked for the Virginia Water Control Board prior to becoming an Urban Fishing Project biologist with the state of Florida in 1992.

Mike Pinder, Aquatic Biologist, employed by the DWR since 1994. During his tenure with DWR, Mike has overseen the establishment of a freshwater mussel propagation facility in Southwest Virginia, managed reptiles and amphibians (Bog and Wood turtles, Eastern Hellbenders, and Timber Rattlesnakes), and conducted surveys for freshwater mussel surveys in the New and Tennessee drainages. His main focus is the conservation and management of nongame and endangered freshwater fishes throughout Virginia. He oversees the Nongame Fish Taxonomic Committee, Candy Darter Conservation Committee, Duskytail Darter Conservation Committee, Yellowfin Madtom Conservation Committee, Copper Creek Conservation Committee to name a few. He has authored the *Field Guide to Freshwater Fishes of Virginia* and *A Guide to the Snakes of Virginia* in addition to papers and notes on nongame fish, crayfish and freshwater mussels. He has published multiple papers on freshwater mussels and nongame fishes. He works closely with public and private partners including Virginia Tech, USFWS, USFS, Conservation Fisheries, Inc., TNC, DEQ and DCR.

Brian Watson, State Aquatic Invertebrate Biologist, employed by the DWR since 2002. As the DWR's State Aquatic Invertebrate Biologist, Brian focuses on the conservation and

recovery of freshwater mussels, snails and clams, and crayfishes, with a focus on mussels. Brian has over 25 years of experience working with these taxa, mostly in the southeast United States. Prior to coming to the DWR, he worked for the North Carolina Wildlife Resources Commission for over four years, serving as an Aquatic Nongame Biologist, and his M.S research at Virginia Tech involved life history and genetics of freshwater mussels. He has authored numerous grey literature reports, and more recently peer-reviewed papers regarding a crayfish checklist of Virginia and a rapid survey protocol for the Brook Floater. Given Brian's wide-ranging job duties, he works with numerous partners such as the USFWS, USFS, TNC, Maryland Department of Natural Resources, North Carolina Wildlife Resources Commission, James River Association, Anacostia Watershed Society, and Virginia Tech. Brian leads or participates with various groups and committees such as the Virginia Freshwater Mussel Taxonomic Committee, Virginia Invertebrate Taxonomic Committee, Virginia Atlantic Slope Mollusk Recovery Group, Virginia Upper Tennessee Mussel Recovery Group, Southeast Atlantic Slope Freshwater Mollusk Conservation Group, and the Brook Floater Working Group.

Jessica Ruthenberg, Watchable Wildlife Biologist, employed by the DWR since 2014. In this position, Jessica has worked for over seven years providing and promoting wildlife viewing opportunities and fostering public appreciation for wildlife and habitat. Partnerships, relationship building, and ecotourism are a key component of her work, particularly in regards to her work coordinating the statewide Virginia Bird & Wildlife Trail and serving on multiple birding and wildlife festival steering committees. An additional major component of her work has been interpreting scientific topics on wildlife, habitat, and conservation projects to the public through a variety of communication media. She serves as a co-advisor of the Tidewater Chapter of the Virginia Master Naturalists and as a board member of the Virginia Society of Ornithology. During the six years prior to her work in Virginia, Jessica worked for a variety of conservation agencies and organizations. She was previously a Conservation Assistant for Ducks Unlimited at its Great Lakes/Atlantic Regional Office, a Field Researcher for Texas A& M University, and a Field Researcher for Michigan Natural Features Inventory. Jessica also has a background as an environmental educator, having worked as a Teacher-Naturalist at the Audubon Center of Debs Park in Los Angeles and an Educator at the Los Angeles Zoo.

Meagan Thomas, Watchable Wildlife Biologist, employed by the DWR since 2020. Meagan has ten years of experience inventorying, monitoring, and evaluating applied conservation techniques for imperiled and/or understudied herpetofaunal communities across the southeast. Her professional background has included extensive partnership and collaboration with local, state, regional, and federal partners as well as academics which have resulted in 10+ peer-reviewed publications and technical reports. In addition to her own experience with biological inventorying and monitoring, she has designed and implemented multiple citizen science projects which have resulted in biologically relevant datasets of supplemental use to government entities (both federal and state) as well as academic partners. Meagan serves as a chapter advisor to the Historic Rivers Virginia Master Naturalist Chapter, is a board member on the Virginia Herpetological Society Executive Committee, and is a Certified Wildlife Biologist® through The Wildlife Society. Prior to her work with the DWR, she spent two years working as Human-wildlife Interactions Biologist for the North Carolina Wildlife Resources Commission and four years working as the Research Manager for the Davidson College Herpetology Lab.

- **Description or list of facilities, equipment, centers, or institutes 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, the DWR has a central office in Henrico, Virginia, and five regional offices throughout the Commonwealth, three of which are located in the Chesapeake Bay Watershed (Charles City, Fredericksburg and Verona). The Department also has two satellite offices in the watershed; one in Belle Haven and the other in Chesapeake. The DWR also made major capital outlays for equipment needed for research, monitoring, management and technical assistance, including vehicles, fire engines, ATVs, watercraft (small to large motor boats, canoes and kayaks), fire equipment (pumps, hose arrays, back-pack equipment), GPS units, binoculars, spotting scopes, photographic equipment, drones and other field equipment and management tools, as well as full computer work stations and associated peripherals and software licenses for those work stations. The Department also owns an extensive inventory of heavy equipment and tools to restore and manage wildlife habitat on WMAs (tractors, dump trucks, excavators). The Department also owns agricultural and forestry equipment and tools to grow and manage vegetation and forests for the benefit of wildlife or to control invasive plant species.

  The Commonwealth of Virginia owns 42 Wildlife Management Areas (WMAs) comprising more than 230,000 acres. Fourteen WMAs (41,000 ac) are located in the Coastal Plain physiographic region; 15 WMAs (38,000 ac) are in the Piedmont; and 13 WMAs (129,000 ac) are in the Mountains (Blue Ridge and Ridge & Valley physiographic regions). These lands are held in trust by the DWR and are managed to maintain, create, or enhance a variety of high quality habitats that support healthy and diverse populations of game and nongame wildlife at optimum levels. Where feasible and compatible with habitat conservation goals, public access is provided for a variety of outdoor recreational opportunities, including hunting, fishing and wildlife viewing.

  The DWR owns or shares management responsibilities for approximately 235 boating access sites across Virginia. These sites provide public access to hunting, fishing and unique wildlife viewing opportunities, as well as general recreational boating access to public waters. They are also used extensively by Department staff and conservation partners to conduct species surveys and to monitor, manage and study wildlife on islands and other habitats that are accessible only by boat.

  In 1998, the DWR established the Aquatic Wildlife Conservation Center (AWCC) in Marion, Virginia, to actively recover Virginia's freshwater mussels. Since then over 7,000,000 juvenile mussels of 39 species (19 federally and state listed species and six state listed species) have been propagated, with nearly 800,000 released into the wild. The AWCC has also begun work with other aquatic wildlife, including the Eastern Hellbender and the state-threatened Spiny River Snail. Presently, the AWCC staff is working closely with Virginia Tech's Freshwater Mussel Conservation Center in Blacksburg, Virginia to understand the complexities of freshwater mussel biology and ecology. The ability to cultivate freshwater mussels has taken decades of research most of which has been funded by the USFWS, the USGS, the DWR and other state partners.

The Virginia Fisheries and Aquatic Wildlife Center (VFAWC) is a DWR and USFWS cooperative propagation facility at Harrison Lake National Fish Hatchery in Charles City, Virginia. Started in 2007, the VFAWC's primary focus has been the propagation and release of freshwater mussels in Atlantic Slope streams and rivers in Virginia. Since 2007, the VFAWC has propagated over 13.6 million mussels of 18 species, and released over 315,000 mussels of 12 species. The VFAWC also has provided mussels to partners like North Carolina Wildlife Resources Commission, Maryland Department of Natural Resources and Anacostia Watershed Society for recovery activities. Partners like North Carolina State University, University of Georgia, and the USFWS have been provided mussels for research-related activities.

- **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. An abridged list of peer-reviewed publications and technical reports generated by the DWR staff is contained in Appendix A.**

  The DWR uses federal funds to implement a diversity of research, management, and technical assistance efforts. These efforts facilitate the agency's management of the Commonwealth's wildlife and habitat resources as well as the DWR's efforts to provide Virginians with a diversity of services and benefits. For terrestrial species, the majority of these efforts are supported by the Wildlife Restoration Program, State Wildlife Grants Program, or the Cooperative Endangered Species Conservation (Section 6) White-nose Syndrome National Response Implementation Program. These programs are managed by and administered through the U.S. Fish and Wildlife Service's Wildlife and Sportfish Restoration Program. Details regarding the DWR's specific efforts follow.

  Wildlife Restoration Program:
  Since the 1930s, the DWR has used awards from the Wildlife Restoration Program to conserve and manage wild birds and mammals; acquire conservation lands; manage conservation lands and related habitats; provide technical assistance to landowners, municipalities, and agencies; and provide Virginians with opportunities to engage in wildlife-associated recreation. These awards have a 5-year period of performance. The DWR uses these funds to implement the following programs: Deer Investigations; Elk Investigations; Black Bear Investigations; Furbearer Investigations; Nongame Mammal Investigations; Turkey Investigations; Waterfowl Investigations; Webless Migratory Game Bird Investigations; Quail, Rabbit, and Squirrel Investigations; Ruffed Grouse Investigations; Nongame Bird Investigations; Invasive Species Investigations; Wildlife Health Programs; Hunting and Human Dimensions Investigations; Wetland Conservation Technical Assistance; and Early Successional Habitat Technical Assistance. Since 2013, the DWR has provided the following reports to the USFWS:

  F13AF00648 Virginia Birds and Mammals Conservation Project – Interim Report FY2014;
  F13AF00648 Virginia Birds and Mammals Conservation Project – Interim Report FY2015;
  F13AF00648 Virginia Birds and Mammals Conservation Project – Interim Report FY2016;
  F13AF00648 Virginia Birds and Mammals Conservation Project – Interim Report FY2017;
  F13AF00648 Virginia Birds and Mammals Conservation Project – Interim Report FY2018;
  F18AF00664 Virginia Wild Bird and Mammal Research and Management – Interim Report FY2019;

F18AF00664 Virginia Wild Bird and Mammal Research and Management – Interim Report FY2020;
F18AF00664 Virginia Wild Bird and Mammal Research and Management – Interim Report FY2021.

State Wildlife Grants Program:
On November 5, 2001, President Bush signed the Department of the Interior and Related Agencies Appropriations Act, 2002, which created the State Wildlife Grants (SWG) program. These grants were established to help fund the development and implementation of programs for the benefit of wildlife and associated habitats, including nongame species. Since its creation, the SWG program has received annual Congressional appropriations that are administered by the USFWS. The USFWS apportions these funds, using a legislated formula based on human population and geographic area, to fish and wildlife management agencies within the 50 states, the five U.S. territories, and the District of Columbia.

To receive annual SWG appropriations, Congress stipulated that each wildlife agency must produce a Comprehensive Wildlife Conservation Strategy by October 1, 2005. In 2005, the DWR submitted its self-authored Wildlife Action Plan (WAP). This document contained information on Virginia's Species of Greatest Conservation Need (SGCN; species that are either critically imperiled or in decline), the habitats those species depend upon, factors that negatively impact those species and habitats, and conservation actions that need to be taken to ameliorate causes of the declines.

In 2015, the Department prepared a second version, as required, of the WAP that included an updated list of SGCN (n = 883 species) and strategies necessary to conserve and restore these species. In addition to a statewide overview, the current WAP describes strategies for 21 multi-county planning regions which are roughly consistent with Virginia's Planning District Commissions. For each planning region, the WAP identifies: the local wildlife and habitat priorities; threats impacting these species and habitats; conservation actions that can be taken to address those threats; priority places for either conservation or restoration; programs working to address threats or define best management practices; and data that could be used to document and evaluate the success of conservation actions. Finally, the updated WAP describes climate trends that have been projected for Virginia and identifies actions that can be taken to conserve wildlife under changing climatic conditions. To date, the majority of conservation efforts funded with SWG money have focused on Tier 1 species - those that are the most critically imperiled, including federally listed species for which Virginia plays an important role in their life cycle. The WAP can be accessed at http://www.bewildvirginia.org/wildlifeplan/.

Since 2007, the DWR has used awards from the SWG Program to implement Virginia's WAP. Specifically, efforts focus on preventing species from becoming endangered, restoring critically imperiled species, and providing technical assistance to Virginia's conservation community. The DWR has utilized two SWG awards to implement the following DWR programs: Nongame Fish Conservation; Aquatic Invertebrate Conservation; Reptile Conservation; Amphibian Conservation; Nongame Mammal Conservation; Nongame Bird Conservation; Habitat Restoration; Technical Assistance – Environmental Services; Conservation Planning; Species Propagation; Predator Control; and Virginia Fish and Wildlife Information Service Implementation. Since 2007, the following reports have been generated:

F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2008;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2009;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2010;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2011;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2012;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2013;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2014;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2015;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2016;
F07AF00038 Virginia State Wildlife Grants Program – Interim Report FY2017;
F17AF00815 Virginia State Wildlife Grants Program – Interim Report FY2018;
F17AF00815 Virginia State Wildlife Grants Program – Interim Report FY2019;
F17AF00815 Virginia State Wildlife Grants Program – Interim Report FY2020; and
F17AF00815 Virginia State Wildlife Grants Program – Interim Report FY2021.

USFWS Section 6 White-Nose Syndrome National Response Implementation
Since it was first detected in North America, white-nose syndrome has severely impacted the populations and distributions of several bat species. Since 2014, the DWR and partners have used funds from this program to implement the following research efforts:

- Identification and Characterization of Northern Long-Eared Bat Maternity Roost Habitat;
- Identification and Characterization of Northern Long-Eared Bat Maternity Roost Habitat in the Piedmont and Coastal Plain;
- Identification and Characterization of Northern Myotis, Indiana, Little Brown, and Tri-colored Bat Winter Roost Habitat in the Coastal Plain of Virginia;
- Delineating the Distributional Extent and Habitat Characteristics of Non-Hibernating, overwintering, *Myotis septentrionalis* and other WNS-Impacted bats in the Coastal Plain of southeastern Virginia; and
- Assessing Presence and Identifying Maternity Roosts and Hibernacula of the WNS-Impacted Little Brown Bat 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.**

Relevant Formal Agreements, Memberships and Funding Streams

- Full Section 6 Cooperative Agreement between the DWR and the USFWS that authorizes the DWR to carry out activities for the benefit of federally listed species that are under the jurisdiction of the USFWS (1976 – present).

- Limited Section 6 Cooperative Agreement between the DWR and NOAA National Marine Fisheries Service (NMFS) that authorizes the DWR to establish conservation programs for federally listed marine species that are under the jurisdiction of the NMFS (2009 – present).

- Cooperative Service Agreements between the DWR and the USDA–Wildlife Services (WS) that authorizes WS to reduce mammal and bird species that are reservoirs for zoonotic diseases, are injurious or a nuisance to fish and wildlife species of high

conservation or recreational concern, and/or pose a threat to human health and safety on behalf of the DWR, and obligates the DWR to reimburse the WS for costs associated with the services provided (updated annually).

- Cooperative Agreement between the DWR and the USFS that establishes a partnership supporting the development and management of habitat and conservation of wildlife on National Forest lands in Virginia (1970 – present).

- Northeast and Southeastern Associations of Fish and Wildlife Agencies, which are regional partnerships between fish and wildlife agencies and federal partners (e.g., USFWS, USGS, USFS), supporting regional species, habitat and landscape-level conservation. The DWR is a member of both regional Associations and of the national Association of Fish and Wildlife Agencies (1970-present)

- Atlantic Flyway Council (AFC or Council) is a coalition of 17 states, Puerto Rico, one territory, and six Canadian provinces that works in conjunction with respective federal governments to manage migratory birds and their habitats in eastern North America. Council members, cooperating with various federal agencies and non-governmental partners, deliver many of the conservation programs for migratory birds over a significant portion of the eastern seaboard of North America. The Council is composed of representatives (usually administrators) from all the agencies that have management responsibility for migratory bird resources in the Flyway. Council actions are largely directed by its Game and Nongame Migratory Bird Technical Sections that are composed of avian biologists from all wildlife resource agencies in the Flyway. The DWR has one representative on the Council, two representatives on the Game Migratory Bird Technical Section and one representative on the Nongame Migratory Bird Technical Section.

- The Atlantic Coast Joint Venture (ACJV) is a regional partnership that collaborates to restore and sustain native bird populations and habitats throughout the ACJV region. The ACJV is comprised of 16 state wildlife agencies from Maine to Florida and the territory of Puerto Rico; federal and regional habitat conservation agencies; and other organizations that share its vision. The partnership is currently focused on one of the most imperiled habitats in the ACJV region – coastal marshes and the suite of vulnerable birds that depend on them. The ACJV is leading a coordinated marsh restoration and protection effort across the flyway to ensure that the partnership can achieve its vision. The DWR has four representatives on the ACJV Technical Committee and the Department's Deputy Director serves on the ACJV Executive Committee.

- The Appalachian Mountains Joint Venture (AMJV) is a regional partnership of over 55 state and federal agencies, conservation organizations, and universities. The AMJV is committed to the conservation of habitat for the benefit of birds, wildlife, and people in the core of the Appalachian Region. The partnership stretches from the southwestern Appalachians in Alabama to the northeastern highlands in southern New York. This area encompasses 103 million acres and contains some of the largest expanses of forest remaining in the eastern United States. The AMJV is located on the campus of Virginia Tech within the Conservation Management Institute. The DWR has two representatives

on AMJV's Technical Committee and the Department's Assistant Chief of Aquatic Wildlife Resources serves on its Executive Committee.

- The Mid-Atlantic Panel on Aquatic Invasive Species is a regional partnership, formed in 2003, that assists state and federal agencies, and other stakeholders, in developing and implementing strategic, coordinated, action-oriented approaches to prevent and control aquatic invasive species in the mid-Atlantic region. The Panel was established through the efforts of the Chesapeake Bay Program's Invasive Species Workgroup and has a diverse membership of state and federal agencies, academic institutions, environmental organizations, commercial interests, and regional entities. The DWR has been a long-standing member of the organization, with its representative serving as Chair in 2015-2016.

- The Chesapeake Bay Program is a unique regional partnership that has led and directed the restoration of the Chesapeake Bay since 1983. The partnership includes federal and state agencies; local governments, academic institutions, and non-governmental organizations (businesses, non-profits, and advocacy groups). The DWR participates in number workgroups and goal implementation teams, with staff periodically serving in leadership roles (e.g., Habitat Goal Implementation Team, 2018-2019).

- The DWR is a standing member of the Virginia Coastal Zone Management Program partnership. The agency has worked cooperatively with CZM program staff on a variety of protection projects throughout the coastal zone of Virginia, including the development of sea turtle and marine mammal conservation plans, acquisition of land for wildlife habitat and public access, developing of wildlife viewing opportunities, and restoration of degraded habitats on key areas on Virginia's Eastern Shore. The DWR is also a standing member of the Virginia Eastern Shore Conservation Alliance, a consortium of federal and state agencies and non-governmental conservation organizations collaborating to conserve resources in this area.

- **Final application requirements**

  - The DWR confirms that it is willing to accept the CESU programmatic indirect cost (IDC) rate of 17.5% and cost items to which this rate is applicable for activities conducted through the CESU, including research, technical assistance, and educational activities (this IDC rate applies to the entire institution/organization for CESU activities).

  - The DWR designates Rebecca Gwynn, Deputy Director, 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228-0778, 804-593-2043 (O), 804-389-3953 (M), becky.gwynn@dwr.virginia.gov) as its representative to serve on the CESU Executive 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 partner applications, processing agreements/amendments, five-year reviews, periodic reporting).

- The DWR designates Darin Moore (Director of Planning and Finance, 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228-0778, 804-367-1103 (O), darin.moore@dwr.virginia.gov) to serve as its financial assistance point of contact.

- The DWR agrees to relay agency-specific research, technical assistance, and educational needs and associated funding opportunities to other institutional/organizational members (e.g., faculty, students, staff).

Thank you for accepting this formal letter expressing the desire of the DWR to enroll in the Chesapeake Watershed Cooperative Ecosystem Study Unit 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,

Ryan J. Brown
Executive Director

Cc: Becky Gwynn

Virginia Department of Wildlife Resources' Chesapeake Watershed Cooperative Ecosystem Studies Unit Application

Appendix A

Abridged List of Peer-reviewed Publications and Technical Reports Generated by the Virginia Department of Wildlife Resources Staff

Non-game Birds

Boettcher, R., S. M. Haig, and W. C. Bridges, Jr. 1994. Behavioral patterns and nearest neighbor distances among nonbreeding American avocets. Condor 96:973-986.

Boettcher, R., S. M. Haig, and W. C. Bridges, Jr. 1995. Habitat-related factors affecting the distribution of nonbreeding American avocets in coastal South Carolina. Condor 97:68-81.

Boettcher, R. and E. K. Mojica. 2016. First record of Peregrine Falcon (*Falco peregrinus*) ground nesting activity on the U.S. Atlantic coast. J. Raptor Research. 50(3):313–315.

Boettcher, R., T. Penn, R.R. Cross, K.T. Terwilliger, and R.A. Beck. 2007. An overview of the status and distribution of Piping Plovers in Virginia. Waterbirds 30 (sp1): 138-151.

Brown, J.L., B. Bedrosian, D.A. Bell, M.A. Braham, **J. Cooper**, R.H. Crandall, J. DiDonato, R. Domenech, A.E. Duerr, T. Katzner, M.J. Lanzone, D.W. LaPlante, C.L. McIntyre, T.A. Miller, R.K. Murphy, A. Shreading, S.J. Slater, J.P. Smith, B.W. Smith, J.W. Watson & B. Woodbridge. 2017. Patterns of spatial distribution of golden eagles across North America: how do they fit into existing landscape-scale mapping systems? Journal of Raptor Research. 51: 197 – 215.

Duerr, A.E., M.A. Braham, T.A. Miller, **J. Cooper**, J.T. Anderson & T.E. Katzner. 2019. Roost- and perch-site selection by Golden Eagles (*Aquila chrysaetos*) in eastern North America. Wilson Journal of Ornithology. 131: 310-328.

Duerr, A., T. Miller, M. Lanzone, D. Brandes, **J. Cooper**, K. O'Malley, C. Maisonneuve, J. Tremblay, T. Katzner. 2012. Testing an emerging paradigm in migration ecology shows surprising differences in efficiency between flight modes. PLoS ONE 7(4): e35548. doi:10.1371/journal.pone.0035548

Duerr, A.E., T. Miller, M. Lanzone, D. Brandes, **J. Cooper**, K. O'Malley, C. Maisonneuve, J. Tremblay, & T. Katzner. 2014. Flight response of slope-soaring birds to seasonal variation in thermal generation. Functional Ecology. 29(6): 779 – 790. doi: 10.1111/1365-2435.12381.

Emslie, S.D., J.S. Weske, M.M. Browne, S. Cameron, **R. Boettcher**, D.F. Brinker and W. Golder. 2009. Population Trends in Royal and Sandwich terns along the Mid-Atlantic seaboard, USA, 1975-2005. Waterbirds 32(1): 54-63.

Erwin, R. M., D. F. Brinker, B. D. Watts, **G.R. Costanzo**, D. D. Morton. 2011. Islands at bay: rising seas, eroding islands, and waterbird habitat loss in Chesapeake Bay (USA). Journal of Coastal Conservation 15: 51-60.

Harding, S.R., and J.R. Walters, J. R. 2002. Processes Regulating the Population Dynamics of Red-Cockaded Woodpecker Cavities. The Journal of Wildlife Management, 66(4): 1083–1095.

Harding, S.R., and J.R. Walters. 2004. Dynamics of cavity excavation by red-cockaded woodpeckers. *In:* Costa, R., Daniels, S.J. (Eds.), Red-cockaded Woodpecker: Road to Recovery. Hancock House, Blaine, Washington, USA, pp. 412-422.

Hostetter, N.J., B. Gardner, S.H. Schweitzer, **R. Boettcher**, A.L. Wilke, L. Addison, W.R. Swilling, K.H. Pollock and T.R. Simons. 2015. Repeated count surveys help standardize multi-agency estimates of American Oystercatcher (*Haematopus palliates*) abundance. The Condor: Ornithological Applications 117:354–363.

Katzner, T.E., D. Driscoll, R.E. Jackman, P.H. Bloom, **J.L. Cooper**, **S. Living**, T. Grubb, J. M. Doyle, D.A. Bell, J.E. DiDonato & J.A. DeWoody. 2018. Non-anthropogenic diet-based oiling of predatory birds. Journal of Raptor Research 52: 82-88.

Katzner, T**.,** B.W. Smith, T.A. Miller, D. Brandes, **J. Cooper**, M. Lanzone, D. Brauning, C. Farmer, **S.R. Harding**, D. Kramar, C. Koppie, C. Maisonneuve, M. Martell, E..K. Mojica, C. Todd, J.A. Tremblay, M. Wheeler, D.F. Brinker, T.E. Chubbs, R. Gubler, K. O'Malley, S. Mehus, B. Porter, R.P. Brooks, B.D. Watts, and K.L. Bildstein. 2012. Status, biology and conservation priorities for North America's eastern Golden Eagle (*Aquila chrysaetos*) population. The Auk 129(1): 168-176.

Katzner**,** T.E**.,** M.J. Stuber, V.A. Slabe, J.T. Anderson, **J.L. Cooper**, L.L. Rhea and B.A. Millsap. 2018. Origins of lead in populations of raptors. Animal Conservation 21: 232–240.

Katzner, T.E**.**, P.J. Turk, A.E. Duerr, T.A. Miller, M.J. Lanzone, **J.L. Cooper**, D. Brandes, J.A. Tremblay & J. Lemaître. 2015. Use of multiple modes of flight subsidy by a soaring terrestrial bird, the golden eagle *Aquila chrysaetos*, when on migration. Journal of the Royal Society Interface. 12: 20150530. DOI: 10.1098/rsif.2015.0530.

Kramer G.R., D.E. Andersen, D.A. Buehler, P.B. Wood, S.M. Peterson, J.A. Lehman, K.R. Aldinger, L.P. Bulluck, **S.R. Harding**, J.A. Jones, J.P. Loegering, C. Smalling, R. Vallender, and H.M. Streby. 2018. Population trends in Vermivora warblers are linked to strong migratory connectivity. Proc Natl Acad Sci. 115: E3192–3200.

Lanzone, M., T. Miller, P. Turk, D. Brandes, C. Halverson, C. Maisonneuve, J. Tremblay, **J. Cooper**, K. O'Malley, R. Brooks, & T. Katzner. 2012. Flight responses by a migratory soaring raptor to changing meteorological conditions. Biology Letters 8:710-713.

Miller, T.M. R.P. Brooks, M. Lanzone, D. Brandes, **J. Cooper**, K. O'Malley, C. Maisonneuve, J. Tremblay, A. Duerr & T. Katzner. 2014. Assessing risk to birds from industrial wind energy development via paired resource selection models. Conservation Biology 28:745 – 755. doi: 10.1111/cobi.12227.

Miller, T.A., R.P. Brooks, M.J. Lanzone, D. Brandes, **J. Cooper**, J.A. Tremblay, J. Wilhelm, A. Duerr & T.E. Katzner. 2016. Limitations and mechanisms influencing the migratory performance of soaring birds. Ibis 158: 116 – 134.

Miller, T.A., R.P. Brooks, M.J. Lanzone, **J. Cooper**, K. O'Malley, D. Brandes, A. Duerr & T.E. Katzner. 2017. Space use and home range characteristics of Golden Eagles (*Aquila chrysaetos*) in eastern North America during breeding season and winter. The Condor 119: 697-719.

Miller, T.A., **J.L. Cooper**, A.E. Duerr, M.A. Braham, J.T. Anderson & T.E. Katzner. 2019. Implications for Bird Aircraft Strike Hazard by Bald Eagles. Journal of Wildlife Management 83: 879-892.

Nelson, D.M., M. Braham, T.A. Miller, A.E. Duerr, **J. Cooper**, M. Lanzone, J. Lemaître & T.E. Katzner. 2015. Stable hydrogen isotopes identify leapfrog migration, degree of connectivity and summer distribution of Golden Eagles in eastern North America. The Condor 117: 414-429. DOI: 10.1650/CONDOR-14-209.1

Reynolds, R.J. 2003. 2003 Virginia Aerial Mountain Survey for Nesting Peregrine Falcons. Wildlife Diversity Technical Report TR2004.1 Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, Virginia. Unpublished report submitted to U.S. Fish and Wildlife Service. 44 pp.

Savereno, L.A., A.J. Savereno, **R. Boettcher**, and S.M. Haig. 1996. Avian species composition and movement rates in two coastal habitats near Charleston, South Carolina. The Chat 60:29-43.

Savereno, A J., L.A. Savereno, **R. Boettcher**, and S. M. Haig. 1996. Avian behavior and mortality at power lines in coastal South Carolina. Wildlife Society Bulletin 24(4):636-648.

Slabe, V.A., J.T. Anderson, **J. Cooper**, B. Brown, P. Ortiz, J. Buchweitz, D. McRuer & T. Katzner. 2019. Lead in piscivorous raptors during breeding season in the Chesapeake Bay region of Maryland and Virginia, USA. Environmental Toxicology and Chemistry 38: 862 – 871.

Slabe, V.A., J.T. Anderson, **J. Cooper**, T.A. Miller, B. Brown, A. Wrona, P. Ortiz, J. Buchweitz, D. McRuer, E. Dominguez-Villegas, S. Behmke and T.E. Katzner. 2020. Feeding ecology drives lead exposure of facultative and obligate avian scavengers in the eastern United States. Environmental Toxicology & Chemistry 39: 882-892.

Slabe, V.A., J.T. Anderson, **J. Cooper**, P. Ortiz, A. Wrona, M.K. Jensen, J. Buchweitz & T.E. Katzner. 2019. Lead exposure of red-shouldered hawks during the breeding season in the central Appalachians, USA. Bulletin of Environmental Contamination & Toxicology 103: 783–788.

Watts, B.D., M.A. Byrd, E.K. Mojica, S.M. Padgett, **S.R. Harding**, and C.A. Koppie. 2018. Recovery of Peregrine Falcons in Virginia. Ornis Hungarica 26(2): 104–11

Watts, B.D., B.J. Paxton, **R. Boettcher**, and A.L. Wilke. 2019. Status and distribution of colonial waterbirds in coastal Virginia: 2018 breeding season. Center for Conservation Biology Technical Report Series, CCBTR-19-06. College of William and Mary & Virginia Commonwealth University, Williamsburg, VA. 28 pp.

Wilke, A.L., **R. Boettcher**, A. Duerr, P. Denmon, B.R. Truitt, K. Holcomb, and B.D. Watts. 2017. Population Dynamics and Survival Rates of American Oystercatchers (*Haematopus palliatus*) in Virginia, USA. Waterbirds 40 (sp1): 55-71.

Wilke, A.L., D.F. Brinker, B.D. Watts, A.H. Traut, **R. Boettcher**, J.M. McCann, B.R. Truitt, and P. Denmon. 2007. American Oystercatchers in Maryland and Virginia: status and distribution. Waterbirds 30 (sp1): 152-162.

Wilke, A.L., B.D. Watts, B.R. Truitt and **R. Boettcher**. 2005. Breeding season status of the American Oystercatcher in Virginia, USA. Waterbirds 28(3): 308-315.

Game Birds

Castelli, P., **G.R. Costanzo**, M. Dibona, J. Fuller, M. Huang, J. Osenkowski, and C. Poussart. 2009. Management Plan for Greater Snow Geese in the Atlantic Flyway. Atlantic Flyway Council. 37 pp.

Conroy, M.C., **G.R. Costanzo** and D.B. Stotts. 1987. Winter movements of American Black ducks in relation to natural and impounded wetlands in New Jersey. Pages 30-43 in W.R. Whitman and W.H. Meredith, eds. Waterfowl and Wetlands Symposium, Proc. Int. Symp. Waterfowl and Wetlands. 245pp.

Conroy, M.C., **G.R. Costanzo** and D.B. Stotts. 1989. Winter survival of female American black ducks on the Atlantic Coast. Journal of Wildlife Management. 53:99-109.

Costanzo, G.R. 1990. Sarcocystis in American black ducks wintering in New Jersey. Journal of Wildlife Diseases 23:387-389.

Costanzo, G.R. 1993. Birds of a feather don't always flock together. VA Wildlife 54(12):4-8.

Costanzo, G.R. 1996. Fly North…Forget it! VA Wildlife 57 (9): 4-9.

Costanzo, G.R. 2000. Black Duck nesting in the Virginia portion of the Chesapeake Bay. Proceedings from the Chesapeake Bay Black Duck Symposium.

Costanzo, G.R. 2001. The mute swan in the Virginia. Proceedings from the Chesapeake Bay Mute Swan Symposium.

Costanzo, G. R. and T.F. Bidrowski. 2004. Resident Canada goose colonization of Chesapeake Bay islands and implication of habitat degradation. Pages in 112-114 in T.J. Moser, R.D. Lien, K.C. VerCauteren, K.F. Abraham, D.E. Andersen, J.G. Bruggink, J.M. Coluccy, D. A. Graber, J.O. Leafloor, D.R. Luukkonen, and R.E. Trost, editors. Proceedings of the 2003 International Canada Goose Symposium, Madison, Wisconsin, USA.

Costanzo, G.R. and L.J. Hindman. 2007. Chesapeake Bay Breeding Waterfowl Populations. Waterbirds 30 (Special Publication 1): 17-24, 2007

Costanzo, G.R. and R. Malecki. 1989. Food habits of American black ducks wintering in New Jersey. Proc. Annu. Conf. Northeast. Assoc. Fish Wildl. Agencies 45:76-83.

Costanzo, G.R., R.A. Williamson, and D.E. Hayes. 1995. An efficient method for capturing flightless geese. Wildlife Society Bulletin 23(2): 201-203.

Coster, S., A.B. Welsh, **G. Costanzo, J. Cooper, S. Harding**, J.T. Anderson, T.E. Katzner. 2015. Birds of a feather flock together? Investigating introgression in the king-clapper rail complex. Southeast Partners in Flight, Lafayette, LA (Oral Presentation).

Coster, S.S., A.B. Welsh, **G.R. Costanzo, S.R. Harding**, J.T. Anderson, and T.E. Katzner. 2018. Gene flow connects coastal populations of a habitat specialist, the Clapper Rail *Rallus crepitans*. Ibis 161(2): 66–78.

Coster, S., A. Welsh, **G. Costanzo, S. Harding,** J. Anderson, and T.E. Katzner. 2018. Genetic analyses reveal cryptic and asymmetric introgression in secretive marsh bird populations. Ecology and Evolution 8: 9870–9879.

Fies, M.L., I.L. Kenyon, Jr., and J.V. Gwynn. 1992. Effects of changing land use patterns on bobwhite quail habitat in Virginia. Virginia Journal of Science 23(1B): 143-155.

Fies, M.L. and K.M. Puckett. 2000. Depredation patterns of northern bobwhite nest predators in Virginia. Pages 96-102 *in* L. A. Brennan. W. E. Palmer, L. W. Burger, Jr., and T. L. Pruden (eds.). Quail IV: Proceedings of the Fourth National Quail Symposium. Tall Timbers Research Station, Tallahassee, FL.

Fies, M.L., J.E. Fischer, and D.E. Steffen. 2000. Survival of game farm, F1-wild progeny, and wild-relocated northern bobwhites using two release methods. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 54:350-364.

Fies, M.L. and K.M. Puckett, and B. Larson-Brogdon. 2002. Breeding season movements and dispersal of northern bobwhites in fragmented habitats of Virginia. Pages 173-179 *in* S. J. Demaso, W. P. Kuvlesky, Jr., F. Hernández, and M. E. Berger (eds.). Quail V: Proceedings of the Fifth National Quail Symposium. Texas Parks and Wildlife Department, Austin, TX.

Giroux, J., G. Gauthier, **G. Costanzo**, and A. Reed. 1998. Impacts of greater snow geese on natural habitats. Pages 32-58 in B.D.J. Batt, *ed*. The Greater Snow Goose: Report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C., and Canadian Wildlife Service, Ottawa, Ontario.

Hindman, L.J., **G.R. Costanzo**, and G. Stein, Jr. 1998. Avian Cholera Epizootics on the Chesapeake Bay. Journal Field Ornithology.

Hindman, L.J., W.F. Harvey, **G.R. Costanzo**, K.A. Converse, and G.Stein, Jr. 1997. Avian Cholera in Ospreys: First occurrence and possible mode of transmission. Journal of Field Ornithology.

Humberg, D., T.W. Aldrich, S. Baker, **G. Costanzo**, J.H. Gammonley, M.A. Johnson, B. Swift, D. Yparraguirre. 2000. Adaptive Harvest Management: has anything really changed? Trans. No. American Wildlife and Natural Resource Conference 54: 496-511.

Ladin, Z. S., **G.R. Costanzo, B. Lewis**, and C.K. Williams. 2020. Long-term Survival and Harvest of Resident Canada Geese in Virginia. The Journal of Wildlife Management, 84(4): pp.666 - 674.

Lewis B.S. Jr., M.W. Echholz, J.M. Coluccy, and T. Yerkes. 2019. Food Resources for wintering and spring staging American black ducks. Journal of Fish and Wildlife Management 10(2):492-499.

Lowney, M., P. Eggborn, **G.R. Costanzo**, and D. Patterson. 1997. Development of an integrated Canada goose management program in Virginia. Procee. 8th East. Wildlife Damage Management Conference 8:24-30.

Ringelman, K.M., C.K. Williams, P.K. Devers, J.M. Coluccy, P.M. Castelli, K.A. Anderson, J.L. Bowman, **G.R. Costanzo**, D.M. Cramer, M.T. Dibona, M.W. Eichholz, M. Huang, **B. Lewis Jr.**, D.M. Plattner, and T. Yerkes. 2015. A Meta-Analysis of American Black Duck Winter Habitat Use Along the Atlantic Coast. Journal of Wildlife Management 79(8):1298-1307.

Roberts, A.J., D. Howell, J. Homyack, **B.S. Lewis Jr.**, J. Stiller, and K. Sullivan. Design, Operation and Analysis of a Fecundity Survey for Sea Ducks. *In review.*

Schairer, G.L., R.H. Wynne, **M.L. Fies**, and S.D. Klopfer. 1999. Predicting landscape quality for northern bobwhite from classified Landsat imagery. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 53:243-256.

Stiffler, L.L., J.T. Anderson, A.B. Welsh, **S.R. Harding, G.R. Costanzo**, and T.E. Katzner. 2017. Diel variation in detection and vocalization rates of King (*Rallus elegans*) and Clapper (*Rallus crepitans*) 86 in intracoastal waterways. Waterbirds 40: 263-271.

Wilkins, K.A., R.A. Malecki, P.J. Sullivan, J.C. Fuller, J.P. Dunn, L.J. Hindman, **G.R. Costanzo**, S.A. Petrie, D. Luszcz. 2010. Population structure of tundra swans wintering in Eastern North America. Journal of Wildlife Management 74(5):1107-1111.

Wilkins, K.A., R.A. Malecki, P.J. Sullivan, J.C. Fuller, J.P. Dunn, L.J. Hindman, **G.R. Costanzo**, S.A. Petrie, D. Luszcz. 2010. Migration routes and Bird Conservation Regions used by Eastern Population Tundra Swans *Cygnus columbianus columbianus* in North America. Wildfowl 60: 20-37.

Nongame Mammals

Brack, V., **R.J. Reynolds**, W. Orndorff, and C. Zokaites. 2005. Bats of Skydusky Hollow, Bland County, Virginia. Virginia Journal of Science 56:93-106.

Brack, V., C.W. Stihler, **R.J. Reynolds**, C.M. Butchkoski, and C.S. Hobson. 2002. Effect of Climate and Elevation on Distribution and Abundance in the Mideastern United States. Pp. 21-28 in A. Kurta and J. Kennedy(Eds.). The Indiana Bat: Biology and Management of an Endangered Species. Austin, Texas. 253 pp.

Churchill, J.L., W.J. McShea, and **R.J. Reynolds**. 2003. A Classification Model for Identifying Virginia Bats by Search-phase Echolocation Calls using Discriminant Function Analysis. Unpublished report to Virginia Department of Game and Inland Fisheries, Richmond, Virginia. 41 pp.

Fies, M.L. and J.F. Pagels. 1987. Preliminary results from a northern flying squirrel nest box study in Virginia. Virginia Journal of Science 38(2):80 (Abstract).

Fies, M.L. and J.P. Pagels. 1991. Northern flying squirrel (*Glaucomys sabrinus fuscus*) Miller. Pages 583-584 *in* K. Terwilliger (ed). Virginia's Endangered Species. McDonald & Woodward Publishing Company, Blacksburg, VA.

Langwig, K.E, W. F. Frick, **R. Reynolds**, K.L. Parise, K.P. Drees, J.R. Hoyt, T.L. Cheng, T.H. Kunz, J.T. Foster, and A.M. Kilpatrick. 2014. Host and pathogen ecology drive the seasonal dynamics of a fungal disease, White-nose Syndrome. Proceedings of the Royal Society B 282: 20142335. http://dx.doi.org/10.1098/rspb.2014.2335.

Miller, D.A., C.W. Stihler, D.B. Sasse, **R.J. Reynolds**, P. Van Deusen, and S.B. Castleberry. 2011. Conservation and Management of Eastern Big-eared Bats (Corynorhinus spp.) Pp. 53-61 in S.C. Loeb, M.J. Lacki, D.A. Miller (Eds.). Conservation and Management of Eastern Big-eared Bats: a Symposium. Gen. Tech. Rep. SRS-145. Asheville, NC. 157 pp.

Moncrief, N.D. and **M.L. Fies**. 2020. Recent records and range expansion of *Erethizon dorsatum* (North American porcupine) in Virginia. Northeastern Naturalist 27(10).

Moncrief, N.D. and **M.L. Fies**. 2015. Report of first specimens of *Pekania pennanti* (Fisher) from Virginia. Northeastern Naturalist 22(4).

Moncrief, N.D., **M.L. Fies**, and S.D. Thompson. 2021. Recent records and range expansion of *Dasypus novemcinctus* (nine-banded armadillo) in Virginia. Southeastern Naturalist 20(2).

Moosman, P.R., D.M. Marsh, E.K. Pody, M.P. Dannon, and **R.J. Reynolds**. 2020. Efficacy of visual surveys for monitoring populations of talus-roosting bats. Journal of Fish and Wildlife Management 11(2): 597-608.

Pagels, J.F., R.P. Eckerlin, J R. Baker, and **M.L. Fies**. 1990. New records of the distribution and the intestinal parasites of the endangered Northern Flying Squirrel, *Glaucomys sabrinus* (Mammalia: Sciuridae), in Virginia. Brimleyana 16:73–78.

Powers, K.E., **R.J. Reynolds**, W. Orndorff, W.M. Ford, and C.S. Hobson. 2015. Post-White-nose Syndrome Trends in Virginia's Cave Bats, 2008-2013. Journal of Ecology and the Natural Environment 7(4):113-123.

Powers, K.E., **R.J. Reynolds**, W. Orndorff, B.A. Hazy, C.S. Hobson, and W.M. Ford. 2016. Monitoring the Status of Gray Bats (Myotis grisescens) in Virginia, 2009-2014, and Potential Impacts of White-nose Syndrome. Southeastern Naturalist 15:127-137.

Reynolds, R.J. 2009. 2009 Hibernacula and White-nose Syndrome Survey. Wildlife Diversity Technical Report TR2009.1 Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, Virginia. Unpublished report submitted to U.S. Fish and Wildlife Service. 51 pp.

Reynolds, R.J. **and R.T. Fernald**. 2015. A Guide to the Bats of Virginia. Bureau of Wildlife Resources Special Publication Number 5, Virginia Department of Game and Inland Fisheries. Richmond. 40 pp.

Reynolds, R.J. and R.T. Fernald. 2021. A Guide to the Bats of Virginia. Bureau of Wildlife Resources Special Publication Number 5:2nd Edition, Virginia Department of Game and Inland Fisheries. Richmond. 40 pp.

Reynolds, R.J., **M.L. Fies**, and J.F. Pagels. 2009. Communal Nesting and Reproduction of the Southern Flying Squirrel, Glaucomys volans, in the Mountains of Virginia. Southeastern Naturalist 16(4):563-576.

Reynolds, R.J., J.F. Pagels, and **M.L. Fies**. 1999. Demography of Northern Flying Squirrels in Virginia. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 53:340-349.

Reynolds, R.J., K.E. Powers, W. Orndorff, W.M. Ford, and C.S. Hobson. 2016. Changes in Rates of Capture and Demographics of Myotis septentrionalis (Northern Long-eared Bat) in Western Virginia before and after Onset of White-nose syndrome. Northeastern Naturalist 23(2):195-204.

Reynolds, R.J., A.K. Zadnik, and J.F. Pagels. 1999. Observations on Small Mammals in the Maple Flats Sinkhole Pond Complex, Augusta County, Virginia. Banisteria 13:143-147.

True, M.C., **R.J. Reynolds**, and W.M. Ford. 2021. Monitoring and Modeling Tree Bat (Genera: *Lasiurus*, *Lasionycteris*) Occurrence Using Acoustics on Structures off the Mid-Atlantic Coast-Implications for Offshore Wind Development. *Animals* 2021, 11, 3146. https://doi.org/10.3390/ani11113146.

Game Mammals

Fies, M.L. 1985. New information on the distribution and status of the New England cottontail in Virginia. Transactions of the Northeastern Section of the Wildlife Society 42:185-192.

Fies, M.L. 1993. Fox squirrels (*Sciurus niger*) in Virginia: a review of historical records and information from recent population surveys. Pages 37-49 *in* N. D. Moncrief, J. W. Edwards, and P. A. Tappe (eds.). Proceedings of the Second Symposium on Southeastern Fox Squirrels (*Sciurus niger*). Virginia Museum of Natural History Special Publication No. 1.

Fies, M.L. 1991. Eastern cottontail *Sylvilagus floridanus hitchensi* Mearns. Pages 578-580 *in* K. Terwilliger (ed). Virginia's Endangered Species. McDonald & Woodward Publishing Company, Blacksburg, VA.

Fies, M.L. and C.O. Handley, Jr. 1991. Marsh rabbit *Sylvilagus palustris palustris* Bachman. Pages 580-582 *in* K. Terwilliger (ed). Virginia's Endangered Species. McDonald & Woodward Publishing Company, Blacksburg, VA.

Fies, M.L. 1991. Snowshoe hare *Lepus americanus virginianus* Harlan. Pages 576-578 *in* K. Terwilliger (ed). Virginia's Endangered Species. McDonald & Woodward Publishing Company, Blacksburg, VA.

Fies, M. L. 1992. Survival and movements of relocated snowshoe hares (*Lepus americanus*) in western Virginia. Virginia Journal of Science 43(2):230 (Abstract).

Fies, M.L., D.D. Martin, and G.T. Blank, Jr. 1987. Movements and rates of return of translocated black bears in Virginia. International Conference on Bear Research and Management 7:369-372.

McNitt, D. C., R.S. Alonso, M.J. Cherry, **M.L. Fies**, and M.J. Kelly. 2020. Sex-specific effects of reproductive season on bobcat space use, movement, and resource selection in the Appalachian Mountains of Virginia. PLOS ONE. 15. e0225355. 10.1371/journal.pone.0225355.

McNitt, D. C., R.S. Alonso, M.J. Cherry, **M.L. Fies**, and M.J. Kelly. 2020. Influence of forest disturbance on bobcat resource selection in the central Appalachians. Forest Ecology and Management 465(11):118066.

Montague, D.M., R.D. Montague, **M.L. Fies**, and M.J. Kelly. 2017. Using distance sampling to estimate density of white-tailed deer in forested, mountainous landscapes in Virginia. Northeastern Naturalist 24(4):505-519.

Morin, D.J., S.D. Higdon, J.L. Holub, D.M. Montague, **M.L. Fies**, L.P. Waits, and M.J. Kelly. 2016. Bias in carnivore diet analysis resulting from misclassification of predator scats based on field identification. Wildlife Society Bulletin 40(4):669-677.

Nongame Fishes

Angermeier, P.L. and **M.J. Pinder**. 2015. Viewing the status of Virginia's environment through the lens of freshwater fishes. Virginia Journal of Science 66(3): 147-165.

Bugas, P.E., C.D. Hilling, V. Kells, **M.J. Pinder**, D.A. Wheaton and D.J. Orth. 2019. Field Guide to Freshwater Fishes of Virginia. Johns Hopkins University Press, Baltimore, MD. 193 pp.

Pinder, M.J., and C.S. Garriock. 1998. New distributional record for *Orconectes virilis* Hagan, 1870, in the New River, Virginia, Banisteria 12:42-43.

Pinder, M.J., & J.W. Jones. 2001. Species composition and biotic condition of the fish community of Indian Creek, Tazewell County, Virginia. Banisteria 16:2-18.

Pinder, M.J., and R.P. Morgan II. 1995. Interactions of pH and habitat on cyprinid distributions in Appalachian streams of Maryland. Transactions of the American Fisheries Society 124:94-102.

Pinder, M.J. and C.F. Saylor. 2017. Biotic condition and species composition of the fish community of Big Moccasin Creek, Scott and Russell counties, Virginia. Banisteria 49:3-14.

Pinder, M.J. and D. A. Wheaton. 2020. Species composition and habitat associations of the fishes of Flat Creek, Appomattox River drainage, Virginia. Banisteria 54:1–18.

Smith, R.K., **M.J. Pinder**, and K.E. Walter. 2001. Distributional survey and assessment of habitat requirements of Blackbanded Sunfish (*Enneacanthus chaetodon*) in Virginia.

Wildlife Diversity Technical Report Number 1. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 46 pp.

Game Fish

Belcher, S., T. Guillette, J. McCord, M. Guillette, M. Polera, K.T. Rachels, **C. Morgeson**, N. Kotlarz, D. Knappe, B. Reading, and M. Strynar. 2020. Elevated levels of per- and polyfluoroalkyl substances in Cape Fear River Striped Bass (*Morone saxatilis*) are associated with biomarkers of altered immune and liver function. Environmental International 136. https://doi.org/10.1016/j.envint.2019.105358.

Bi, R., Y. Jiao, **L.A. Weaver, B. Greenlee**, G. McClair, J. Kipp, K. Wilke, C. Haas, and E. Smith. 2021. Environmental and anthropogenic influences on spatiotemporal dynamics of *Alosa* in Chesapeake Bay tributaries. Ecosphere 12(6):e03544. 10.1002/ecs2.3544

Bushman, B., T. Widloe, J. Widloe, B. Caputo, L. Nelson, D. Wyffels, K. Irons, M. O'Hara, B. Ruebush, R. Haun, **C. Morgeson**, and R. Young. 2016. Barrier defense Asian Carp removal project. Pgs. 85-93 *in* 2015 Asian Carp monitoring and response plan interim summary reports. Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup.

Butler, S.E., M.J. Diana, S.F. Collins, D.H. Wahl, R.E. Colombo, and **C.W. Morgeson**. 2015. Larval fish monitoring in the Illinois Waterway. Pgs. 19-32 *in* 2014 Asian Carp monitoring and response plan interim summary reports. Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup.

Butler, S.E., M.J. Diana, S.F. Collins, D.H. Wahl, R.E. Colombo, and **C.W. Morgeson**. 2015. Evaluation of gear efficiency and Asian Carp detectability. Pgs. 190-196 *in* 2014 Asian Carp monitoring and response plan interim summary reports. Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup.

Caputo, B., **C. Morgeson**, T. Widloe, R. Haun, R. Young, J. Widloe, D. Wyffels, B. Bushman, L. Nelson, M. O'Hara, K. Irons, N. Bloomfield, J. Merry, M. Shanks, and N. Barkowski. 2016. Understanding surrogate fish movement with barriers. Pgs. 160-167 *in* 2015 Asian Carp monitoring and response plan interim summary reports. Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup.

Fisk, J.M. II, and **C. Morgeson**. 2016. Cape Fear River Striped Bass Survey 2015. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration, Project F-108, Final Report. Raleigh, NC.

Fisk II, J.M., **C.W. Morgeson**, and M.E. Polera. 2018. Evaluation of recreational hand-crank electrofishing on introduced catfish species in southeastern North Carolina. North American Journal of Fisheries Management 39. 10.1002/nafm.10255.

Hilton, E. J., **L. A. Weaver**, **C. Morgeson**, and A. Galvan. 2021. American Shad Habitat Plan

for the James, York, and Rappahannock Rivers. Report submitted to Atlantic States Marine Fisheries Commission as required by Amendment 3 to the Interstate Management Plan for Shad and River Herring. 27 pp.

Morgeson, C. 2020. Aquatic Invasive Fish Species Rapid Response Plan. Virginia Department of Wildlife Resources, Aquatic Wildlife Resources Division. Conservation Plan. Richmond, VA.

Morgeson, C., and K. T. Rachels. 2018. American Shad monitoring in the Cape Fear River 2016–2017. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration, Project F-108, Final Report. Raleigh, NC.

Morgeson, C., and J.M. Fisk II. 2018. Cape Fear River anadromous spawning activity survey 2016. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration, Project F-108, Final Report. Raleigh, NC.

Morgeson, C., and J.M. Fisk II. 2018. Sutton Lake Creel Survey, 2015–2016. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration, Project F-108, Final Report. Raleigh, NC.

Olney, J.E., K.A. Delano, R.J. Letour, T.P. Gunter, Jr., **L.A. Weaver**. 2007. Status of American Shad stocks in Virginia. Atlantic States Marine Fisheries Commission Stock Assessment Report No. 07-01 (Supplement) 3: 198-250.

Rachels, K. T., and **C. Morgeson.** 2018. Cape Fear River Striped Bass spawning stock survey 2016–2017. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration, Project F-108, Final Report. Raleigh, NC.

Young, R., R. Haun, **C. Morgeson**, B. Bushman, B. Caputo, L. Nelson, J. Widloe, D. Wyffels, T. Widloe, M. O'Hara, and K. Irons. 2016. Monitoring efforts downstream of the electric dispersal barrier. Pgs. 58-72 *in* 2015 Asian Carp monitoring and response plan interim summary reports. Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup.

Weaver, L.A., M.T. Fisher, B.T. Bosher, M.C. Claud and L.J. Koth. 2003. Boshers Dam vertical slot fishway - A useful tool to evaluate American shad Recovery Efforts in the Upper James River. Pages 339-347 *in* K.E. Limburg and J.R. Waldman, editors. Biodiversity, Status, and Conservation of the World's Shads. American Fisheries Society, Symposium, 35.

Weaver, L.A. and G.C. Garman. 1994. Urbanization of a watershed and historical changes in a stream fish assemblage. Transactions of the American Fisheries Society 123:162-172.

Weaver, L.A. 2015. Final Performance Progress Report on Harvell Dam Removal to NOAA Restoration Center, Office of Habitat Conservation for the period covering July 1, 2010 to June 30, 2015. Grant NA10NMF4630188.

Weaver, L.A. 2019. Final Performance Report on Chandlers Mill Pond Dam Fish Passage to USFWS National Fish Passage Program for the period covering December 29, 2016 to September 30, 2019. Grant F17AP00108.

Freshwater Gastropods and Mussels

Cabe, P.R., S.M. Henkanaththegedara, **B.T. Watson**, Z.J. Loughman and R.F. Thoma. 2021. An annotated checklist of the freshwater crayfish of Virginia. Journal Freshwater Crayfish, *In Press*.

Dillon, R.T. P. Ashton, W. Reeves, T. Smith, T. Stewart, and **B. Watson**. 2019. The Freshwater Gastropods of North America, Volume 1: Atlantic Drainages, Georgia through Pennsylvania. Natural History Book Service. 212 pp.

Eckert, N.L., J.J. Ferraro, **M.J. Pinder and B.T. Watson.** 2007. Freshwater Mussel and Spiny Riversnail Survey of SR 833 Bridge and Fletcher Ford, Powell River, Virginia: Augmentation Monitoring Sites – 2004. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 36 pp.

Eckert, N.L., J.J. Ferraro, **M.J. Pinder and B.T. Watson**. 2008. Freshwater Mussel Survey of Slant, Clinch River, Virginia: Augmentation Monitoring Site: 2005. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 43 pp

Eckert, N.L., J.J. Ferraro, **M.J. Pinder and B.T. Watson**. 2008. Freshwater Mussel Survey of Clinchport, Clinch River, Virginia: Augmentation Monitoring Site: 2006. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 39 pp.

Eckert, N.L. and **M.J. Pinder** 2009. Freshwater Mussel Survey of Three Sites at Cedar Bluff, Clinch River, Virginia: Augmentation Monitoring Sites – 2007. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 41 pp.

Eckert, N.L. and **M.J. Pinder.** 2010. Freshwater Mussel Survey of Cleveland Island, Clinch River, Virginia: Augmentation Monitoring Site: 2008. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, VA. 47 pp

Fullerton, A.H and **B.T. Watson**. 2001. New distributional records for two nonindigenous and one native crayfish in North Carolina. Journal of the Elisha Mitchell Scientific Society 17(1): 66-70.

Henley, W.F. **M.J. Pinder. B.T. Watson** and R.J. Neves. 2013. Status of freshwater mussels in the Middle Fork Holston River, Virginia. Walkerana 16(2): 68-80.

Hotopp, K.P., T.A. Pearce, J.C. Nekola, J. Slapcinsky, D.C. Dourson, M. Winslow, G. Kimber, and **B. Watson**. 2013. Land Snails and Slugs of the Mid-Atlantic and Northeastern United States. Carnegie Museum of Natural History, Pittsburgh, PA, USA. Online Resource: http://www.carnegiemnh.org/science/mollusks/valandsnails.

Pinder, M. J. and J.J. Ferraro 2012. Freshwater mussel declines in the upper South Fork Holston River, Virginia. Banisteria 39: 51-75.

Pinder, M.J., E. Wilhelm, and J.W. Jones. 2002. Status survey of the freshwater mussels (Bivalvia: Unionidae) in the New River drainage, Virginia. Walkerana 13(29/30): 189-223.

Rogers, S.O., **B.T. Watson** and R.J. Neves. 2001. Life history and population biology of the endangered tan riffleshell (Epioblasma florentina walkeri) (Bivalvia: Unionidae). Journal of the North American Benthological Society 20(4): 582-594.

Sterrett, S., A. Roy, P. Hazelton, **B. Watson**, B. Swartz, T.R. Russ, L. Holst, M. Marchand, J. Wisniewski, M. Ashton, and B. Wicklow. 2018. Brook Floater Rapid Assessment Monitoring Protocol. Cooperator Science Series CSS # 132-2018. US Fish and Wildlife Service. 26 pp.

Herpetofauna

Apperson, M., **S.A. Living,** and Christensen, T.P. 2007. *Kinosternon subrubrum* (Eastern Mud Turtle). Catesbeiana 27(1): 45-46.

Carpenter, A., **M. Thomas**, and K. Cecala. 2020. Effect of bait type and conspecific attraction on diamondback terrapins (*Malaclemys terrapin*) entrapment. Journal of Young Investigators 38(1): 1-7.

Emma K.B., O.J. Hyman, A.H. Loudon, R.N. Harris, G. Lipps, E.Chapman, K. Roblee, **J.D. Kleopfer**, and K.A. Terrell. 2015. Pathogenic Chytrid Fungus Batrachochytrium dendrobatidis, but Not B. salamandrivorans, Detected on Eastern Hellbenders. PLOS ONE | DOI:10.1371/journal.pone.0116405 February 19, 2015. Pg. 1-9.

Garriock, S. and **R.J. Reynolds**. 2005. Results of a Herpetofaunal Survey of the Radford Army Ammunition Plant (RFAAP) in Southwest Virginia. Banisteria 25:3-22.

Goetz S.G., C.E. Petersen, R. K. Rose, **J.D. Kleopfer**, A.H. Savitzky. 2016. Diet and Foraging Behavior of Timber Rattlesnakes, *Crotalus horridus*, in Eastern Virginia. Journal of Herpetology. Vol. 51: No. 2.

Gross, I., and **M. Thomas**, C. Carter and A. Durso. 2014. Coluber (= Masticophis) flagellum (Coachwhip) Nocturnal activity. Herpetological Review. 45:336-337.

Johnson, E., B. Bowerman, **M. Thomas**, and K. Grayson. 2017. The influence of environmental factors on pond activity of aquatic red-spotted newts (*Notophthalmus viridescens*).

Journal of Freshwater Ecology 32(1): 711-720.

Kleopfer. J.D. 2005. Field Notes: *Eumeces fasciatus* (Five-lined Skink). Catesbeiana. 25(2): 81.

Kleopfer. J.D. 2006. Field Notes: *Trachemys scripta scripta* (Yellow-bellied slider). Catesbeiana. 26(2): 74.

Kleopfer, J.D. 2016. Field Notes. *Ambystoma tigrinum tigrinum* (Eastern Tiger Salamander). Catesbeiana.

Kleopfer, J.D. and **T. Bidrowski**. 2009. Field Notes: *Pseudemys concinna floridana* (Florida Cooter). Catesbeiana. 29(2): 95.

Kleopfer, J.D. and C. Boyce. 2015. Natural History Notes. *Nerodia taxispilota* (Brown Watersnake). Herpetological Review.

Kleopfer. J.D., and A.C. Chazal. 2006. Field Notes: *Hyla gratiosa* (Barking Treefrog). Catesbeiana 26(2): 70.

Kleopfer, J.D., and R.B. Cloontz. 2007. Field Notes: *Bufo quercicus* (Oak Toad). Catesbeiana 27(2): 95.

Kleopfer, J.D., and R.B. Cloontz. 2007. Field Notes: *Farancia abacura abacura* (Eastern Mudsnake). Catesbeiana 27(2): 101.

Kleopfer, J.D., J. Gallegos, D. Stolley and J.C. Mitchell. 2007. Natural History Notes. *Chelonia mydas* (Green Sea turtle). Herpetological Review 37: 453.

Kleopfer. J.D. and J.C. Mitchell. 2006. Shorter Contributions: Notes on Basking Behavior of the Stinkpot (*Sternotherus odoratus*) and its Implications for Predation Risk. Banisteria 28.

Kleopfer, J.D., J.C. Mitchell, **M.J. Pinder**, and **S.H. Watson**. 2017. A Guide to the Snakes and Lizards of Virginia. Special Publication Number 6, Virginia Department of Game and Inland Fisheries. Richmond, VA. 72 pp.

Kleopfer, J.D., and J.R. Niccoli. 2009. Field Notes: *Lampropeltis calligaster rhombomaculata* (Mole Kingsnake). Catesbeiana. 29(2): 93.

Kleopfer, J.D. and J.R. Niccoli. 2009. Field Notes: *Lampropeltis getula getula* (Eastern Kingsnake). Catesbeiana. 29(2): 93.

Kleopfer, J.D., and A. Roberts 2016. Geographical Distribution. *Trachemys scripta troostii.* Herpetological Review.

Kleopfer, J.D., and P.J. Semtner. 2007. Field Notes*: Hyla gratiosa* (Barking Treefrog).

Catesbeiana 27(2): 98-99.

Kleopfer, J.D. and **S. Watson**. 2009. Field Notes: *Farancia abacura abacura* (Eastern Mudsnake). Catesbeiana. 29(2): 94.

Kleopfer, J.D., S.H. Watson, and J.C. Mitchell. 2006. Geographical Distribution. *Hemidactyluc turcicus.* Herpetological Review 37: 106-107.

Lovich, J., **M. Thomas**, K. Ironside, C. Yackulic, and S. Puffer. 2018. Spatial distribution of diamond-backed terrapins (*Malaclemys terrapin*) and risk analysis from blue crab (*Callinectes sapidus*) trapping at the Savannah Coastal Refuges Complex, USA. Ocean & Coastal Management 157: 160-167.

Pinder, M.J. and J.C. Mitchell. 2002. A Guide to the Snakes of Virginia. Wildlife Diversity Special Publication Number 2.1, Virginia Department of Game and Inland Fisheries, Richmond, VA. 32 pp.

Rabon, D.R., Jr., S.A. Johnson, R**. Boettcher**, M. Dodd, M. Lyons, S. Murphy, S. Ramsey, S. Roff, and K. Stewart. 2003. Confirmed leatherback turtle (*Dermochelys coriacea*) nests from North Carolina, with a summary of leatherback nesting activities north of Florida, USA. Marine Turtle Newsletter 101:4-8.

Roberts, A.A., **M.J. Pinder** and M.T. Baisey 2010. Assessment of Bog Turtle (*Glyptemys mulhenbergii*) presence and habitat quality in Carroll County, Virginia. Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Blacksburg, VA. 20 pp.

Shamblin, B.M., M.G. Dodd, S.M. Pate, M.H. Godfrey, J.B. Pfaller, K.L. Williams, B.L. Ondich, D.A. Steen, E.S. Darrow, P. Hillbrand, **R. Boettcher**, M.S. Coyne, and C.J. Nairn. 2021. In search of the "missing majority" of nesting loggerhead turtles: improved inter-seasonal recapture rates through subpopulation-scale genetic tagging. 2021. Marine Biology. 168(16):1-14.

Sisson, G., **M. Thomas**, T. Richards-Dimitrie, and R. Seigel. 2012. Habitat Use and Status of Northern Map Turtles (*Graptemys geographica*) on the Garrett Island Division of Blackwater National Wildlife Refuge. Report to the US Fish and Wildlife Service.

Steele. K. and **J.D. Kleopfer**. 2005. Field Notes: *Rana virgatipes* (Carpenter Frog). Catesbeiana 25(2): 77.

Terrell, K.A., R.P. Quintero, S. Murray, **J.D. Kleopfer**, J.B. Murphy, M.J. Evans, B.D. Nissen and B. Gratwicke. 2013. Cryptic impacts of temperature variability on amphibian immune function. Journal of Experimental Biology 216: 4204-4211.

Thomas, M. and Steven Follum. 2016. *Anaxyrus americanus*. Partial leucism. Herpetological Review. 47:102-103.

Tutterow, A., and **M. Thomas**. 2017. The Carolina Herp Atlas: Final Report to the South Carolina Department of Natural Resources. Report to the South Carolina Department of Natural Resources.

Ware, J.L., C. Viverette, **J.D. Kleopfer**, L. Pletcher, D. Massey, and A. Wright. 2008. Infection of spotted salamanders (*Ambystoma maculatum*) with Icthyophonus-like organisms in Virginia. Shorter Communications. Journal of Wildlife Diseases 44(1): 174-176.

Welsh, H. and **R.J. Reynolds.** 1986. *Ascaphus truei* (Tailed Frog) Behavior. Herp Review 17(1):19.

Willson, J.D., J. Guzy, and **M. Thomas.** 2017. Survey Protocol for Monitoring and Management of Eastern Diamondback Rattlesnakes on National Wildlife Refuges in Georgia and South Carolina. Report to the US Fish and Wildlife Service.

Willson, J.D., J. Guzy, and **M. Thomas.** 2017. Inventory and Risk Assessment of Eastern Diamondback Rattlesnakes on National Wildlife Refuges in Georgia and South Carolina. Report to the US Fish and Wildlife Service.

Examples of Popular Articles Generated by Staff and Published in the DWR Virginia Wildlife Magazine and on its Website (https://dwr.virginia.gov)

Fies, M.L. 1984. A different kind of rabbit. Virginia Wildlife Magazine 45(10):7-9.

Fies, M.L. 1986. Night gliders. Virginia Wildlife Magazine 47(12):23-25.

Fies, M.L. 1990. Bigfoot. Virginia Wildlife Magazine 51(2):8-11.

Fies, M.L. 1990. The numbers game: small game population management. Virginia Wildlife Magazine 51(5):4-10.

Fies, M.L. 1992. Here today and gone tomorrow. Virginia Wildlife 53(11):8-13.

Fies, M.L. 1997. Virginia's bobwhite legacy. Virginia Wildlife Magazine 58(3):7-11.

Pinder, M.J. 2000. Turtles from a Distance. Virginia Wildlife Magazine 61(6): 4-9.

Pinder, M.J. 2000. The Clinch River: A Biological Treasure. Virginia Wildlife Magazine 61(12):8-11.

Pinder, M.J. 2004. The Eastern Hellbender: Giant of the Alleghenies. Virginia Wildlife Magazine 65(7): 4-8.

Pinder, M.J. 2003. Regaining Virginia's Freshwater Mussel Heritage. Virginia Wildlife Magazine 65(7): 15-22.

Pinder, M.J. 2008. Northern Pinesnake: Virginia's Mystery Serpent. Virginia Wildlife Magazine 69(5): 9-13.

Pinder, M.J. 2014. The Master Mound Builder. Virginia Wildlife Magazine 75(1):34-38.

Pinder, M.J. 2016. Fallfish: Little Tarpon of the Commonwealth. Virginia Wildlife Magazine 77(5): 9-11.

Pinder, M.J. and D.W. Garst. 2007. Rattles in the Wilderness. Virginia Wildlife Magazine 68(5):31-35.

Ruthenberg, J. November 8, 2018. Less is More! Easy Ways to Improve Habitat this Fall. Virginia Department of Wildlife Resources.

Ruthenberg, J. and R. Boettcher. July 12, 2018. Virginia's Barrier Islands: A Vital Refuge for Shorebirds and Seabirds. Virginia Department of Wildlife Resources.

Ruthenberg, J. June 17, 2021. 20 Top Places to See Royal Terns and Other Seabirds this Summer. Virginia Department of Wildlife Resources.

Ruthenberg, J. March 26, 2018. Beyond the Bird Feeder: Attract and Support Birds with Native Plants. Virginia Department of Wildlife Resources.

Ruthenberg, J. 2019. The Big Return to Big Woods WMA! Virginia Wildlife Magazine 80(3): 44-45. Virginia Department of Wildlife Resources.

Ruthenberg, J., J.D. Kleopfer, T. Akre, J.H. VanDoren, and J. Meck August 17, 2021. Wood Turtle. Virginia Department of Wildlife Resources.

Ruthenberg, J., C. Vuocolo, T. Roulston, and E. Orcutt. September 10, 2020. Rusty Patched Bumble Bee. Virginia Department of Wildlife Resources.

Thomas, M. 2021. The Birds are Back in Town, Virginia Department of Wildlife Resources.

Thomas, M. 2021. On the Crèche of Greatness, Virginia Department of Wildlife Resources.

Thomas, M. 2021. Empty Nest Syndrome, Virginia Department of Wildlife Resources.

Weaver, L.A. 1995. If We Build Them, They Will Come. Virginia Wildlife Magazine January pp. 22-28.

Weaver, L.A. 2000. Boshers Dam Fishway. Virginia Wildlife Magazine April pp. 25-29.

Weaver, L.A. 2008. Clearing the Way to Rebuild Fisheries. Virginia Wildlife Magazine May pp.20-23.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589

December 14, 2021

Becky Gwynn, Deputy Director
Virginia Department of Wildlife Resources
7870 Villa Park Drive
P.O. Box 90778
Henrico, VA 23228-0778

Dear Ms. Gwynn,

The purpose of this letter is to inform you of a funding mechanism the U.S. Fish and Wildlife Service (Service) uses to partner with State Wildlife and Natural Resources agencies throughout the United States, and to invite Virginia to participate. There are times when the Service could fund and use the support of your fish and wildlife agency to assist us in meeting mutual goals more efficiently than is the case using other mechanisms that are currently available to our agencies. At times it can be somewhat difficult and time consuming to arrange partnerships or negotiations in a timely manner using current methods.

The Service would like to request that your agency consider joining the Cooperative Ecosystem Studies Unit (CESU) Network. As a member this network provides an avenue for the Service to request assistance and provide funding to the Department of Wildlife Resources to help accomplish mutual goals. Additionally, membership will allow your state to partner with more than 440 nonfederal partners and 16 federal agencies across 17 CESU s representing biogeographic regions encompassing all 50 states and U.S. territories in the event your State needs assistance to complete certain specific projects and/or address challenges.

Membership in the CESU network provides scientific research, technical assistance, and education resources to federal land management, environmental, and research agencies and our partners. The network is coordinated by a council that includes representatives of other federal agency partners in accordance with a Memorandum of Understanding (MOU). The Network is led by a National Coordinator appointed by the Council and is supported by a small national office staff. More information can be found at the following CESU website including instructions to apply.
http://www.cesu.psu.edu/default.htm

Although the Service does not promise or commit to sending funds or request projects to be completed by your Department, membership allows us to plan and/or program funds for future projects if the need arises. We sincerely hope that your Department will consider joining this network. Also, the CESU requires an endorsement to join, which the Service will happily provide.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589

Please let us know if your agency is willing to participate. Direct any additional questions and/or comments regarding this request to Genevieve LaRouche, (410) 573-4573 or genevieve_larouche@fws.gov.

Sincerely,

MICHAEL SLATTERY
Michael E. Slattery

Digitally signed by MICHAEL SLATTERY
Date: 2021.12.14 16:14:24 -05'00'

Mike Slattery (he/him), Landscape Conservation Coordinator
Science Applications, North Atlantic - Appalachian Region
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

(410) 573-4571 - office (not in use during COVID restrictions)
(202) 870-1072 - mobile
michael_slattery@fws.gov

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
JOINT BASE SAN ANTONIO LACKLAND TEXAS

18 SEP 2019

Keith L. Kellner
Chief, Compliance Division
Air Force Civil Engineer Center
3515 S. General McMullen
San Antonio, TX 78226-1710

Gary Martel
Virginia Department of Game and Inland Fisheries
P.O. Box 90778
Henrico, Virginia 23228

Dear Mr. Martel

The purpose of this letter is to inform you of a method the Air Force uses to partner with State Wildlife and Natural Resources agencies throughout the United States, and to invite Virginia to participate. Currently, the Air Force (AF) manages the natural and cultural resources found in over 9 million acres of land within its military installations as required by the Sikes Act of 2014 (amended). Some of these acres are found within Virginia, specifically Joint Base Langley-Eustis (Langley Air Force Base and Fort Eustis). Occasionally, there are times when the AF could fund and use the support of your fish and wildlife agency to assist us in meeting mutual goals. However, without a mechanism or agreement in place to transfer funding, it can prove difficult and time consuming to arrange partnerships or negotiations in a timely manner.

The AF would like to request that your State consider joining the Cooperative Ecosystem Studies Unit (CESU) Network. As a member, this network provides an avenue for the AF to request assistance and provide funding for your Game and Inland Fisheries Department to aid us in completing our mutual goals. Additionally, membership will allow your state to partner with more than 440 nonfederal partners and 16 federal agencies across 17 CESUs representing biogeographic regions encompassing all 50 states and U.S. territories in the event your State needs assistance in completing your specific projects and/or challenges.

Membership in the CESU network can provide scientific research, technical assistance, and education to federal land management, environmental, and research agencies and their partners. It is coordinated by a council that includes representatives of other federal agency partners that have signed a Memorandum of Understanding (MOU). The Network is led by a National Coordinator, appointed by the Council, and a small national office staff. More information can be found at the following CESU website including instructions to apply. http://www.cesu.psu.edu/default.htm

Although the AF does not promise or commit to sending funds or request projects to be completed by your Department, membership allows us to plan and/or program funds for future projects if the need arises. We sincerely hope that your Department will utilize this network. Also,

the CESU requires an endorsement to join so the Department of Defense will happily endorse your membership. Please let us know if your agency would be willing to participate. Direct any additional questions and/or comments regarding this request to Abel Antuna, (210) 395-8408 or Abel.Antuna.1@us.af.mil.

Sincerely

KEITH KELLNER, PE.,GS-15
Chief, Compliance Division
AFCEC/CZC