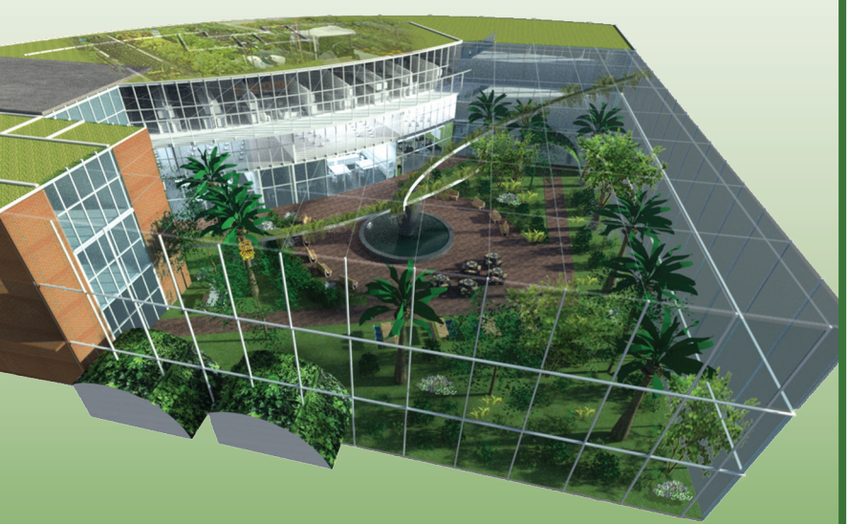
Imagine...

We have begun to discuss a new building to house our department's teaching and research missions. Here's an image of what such a space could look like. If you are interested in learning more about our plans for the building or would like more information on ways you can help, please contact the College of Liberal Arts and Sciences Office of Development and Alumni Affairs at (352) 294-1971 or by email: rmarsh@ufl.edu.



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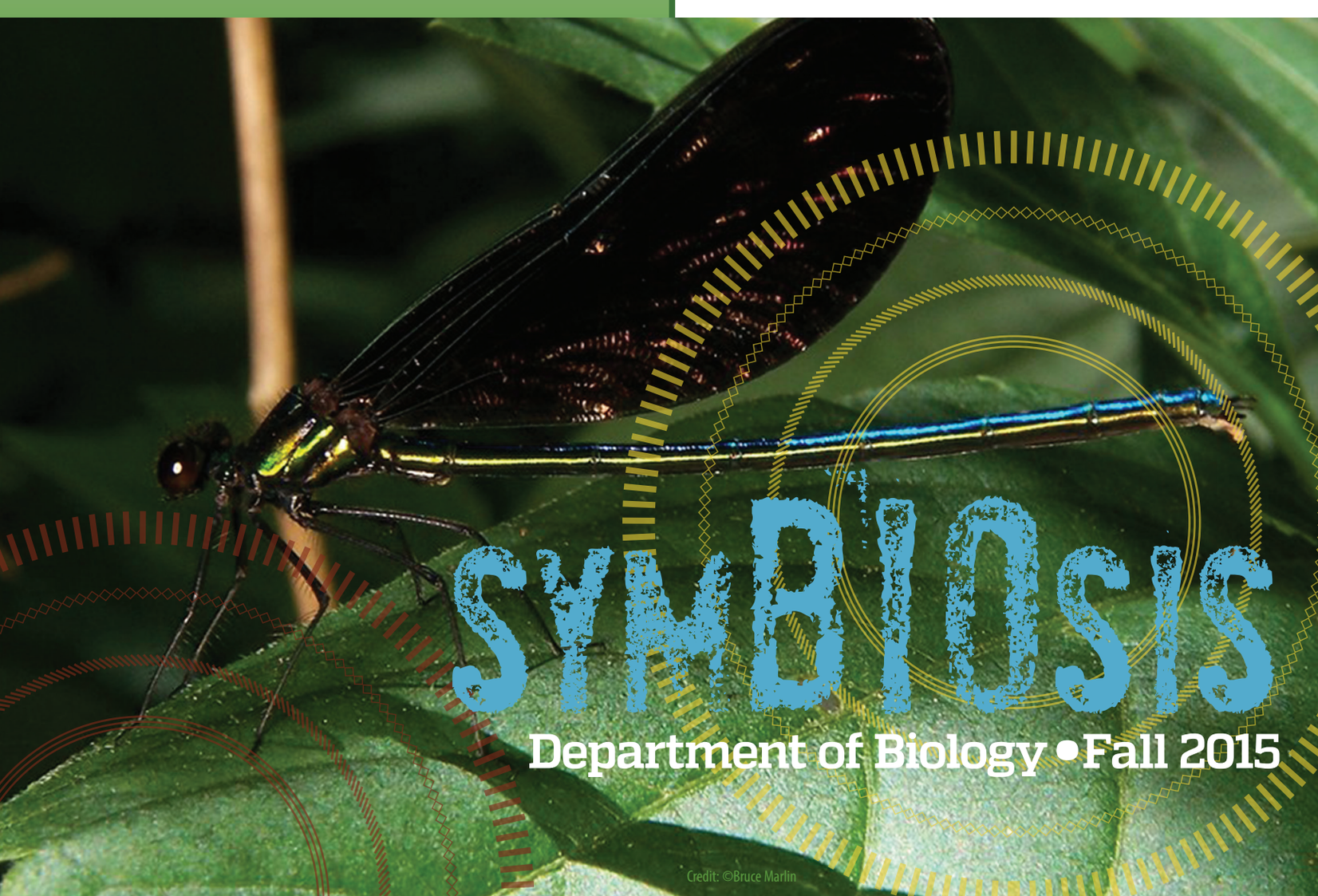

Research Highlights

This issue of Symbiosis provides updates about the research of some of our emeritus faculty and undergraduate students.

Retirement for some people means the opportunity to change completely what they do but for some of our emeritus faculty, it seems to have freed them to do more of what they love, explore our natural world.

Dr. Jane Brockmann

Since Jane Brockmann retired in 2011 she's travelled to some exotic places (e.g. Komodo and Antarctica) but continues her research on horseshoe crabs, a species that has remained pretty much unchanged for 150 million years. Jane's focus is on the unusual reproductive behavior of these fascinating beasts at UF's Seahorse Key facility in the Gulf of Mexico. Every breeding season finds Jane at Seahorse studying some aspect of their behavior, most recently mate choice. She also works with science educators around Florida to develop spawning surveys and tagging programs for horseshoe crabs in their areas. Since she started studying horseshoe crabs in 1989, Jane has published on their mating behavior and mate-finding cues, genetics and the differences among populations, nest-site selection, multiple mating and the alternative reproductive tactics of males and females. Jane also participates in the Green Eggs & Sand Workshops held every year in Georgia and Delaware, which teach a curriculum on horseshoe crabs to teachers. This summer Jane attended the quadrennial international conference on the science and conservation of horseshoe crabs in Japan. In addition to horseshoe crab biology, Jane and her students have studied creatures as varied as insects (wasps, damselflies, beetles), spiders, pelicans, and black buck.

Dr. David Evans

Have a question about fish physiology? David Evans likely has the answer or knows the world expert on the topic. Over his 50-year research career, David studied over 20 species of fish and published 134 scientific articles and chapters and 174 abstracts and reports on salt and water regulation. David also edited *The Physiology of Fishes* (4 editions) and *Osmotic and Ionic Regulation, Cells and Animals.* Every summer for the past 38 years found David conducting research at the Mount Desert Island Biological Laboratory (MDIBL) in Maine. Since 1898, this non-profit research institute has drawn national and international experts together to study various aspects of the physiology and development of marine animals. Since retirement, David has continued to edit his series on fish physiology and has just completed a book describing the history of the MDIBL, to be published by Springer as part of the American Physiological Society's "Perspectives in Physiology" series. He is currently working on the International Shark Attack File as a Research Associate in the Florida Museum of Natural History's Ichthyology Division.

Dr. Jack Ewel

Jack Ewel joined the UF faculty in 1971 and graduated to emeritus status in 2005, following a sojourn in Hawaii (1994-2005) when he ran the Institute of Pacific Islands Forestry for the U.S. Forest Service. Now in retirement, Jack still does some service (e.g., he sits on the Science, Technology & Education Advisory Committee of NEON), but has more time for his long-term research on ecosystem functioning in Costa Rica. The field portion of that mega-experiment has wrapped up but Jack in still very much immersed in the 98 datasets that he and numerous graduate students, post-doctoral associates, and technicians accumulated over the 13-year run of this project. One recent publication demonstrated for the first time that the superior performance of communities composed of multiple tree species increases in comparison with monocultures over time. In recognition for his life's work in tropical forests, Jack was elected as an Honorary Fellow of the Association for Tropical Biology & Conservation this past spring. This is the highest honor conveyed by the society, and recognizes long, sustained service to tropical biology. All that and still time for the pecan orchard, tree plantations, and natural forest that he owns and operates along with his wife, Katherine Ewel, a Ph.D. graduate of this department, who is professor emerita in UF's School of Forest Resources and Conservation.

Dr. Brian McNab

Name an exotic beast and Brian McNab's name is probably linked to insights about its physiology, behavior, and evolution. Since joining the UF faculty in 1961, Brian's lab has hosted climbing kangaroos, naked mole rats, tigers, sloth bears, sloths, and echidnas. He's famous, or infamous, for having revealed the erroneous basis of analyzing the quantitative characters of species by phylogenetic methods, which is described in his second book, *Extreme Measures: The Ecological Energetics of Birds and Mammals* (2012), University of Chicago Press. His recent publications focus on the behavioral and ecological basis for variation in the energy expenditure of endotherms. Now he principally works on the energetics of birds and bats endemic to oceanic islands, trying to understand the degree to which they diminished energy expenditure in the absence of eutherian predators and its consequences for survival upon the arrival of humans and their attendant predators. Hopefully, this work will culminate with the publication of a book on the 'economic basis of island biology.'

No need to wait for retirement! Our undergraduate students are also busily creating knowledge.

Among the productive young researchers affiliated with the Department of Biology, **Madi Turcotte** is one of the gems. She has worked in the lab of David Oppenheimer on a novel regulator of the actin cytoskeleton since her freshman year and presented her research at numerous meetings and symposia. Madi will spend the next year at Oxford University attending the MSc program in Integrated Immunology before entering medical school. Her Oxford adventure is funded by a grant from the Phillip and Patricia Frost Philanthropic Foundation.

Two Biology undergraduate students recently received research grants from the Biology Graduate Student Association. **Kaitlyn Quincy**, mentored by Christine Davis, is pursuing an independent research project entitled "Endophyte diversity across Florida habitats" and will now be able to continue her research project and include a molecular component in her research. **Kiersten Rosenbach**, mentored by graduate students Natasha Vitek and Carly Manz, and faculty advisor Jonathan Bloch, is conducting research on the morphology of the teeth of fossil mammals from the Mesozoic and will use her grant to attend the annual Society of Vertebrate Paleontology meeting in Texas. Another Biology student, **William Dodd,** is a University Scholars Fellow this year and a travel award recipient. William, mentored by Keith Choe, studies gene regulation pathways that promote longevity and resistance to environmental stress in a genetic model nematode (*Caenorhabditis elegans*) and will present his work at the inaugural Florida Worm Meeting in Melbourne.

On the inaugural Saturday morning field trip of UF's soon-to-be official Field Exploration and Recreational Natural History (FERNh) Club, undergraduate students and faculty from Biology and other departments visited Flamingo Hammock, the oldest land-trust in the region. There they botanized, collected insects, and observed various efforts at ecosystem restoration. The high point for many participants was the controlled burn. FERNh was founded by Biology undergraduate students and is focused on informal cooperative learning and enjoyment of the outdoors. All students and faculty interested in natural history are welcome to join club meetings and excursions. For more information, contact the club president, Kaitlyn Quincy (kquincy@ufl.edu) or the club's faculty sponsor, Christine Davis (christine.davis@ufl.edu).