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Partnership o

by Marie Majarov

*Cross-disciplinary
research is underway
at the Inger and
Walter Rice Center*

Our nation's founding river, the 333-mile-long James, is making history once again by advancing our knowledge of the environment through a broad spectrum of cutting-edge research, dynamic educational programs, and active public service at the Inger and Walter Rice Center for Environmental Life Sciences, which graces its banks. A magnificent outdoor living laboratory situated 40 miles below Richmond in Charles City County, the center's 343 acres were generously gifted to



**REGION 1 OFFICE
RICE CENTER**



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pine forest, and open meadow—bustle with research and education activities, amid diverse wonders such as one of the largest concentrations of bald eagles in the lower U.S.

Rice Center Research

One finds passion, excitement, and commitment brimming over, as researchers speak about their wide-ranging interests. A sampling of Rice's awe-inspiring faculty-student research endeavors include:

- Dr. Joy Ware heading investigations focused on what she describes as the "intersection of wildlife health, human health, and environmental health." Called Conservation Medicine, Dr. Ware's program is one of only a few in the country and is tackling such critical issues as Lyme disease.

Page 20: Eagle's nest on the James River.

Top left: Electrofishing techniques are demonstrated at the Gordon Research Pier.

Left: Dr. Greg Garman and research associate Cathy Viverette head out for a day of field work.

Below: A male prothonotary warbler.

n the James

Virginia Commonwealth University (VCU) by Mrs. Rice to honor her late husband, the former Ambassador to Australia.

VCU, an urban university with a faculty passionately committed to ecological concerns, is seizing this extraordinary opportunity to create a world-class field station with a primary focus on large river ecosystems and their riparian, or fringing, landscapes. Vital to this ambitious endeavor is the center's emphasis on forging enduring partnerships and cooperation between numerous VCU academic units, external uni-

versities, governmental agencies, and private organizations—including the Department of Game and Inland Fisheries (DGIF), U.S. Fish and Wildlife Service (USFWS), and Charles City County, among others.

The site's rich cultural history dates back over 10,000 years to the Paleo-Indian period, meandering onward and prominently through colonial and Civil War times to become YMCA Camp Richmond, prior to purchase by the Rices. Now its varied aquatic and terrestrial habitats—tidal and non-tidal wetlands, vernal pools, river, upland and bottomland forests,



F. Eugene Hester



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Dr. Garman's crew proudly display flathead catfish safely brought to the surface through electrofishing.



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VCU graduate students confer with Dr. Joy Ware (R) about an eastern box turtle in the relocation project.

- DGIF's John Kleopfer, a biologist and herpetologist, teams with Dr. Ware on an intriguing project pertaining to the safe relocation and health of the 'charismatic' eastern box turtle that will be expanded to a statewide population study involving school children directly in scientific inquiry.
- Dr. Paul Bukaveckas studying nutrient and plankton dynamics in the waters of the James is developing an innovative ecosystem model that will provide critical river and watershed management strategies.
- Bees and understory flowering dogwood trees provide biologist Dr. Rodney Dyer, working with mathematician Dr. David Chan, opportunities to creatively challenge his graduate students to explore gene movement in pollen transfer using computer game technology, in such fascinatingly titled studies as, "Who Is Your Daddy?" and "Alien Invasion."

Partnership

The interagency partnerships that characterize so many of the accomplishments of the Rice Center are nowhere more evident or better illustrated than by the center's relationship with DGIF. Look to the Raymond Lee Gordon, Jr. research pier facility shared by Rice and the DGIF and the Department's Region 1 office—a newly built green facility located at Rice.

"We welcome the Virginia Department of Game and Inland Fisheries to the VCU Rice Center," said Director Leonard Smock, Ph.D., at the office's dedication, and "we look forward to the opportunity the department's presence will present for a unified effort to solve some of the pressing issues concerning Virginia's fisheries and wildlife." Indeed, linking with the DGIF mission to maintain optimum populations of all species, a tremendous cooperative effort is ongoing.

VCU and DGIF, along with the U.S. Fish & Wildlife Service and Charles City County, also collaborate under an umbrella organization, the



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VCU graduate students studying warbler biology attempt to net an adult warbler as they pull up in their canoe.



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Wing cord measurements and weight are recorded for this bird, whose bands indicate it has previously bred and been captured in the Rice Center area.

Atlantic Rivers Institute, to pull together needed resources to advance and coordinate research, education, conservation, management, public health, and historical/cultural activities with respect to all Atlantic coast rivers.

DGIF district fisheries biologist Bob Greenlee emphasizes the impor-

tant role the DGIF plays in assisting and supporting VCU research and graduate student projects: sharing substantial data and expertise on such critical topics as changes in James River freshwater fish assemblages over time, inter-river differences in population genetics, and blue catfish food habits. The continuing cooperative efforts of VCU and DGIF, feels Mr. Greenlee, will yield a "better understanding of the ecosystem structure and function of Virginia's extremely dynamic freshwater tidal river systems."

Fish-related research activities at Rice are extensive. Dr. Greg Garman, director of VCU's Center for Environmental Studies (CES), and Cathy Viverette, CES research associate, effectively manage scores of different Rice Center endeavors. Currently, they participate in a multi-institution

and cross-disciplinary study of the little known effects of predation by "piscivorous" (fish-eating) birds, osprey, eagles, and cormorants on fish populations—such as the Atlantic menhaden—and the relationship of these effects on fishery resources within the Chesapeake Bay and its major tributaries. Many complex interactions occur as man and birds actively compete for fish in our rivers and bay. Atlantic menhaden are but one example of species that use tidal rivers such as the James for nursery areas, underscoring the importance of the health of coastal rivers to the larger ecosystem. Dr. Garman and associates are also actively engaged in the restoration of anadromous (migrating upriver from the sea to spawn) species such as the Atlantic sturgeon and American shad, once prolific in the James.



Wearing special magnification glasses, Cathy Viverette bands and weighs a prothonotary warbler chick. Another chick is banded by Dr. Bob Reilly, below.



The Prothonotary Warbler Project

Ms. Cathy Viverette also helps direct a prothonotary warbler (*Protonotaria citrea*) project, continuing the long-term studies of migration patterns and breeding habits begun in 1987 by now retired VCU ornithologists/ecologists Charles and Leann Blem. The project has received national recognition, contributed to the lower James being designated an Audubon Important Bird Area, and further exemplifies the cooperative spirit that characterizes the Rice Center.

A neo-tropical migrant songbird, the prothonotary warbler breeds throughout the eastern U.S. and Canada, with major concentrations along tidal freshwater portions of Chesapeake Bay tributaries in Virginia. One of only two cavity-nesting warblers, population numbers are declining in response to habitat degradation and loss of suitable nest cavities.

From canoes, Ms. Viverette, Dr. Robert Reilly, Dr. and Mrs. Art Seidenberg (VCU retired), along with graduate students and undergraduate assistants, regularly monitor over 600 nest boxes throughout the breeding season. They collect reproductive and health data and band young chicks and adults. Charles City County school children are integrally involved in crafting new nest boxes, each proudly signed by its builder. The boxes are scattered throughout the warblers' preferred swampy, lowland forests along trails in and around the Rice Center and neighboring properties: Presquile NWR, Deep Bottom Park, and Dutch Gap Conservation Area.

The project's 22 years have generated banding records for over 14,000 prothonotary warblers, including 1,400 females, many of whom return to breed in the boxes year after year, and over 4,000 egg clutches. Data indicate that the warblers have re-

turned an average of one day earlier each year and suggest changes in egg production as well. Both are believed to be effects of global warming and have significant implications for conservation. Because of the project's continuing, intensive efforts on behalf of the prothonotary warbler, populations in Virginia seem to be steady or increasing.

Environmental Commitment

The view of burgeoning new life at the Rice Center's once man-made 70-acre impoundment above the James is breathtaking. In a national movement to remove unnecessary dams in order to restore the natural flow of streams and revitalize wetlands, VCU is taking a lead role. Removal of the site's earthen dam is well underway; already, the original flow of the area's natural streambeds has emerged along with vibrant new growth and cypress knees from the original wetlands covered over in the 1920s. VCU's ecology faculty and partners are designing a plan to restore a bottomland forest and methods of wetland plantings that will be a model for the region and beyond.

Analogous to this magnificent wetland, the Rice Center is a thriving, energetic, emergent work in progress. Infrastructure has been fashioned, partnerships formed, the LEED-certified Walter L. Rice Education and Research Headquarters a reality. Enduring scientific gain is ongoing; scholarship, flourishing; enthusiasm, outreach, and contribution to public policy, unrivaled; and student commitment to the environment, a life-long outcome. Partnership on the James will long continue to provide, in the words of Dr. Smock, an "understanding of the beauty, fragility and innate complexity of our natural world." ■

Marie and Milan Majarov (www.majarov.com), of Winchester, are clinical psychologists, nature enthusiasts, and members of the Virginia Outdoor Writers Association.

For more information:
The Inger and Walter Rice Center for Environmental Life Sciences
<http://www.vcu.edu/rice>