



THE BIOLOGUE

Department of Biology 2006

Notes from New Chair Dr. Kathryn Tosney

Last year four hurricanes hit Florida, but largely bypassed UM. This fall two hurricanes targeted us directly: Katrina and Wilma caressed us with their not-so-gentle breezes. Although we escaped the major trauma that devastated New Orleans, we did lose nearly 50% of our trees in the Gifford Arboretum. Many plants were saved by the rapid responses from UM Facilities and Biology faculty and students, who turned out *en masse* to groom the Arboretum, even before power was restored to their own homes. We lost many days of class time, but final exams were cancelled, a compensation that students wildly applauded. By Spring term, classes were back to normal, and the Arboretum was the object of abundant restorative care ranging from Arboretum Committee attention to **Dr. Carol Horvitz**' successful bid for two government grants that will fund a systematic plan of plant replacement. Moreover, a major gift this year from **Larry Rutherford** finances the **Lisa D. Anness Graduate Fellows Program**, in which exceptional student-scholars will be co-mentored by our Biology Department and Fairchild Tropical Botanical Garden. This intellectual partnership increases the collaborative research synergy between Biology and Fairchild, and assures an ideal environment for training graduate students to assume roles that will shape future research in tropical plant sciences.

As the new chair of Biology, I was recruited from The University of Michigan,



Dr. Kathryn Tosney

despite fears that bringing a chair from outside Florida would attract hurricanes. This seemingly peculiar concern was founded on solid data: the previous recruited chair, **Dr. Michael Gaines**, moved to Miami a week before Andrew leveled not only his own new home but many other innocent buildings. Fears were fed when I came to Miami for house-hunting just before Katrina, and closed on a house only five days before Wilma. Luckily however, my house and UM remain intact. Our 2006 storm season may continue to feed notions that new chairpersons invite tempests but, as a biologist, I prefer to invoke global warming.

Hurricanes aside, a metaphorical wind of change is sweeping through UM and the Biology Department, as exemplified by many new faces, from administrators to faculty. We have a new chair, a new Dean (**Michael Halleran**, recruited from the

University of Washington in Seattle), and a new Provost (**Tom LeBlanc**, recruited from the University of Rochester in New York). Two outstanding new faculty have joined Biology. **Dr. Matt Potts**, who earned his Ph.D. from Harvard, is a mathematical ecologist with a joint appointment in the new Center for Environmental Studies and Policy. Matt studies tropical trees, and does much of his field work in Malaysia. This spring term he submitted a multi-million dollar grant. **Dr. Alex Wilson**, who earned her Ph.D. at Australia's Macquarie University, will be joining us this summer, when her laboratory begins renovation. Alex studies the molecular genetics of the evolution and maintenance of sexual reproduction using a powerful system: aphids, whose reproduction strategies represent a broad continuum between sexual and asexual modes.

Most exciting, biology is beginning a program of significant expansion into cellular and molecular areas. This expansion increases our numbers, and alters the very building around us. First, we have been authorized to hire five new faculty over the next four years. Searches focus on Developmental Biology, particularly Neuroscience. This focus will build strong bridges to the robust Neuroscience programs on campus, and augment our outstanding Neuroscience undergraduate major. We target researchers using model genetic organisms such as fruit flies and zebrafish. These organisms are small, easily housed, easily manipulated, and amenable to study

continued on Page 2



Chair's Notes

with combined genetic, genomic, biochemical, physiological, molecular and cellular methods; each hosts a world of scientific approaches, inviting interdisciplinary collaborations, and making themselves amenable for use in undergraduate instruction. Their research importance is exemplified by the award of three of the last four Nobel Prizes in Physiology and Medicine, and the 2003 Nobel Prize in Chemistry, to scientists who focused on model organisms other than mammals. Focusing on model genetic systems distinguishes us from the medical school, and places us in the powerful position of forwarding basic molecular research.

Second, to foster our expansion and to promote an integrated departmental culture, the Cox Science Center is undergoing significant physical changes. Laboratories are being renovated each summer for incoming faculty. Moreover, and most important for our community, we are developing core facilities in which researchers, postdocs, graduate students and undergraduates can all share technical resources. This sharing in turn fosters interactions, promotes collaborations, and assures graduate and undergraduate access to the equipment resources needed for modern biological research. Core facilities are positive features for soliciting grant funds, recruiting faculty and students, and fostering new hires. Two core facilities are already up and running: a mass spectrophotometry core and a molecular core that is staffed by Ph.D. level lab manager/instructor, **Dr. Matt Osentoski**. Three new facilities are now in the works, a histology core for preparing tissues, a tissue culture core for growing and examining live cells and neurons, and a new imaging core with

Faculty News and Notes

state-of-the-art electron microscopes and a confocal microscope for viewing everything from fine ultrastructure to the cellular localization of molecules.

The department has an excellent reputation for attracting resources for teaching, and this entrepreneurship continues. Grants have recently been awarded to us by the Howard Hughes Medical Institute to support innovative inquiry-based teaching, and to the LICOR Corporation to obtain DNA analysis equipment for six undergraduate courses. College resources are funding active learning initiatives and technology in the classroom.

So, watch this space next year, to find where the winds of change have propelled us.

Kathryn Tosney, Chair of Biology

Welcome Distinguished Visiting Professor, Dr. J. Whitfield Gibbons

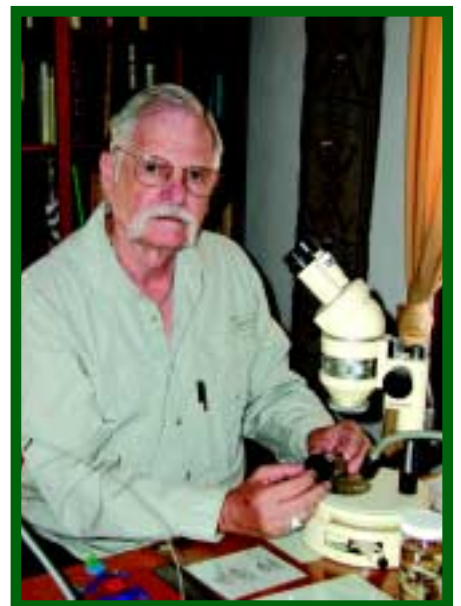
Professor J. Whitfield Gibbons of the University of Georgia was this year's Distinguished Visiting Professor. Professor Gibbons, or "Whit" as he prefers to be called, serves as a senior research scientist at the University of Georgia's Savannah River Ecology Laboratory and is a world-renowned ecologist, herpetologist, and conservation biologist. Whit visited the Biology Department for a two-week period in November of 2005 and gave a series of six lectures on the ecology and conservation of reptiles and amphibians. He also presented a departmental seminar entitled "How productive can an isolated wetland be? A tale of remarkable Amphibian biomass and abundance."



Dr. J. Whitfield Gibbons

Faculty Notes

Though our *professors emeriti* may be off to exciting new adventures, we never forget them. Last summer (2005), Professor Emeritus **Jay M. Savage** was awarded the prestigious Outstanding Service Award for Contributions to the Biological Sciences by the American Institute of Biological Sciences, and honored at an event in Washington, D.C. Among other items in the citation was



Professor Emeritus Jay M. Savage continues his life's work on amphibians and reptiles



Faculty News and Notes

recognition of his role in founding the Organization for Tropical Studies (OTS) and his service to that leader in tropical education, research, and responsible use of natural resources.

Jay is still actively writing papers, and we hope to hear of new publications soon. He has become more involved in the University of Southern California (where he was a professor before he came to the University of Miami in 1982) honor society, Skull and Dagger, which finally began to honor women of Troy in the 1990's.

Jay now has 3 grandchildren, aged 7 years, 3 years, and 2 months. As Jay notes, "Einstein was right: the universe is expanding and time is flying by faster and faster!"

Dr. Daniel Wang, Lecturer in Biology, won the University of Miami 2005 Excellence in Teaching Award on May 2, 2005. This prestigious award honors only three faculty from the entire university each year. We are very proud of Daniel!

Dr. Barbara Whitlock won the Biology Department's Outstanding Biology Educator Award for the 2005/06 academic year. Congratulations to Barbara!

A New Face in the Forest

Matthew D. Potts, Ph.D.

In August 2005, I joined the Department of Biology faculty as an assistant professor with a joint appointment at UM's Center for Ecosystem Science and Policy. My research is focused on the spatial aspects of resource management and epidemiology. Key study areas include the sustainable management



Matthew Potts and Mark, his brother, hiking Mount Mulu in Sarawak, Malaysia

of tropical forests and the control of vector-borne infectious diseases in urban environments.

My research on sustainable forestry management is centered on a Global Environmental Facility (GEF), International Tropical Timber Organization (ITTO), and government of Malaysia funded project, entitled "Conservation of Biological Diversity Through Improved Forest Planning Tools". The main focus of the project is the development of spatially explicit tropical forest growth models that integrate the economics and ecology of management decisions. Although many different forest models exist, none are currently able to jointly predict timber yield and biodiversity conservation over time. The outputs from this new approach will provide policy makers and economic planners in tropical countries with the tools and knowledge they need to make more economically- and ecologically-efficient decisions. In addition, I hope the research will lead to greater awareness and protection of rapidly vanishing biodiversity in tropical forests. This project is being

done in collaboration with researchers at the Forest Research Institute Malaysia (FRIM), **Professor Jeffery Vincent** (University of California, San Diego), **William Bossert**, **Peter Ashton**, **Joshua Plotkin** (Harvard University) and **Stuart Davies** (Center for Tropical Forest Science).

My research on vector-borne infectious disease is focused on developing a better understanding of the spatial ecology of the Dengue fever mosquito vector, *Aedes aegypti*. The goal of the project is to create a quantitative spatial ecological model of the population dynamics of *Aedes aegypti* to aid in the assessment of Dengue fever risk and the design of control strategies. The project is being conducted in collaboration with my University of Miami colleagues affiliated with the NIH Exploratory Center on vector-borne diseases in urban environments and UM's Global Public Health Program. The project also involves foreign collaborators affiliated with the University of Costa Rica and the University of West Indies.

Prior to coming to Miami, I was a research fellow at the Institute on Global Conflict and Cooperation, University of California, Graduate School of Environmental Earth Science, Hokkaido University, Sapporo, Japan, and the Center of International Development, John F. Kennedy School of Government, Harvard University. I received my BS in pure mathematics from the University of Michigan in 1996 and my Ph.D. in applied mathematics from Harvard University in 2001.





In Memoriam - Taylor Alexander

In Memoriam:

Taylor Alexander - Southern Florida Botanist and Plant Ecologist (1915-2005)

Taylor Alexander was an outstanding botanist and plant ecologist, and an early explorer in Everglades science long before the ecosystem's restoration became an issue. The following text is taken from the second edition of *The Everglades Handbook: Understanding the Ecosystem* (CRC Press, 2005) by **Thomas E. Lodge**, a 1974 Ph.D. graduate of the Biology Department who retained a close friendship with Taylor to the end. Taylor wrote the handbook's introduction entitled, "Recollections," covering his Everglades work beginning in the early 1940s and including his casual observations and academic studies of the ecosystem's deterioration. Tom cited all of his publications in the second edition. Taylor died at South Miami Hospital on November 30, 2005 of complications related to myasthenia gravis. Although he had impaired motor skills and double vision for his last several years, his mind was sharp to the end, his 91st year. He is survived by his two daughters, **Barbara Eve Close** of Orlando and **Birdie A. Bermelin** of South Miami, and three grandchildren, **Robert Taylor Bermelin**, and **Charles and Kathryn Close**.

Taylor R. Alexander was born in Hope, Arkansas on May 27, 1915. He received his A.B. degree with a major in biology from Quachita College, Arkadelphia, Arkansas (1936), his M.S. degree in plant physiology from the University of Chicago (1938), and his Ph.D. in plant physiology and ecology from the



From Left: Tom Lodge, Taylor Alexander and Fred Dayhoff. This picture was taken when the three were working on the second edition of *Understanding the Ecosystem* at Fred's house in the Big Cypress Swamp, March 22, 2002

University of Chicago (1941). He spent his early life working on a small ornamental plant farm until he graduated from high school.

Dr. Alexander was associated with the University of Miami from September 1940 until his retirement in June 1977, as Botanist (1940-47), Professor (1947), and Chairman (1948-1965) of the Department of Botany, and as Professor of Botany (1965-1977) following merger of the botany and zoology departments into the Department of Biology. During World War II, he took temporary leave from the university to train soldiers headed for battle in various areas including health and procedures for poisonous-gas protection. He authored an identification manual for distinguishing friendly aircraft and ships from those of the enemies for soldiers headed to battle. Following retirement from the University of Miami, he worked with the consulting company, Tropical Bioindustries, for several years.

Some of Dr. Alexander's professional associations were: Member of Governor's (Florida) committee on Natural Resources (1967-70), President of Florida Academy of Sciences (1970-71), Advisory Committee to Florida's Endangered Land Purchasing Program under Governor **Claude Kirk**, Florida Big Cypress Oil Well Site Advisory Committee (1971-1984), and Metropolitan Dade County Environmental Quality control Board (1981-1985).

Dr. Alexander's most important contribution to our understanding of the Everglades centered around the effects of various environmental factors, notably fire and hydrology on plant community succession. He authored two books, *Botany* (Golden Press, 1970) and *Ecology* (Golden Press, 1973). *Botany* gained acclaim when Harvard botany graduate students used it in preparing for comprehensive examinations. All of his periodical publications and special reports pertaining to southern Florida are referenced in *The Everglades Handbook: Understanding the Ecosystem* (2nd edition). He published some of the first, detailed descriptions of Florida's plant communities. In 2002 he received Florida Native Plant Society's Mentor Award. Dr. Alexander was one of Florida's outstanding and earliest environmentalists. Until his death, he resided in South Miami in the house he and his late wife, **Edith**, built in 1947. The house was designed by **Marian Manley**, a close friend of **Marjory Stoneman Douglas**.

Thomas E. Lodge, Ph.D.



Ongoing Research: Bahamas Coastal Ecology

Earthwatch

The “Coastal Ecology of The Bahamas” Earthwatch project completed seasonal field work this past summer in revisiting sites around Elizabeth Harbour, Great Exuma, and continuing baseline monitoring of coastal development on Great Guana Cay, Abaco. Lab members lead six teams of Earthwatch volunteers in coastal surveys of native and non-native vegetation, and near shore fish, macro-algae and seagrass, coral, intertidal mollusk, and benthic invertebrate communities. We also hosted two undergraduate honors student researchers, **Emily Wright** and **Chad Kaplan**.



Kate Semon (left) and Kathleen Sealey install artificial reefs

Newly-introduced components to our characterization of Bahamian coastlines included initiation of coral transplant experiments, and a pilot fish trapping and tagging study at Great Guana Cay, Abaco. Coral colonies were rescued from a boat wreck slated for removal from Baker’s Bay, and cemented to eight artificial reef structures. Health and growth of the coral colonies is being



Sherry Constantine and Kathleen Sealey tag a fish

monitored while development continues nearby, and we are thrilled to report on substantial colony growth observations and recruitment of benthic macro-invertebrate and fish species to the artificial reef structures.

Our Expedition Project was recently selected as a pilot for Earthwatch’s “Family Teams,” and will host approximately four families with children over 10 years of age for ten days on Great Exuma in June. We will also return to Great Guana Cay in July to continue our coastal monitoring as development continues inland, and we will begin new projects incorporating evaluation of stable isotope signatures sampled from coastal groundwater and near shore marine species. More information on our projects may be obtained at <http://henge.bio.miami.edu/coastalecology>. The “Coastal Ecology of The Bahamas” Earthwatch Expedition Project will enter its fifth field season this summer.

Lab Associate News

Dr. Kathleen Sullivan-Sealey, Principal Investigator, continues her ser-

vice as Biological Editor to *Coral Reefs*, the journal of the International Society for Reef Studies. In addition to her professorial duties in the Department of Biology, **Dr. Sealey** has spent the past school year developing Bachelor’s degree programs as Dean of the School of Sciences and Technology at College of The Bahamas. Lab members **Sherry Constantine** and **Nicolle Cushion** (both 2nd year doctoral students) were selected to attend a reef fish bioenergetics workshop held in Discovery Bay, Jamaica this past November with **Jim Peterson** of the USGS. Sherry, a Fulbright scholar, will begin her dissertation work on the effect of biotic and abiotic characteristics of tropical marine habitats on fish growth in Antigua shortly. Nicolle is also preparing to begin her studies in reproductive activity of groupers in The Bahamas. Undergraduate **Emily Wright** is studying abroad in Australia for Spring semester 2005, and **Chad Kaplan** and **Blaise Carpenter** have taken on the arduous task of analyzing sediment samples acquired from bimonthly monitoring visits to Great Guana Cay. **Kate Semon**, fourth year doctoral student, plans to defend her thesis on life history strategies and population dynamics of stony corals next year. Recent lab alumnus **Dr. Vanessa Nero** is currently employed as a Fisheries Biologist with NOAA in Beaufort, North Carolina, and will be married next September to honorary lab chemistry advisor **Eric McDonough**.

Kate Semon



News from the John C. Gifford Arboretum

The Gifford Arboretum Lives!

The academic year 2005-2006 will not be remembered as one of the best for the Gifford Arboretum, as it began with two brutal hurricanes that destroyed almost half of the collection. Yet, with over 200 trees and shrubs standing, the arboretum continued to be a valuable teaching resource for our department and others. And with new educational initiatives, new funding, and a pending renovation, it is poised to re-emerge, perhaps even better than before.

Summer is usually a quiet time on UM's campus and in the arboretum, and summer 2005 was no exception. But the carefree nature of those summer days gave no hint of the destruction that summer's end would bring. Katrina, and then Wilma, reduced much of our urban forest to lumber, wide-open muddy spaces and bare branches. But even as we grieved the hundreds of lost trees, encouraging signs were everywhere. Many of the surviving trees, freed from competing neighbors, burst into leaf or bloom. Seedlings jumped up everywhere, and graduate student **Carlos Garcia-Robledo**, the arboretum's Aldridge Curator, showed his green thumb by collecting and growing hundreds of seeds from the fallen trees. Many trees we had used in teaching were gone, but we were able to use other trees that we may have overlooked in the past. For example, the tour of "Sacred and Magical Trees" in November (postponed from its usual Halloween eve date) was missing the fallen baobab and kapok, but included for the first time the acacia (from which ancient Jews constructed the Ark of the Covenant) and the pelu (*Khaya senegalensis*), used in Mali to carve mysterious guardian figurines with both male and female attributes.

The biggest educational innovation of the year was the new monthly Arboretum Committee meeting format introduced by Arboretum Chair **Dr. Carol Horvitz** in the fall semester. On the first Wednesday evening of each month, a guest speaker delivered an illustrated talk, open to all, about a timely botanical topic. Highlights included **Georgia Tasker**, garden writer for the Miami Herald, explaining how to prune trees to protect them better from future hurricanes, and grad student **Summer Scobell** expounding on her cutting-edge research into the sexual evolution of cacti. We featured a different plant family each month, with a brief



October 2005: Hurricane Wilma devastates the Gifford Arboretum's living collection
(Photo by Dave Matlaga)

illustrated talk, live specimens from the arboretum, and even snacks provided by the featured trees!

As the Dec. 3 date of annual Arboretum Picnic approached, many people helped the arboretum look its best, under the circumstances. Students from Earth Alert showed up at 8 am on a Saturday morning to help re-create the paths, and UNICCO workers laid fresh new sod. The picnic featured "A Celebration of Tropical Fruit Trees," as well as the usual good food and eclectic mix of botanists, horticulturists, community activists, grad students, and undergrads. Our collection of tropical and subtropical fruit trees mostly survived the hurricanes, so there were actually too many to cover in the tour of "Edible, Medicinal, Useful, and Cool Fruits."

The upbeat spirit of the picnic continued into the New Year, with an all-star lineup of excellent talks in the monthly meetings. **Dr. Barry Tomlinson** of Harvard started things off in February with an exploration of how flowers may have evolved. Next, we were treated to a visit by famed Everglades naturalist **Tom Lodge**, who discussed how the Everglades maintains its biodiversity, and how we humans have disturbed that process—turns out, it's all about the flow! **Dr. David Lee**, our colleague from the FIU Biology Department, gave a fascinating talk entitled "How plants get the blues," about the molecular mechanisms by which flowers and leaves are (or seem to be) brightly colored.



News from the John C. Gifford Arboretum

The final Wednesday night presentation of the semester featured the aesthetic side of plants, as local artist **Benja Morgenstern** described (and showed us) how she makes “Sculptural baskets crafted from Florida native grape vine” that sell for upwards of \$2000 apiece, while aiding in the conservation of native hammock forests.

A high point of the year was the Arboretum Lecture on April 20. After a tour of the arboretum enjoyed by about 30 UM neighbors, **Dr. Douglas Larson** Professor in the Department of Botany at the University of Guelph (Ontario, Canada) led us on a fascinating exploration of human origins in “Cliffs, caves, and concrete canyons: Ancient forests and modern people finding refuge.” Dr. Larson has discovered that most of the plants and animals with which we associate, from the majority of our crop plants to our domestic animals and even to our pests, seem to have originated in rocky outcroppings near caves, on the edges of forests. He hypothesizes that this is also our original habitat, which we still seek to recreate in our cities today. In the endless back-and-forth of dog vs. cat lovers, the cats won this round: Larson pegs their role as early protectors of our ancestors’ food from rodents, while dogs had the lowlier job of devouring caveman excrement. The talk was well attended and vigorously discussed over wine, cheese, and fruit at the reception that followed.



May 2005: Surviving plants in the arboretum are recovering, but the wide open spaces created by the hurricanes need replacement specimens and landscaping

The arboretum continues to find new uses and attract new friends. **Dr. Richard Weisskoff** brought his International Studies 375 class to the arboretum for two tours in October about “Trees, development, and conservation.” Here, students learned about the complexities of tropical conservation and the enormous economic potential of tropical trees. For example, the honge (hon-gee) or *Pongamia pinnata* tree may one day yield all of India’s biodiesel fuel—without contributing to global warming. In the spring semester, the arboretum became the laboratory for a new course taught by Dr. Carol Horvitz, on the identification and taxonomy of tropical trees. A mixture of grad students and undergrads explored the arboretum together each Friday morning and learned to identify dozens of trees. We will continue to expand the use of arboretum for diverse purposes such as alumni events, teacher training, and of course biological research and teaching.

A watershed moment in the recovery of the arboretum came this spring, as two grant proposals written by Dr. Horvitz to the Institute of Museum and Library Services were fully funded. These grants will support a detailed survey of the arboretum, a workshop on how to prepare better for future hurricanes, a landscape master plan for the renovation of the arboretum, and the creation of new educational materials and programs. In addition, the College of Arts and Sciences announced that it would support a new professorship for a Director of Botanical Collections (though funds still need to be raised for this).

Yes, your Gifford Arboretum lives! Please visit the arboretum often and enjoy our activities. Check out the website at <http://www.bio.miami.edu/arboretum/> for upcoming events and for more information.

John Cozza

More information about Gifford Arboretum activities can be found at <http://www.bio.miami.edu/arboretum/> and a copy of this year’s beautiful newsletter, featuring research by undergraduates and other news, can be downloaded at [http://www.bio.miami.edu/arboretum/Newsletter%20\(7\).html](http://www.bio.miami.edu/arboretum/Newsletter%20(7).html)



News from the Dauer Electron Microscopy Lab

Alumni: View Your Class Pictures!

Alums of both the Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM) courses can look at their class pictures (since 1986 for the TEM and 1999 for SEM classes) on the wall in the Dauer Electron Microscopy Laboratory when they come to view the new TEM. Note how we all have changed (for the better!) during the intervening years.

Voila! EBay!

Brain Cichocki (TEM class of '05/ SEM class of '06) donated to the laboratory a knife breaker (replacement value = \$4K) that he found on EBay for \$100.00. It works perfectly and serves as a backup for our 25 year old breaker. He also donated a Sorvall ultramicrotome (MT 2B, replacement cost, \$35K), also found on EBay. It's in rough condition, though it can be rejuvenated with service. But certain parts (worth \$1K each) have replaced worn out ones on our microtomes. Brian's donations continue a tradition of generosity towards the lab from its former students. These include the following:

Dr. Edward Dauer (TEM class of '97/SEM class of '99) provided money to buy the Jeol 5600LV Scanning Electron Microscope, sputter coater, and critical point drier as well as an Olympus (BX60), research grade, compound light microscope with digital image capture.

Mr. Raj Nayyar (TEM class of 96) provided a video camera and monitor for the American Optical compound light microscope which is used by students in both the SEM and TEM courses.

Dr. Gangu (whose daughter, **Ameeta Gangu**, TEM class of '91) donated a Sorvall MT 2B ultramicrotome (\$35K replacement value) before he left Miami for another job. We now have, therefore, 2 microtomes for the TEM class and thus no bottleneck for students or faculty in this area.

By the way—I am trying to find a backup for our (over-used) sputter coater, which is critical for SEM. Keep your eyes on EBay!

Electron Microscopy in the First Year Laboratory:

The Howard Hughes Medical Institute (HHMI) has funded the construction of new first year laboratories for inquiry-based instruction. For the second consecutive spring semester we have provided four problems based upon published TEM research. While the students work on the problems—convert

ing negatives to digital format with scanners and analyzing these images using Image J and Adobe Photoshop—they dissect and fix the experimental organism [*Aplysia californica*] while getting in-depth exposure to the techniques used in TEM, culminating in taking pictures with the microscope.

A New Transmission Electron Microscope:

The Phillips 300 TEM, installed one month before Hurricane Andrew struck southern Florida in 1992, is dying. (We bought it used and it's now over 30 years old.) Several of our faculty is in dire need of a functioning, modern microscope to further their research. Funds from the University administration, as well as from the Howard Hughes Medical Institute, will enable us to purchase a new 'scope (at a cost of \$300 to 450K) that will have digital image capture and two flat screens for students. This will eliminate the film and chemicals of the old analog technology and allow more students real time observation of what is on the main screen, which is ordinarily seen only by the operator. We hope the new 'scope will be in place by late 2006. Please feel welcome to stop by and see it!

Recent Publications from the Dauer Laboratory:

- Kannan, V.B., C. Demetzos, J. Prince, K. Dimas, M. Cladaras, Z. Han, J.H. Wyche and P. Pantaziz. 2005. Induction of apoptosis in human colon cancer HCT116 cells treated with an extract of the plant product, *chois mastic gum*. *In Vivo* 19:93-102.
- Prince, J. S. 2003. A presumptive alphavirus in the gastropod mollusc, *Aplysia californica*. *Bulletin of Marine Science* 73(3):673-677.
- Prince, J.S. and P.M. Johnson (TEM class of '91 and TA in '92). In press. Ultrastructural comparison of sea hare ink glands suggests cellular sites of anti-predator protein production and algal pigment processing. *Journal of Molluscan Studies*.
- Prince, J.S. and C.D. Trowbridge. 2004. Reproduction in the green macroalga *Codium* (Chlorophyta): characterization of gametes. *Botanica Marina* 47:461-470.
- Robinson, M.P. (TEM class of 99) and Prince, J.S. 2003. Morphology of the sperm of two wrasses, *Thalassoma bifasciatum* and *Lachnolaimus maximus* (Labridae, Perciformes). *Bulletin of Marine Science* 72 (1): 247-252.

Dr. Jeffrey S. Prince



Graduate Program

Graduate Student Research Awards

Rindy Anderson presented a poster on the form and function of soft song in the Song Sparrow at the 2005 UM Research & Creativity Forum, a university-wide symposium where both graduate and undergraduate students present research and other work. Posters are judged by university faculty from across many departments. Rindy won first place in the poster competition (Biology division). Congratulations to Rindy!



Rindy Anderson explains her poster on soft song in Song Sparrows to the Research and Creativity forum judges. Her work won first prize in its division.

The Fellowships and Awards Committee selected the paper entitled “Seasonal Movement Patterns of Pickerel Frogs (*Rana palustris*) in an Ozark Cave and Trophic Implications Supported by Stable Isotope Evidence,” authored by our own graduate student **Dante Fenolio**, G. O. Graening, and J. F. Stout as Outstanding Graduate Student Paper for AY 04-05. Dante also was awarded a grant for \$10,600 by the Javitch Foundation for investigation of Texas subterranean *Eurycea*, a \$3700 grant from the Amazon Conservation Association to study the effects of exposure to airborne pollutants in arboreal frog larvae of the neotropics, and won the Josef Laszlo Memorial Award at the International Herpetological Symposium.

Erin Kuprewicz received a \$3,000 Research Grant from the Organization for Tropical Studies for her dissertation work on seasonal effects of food availability on the hoarding behav-

ior, seed dispersal efficacy, and population dynamics of the Central American agouti (*Dasyprocta punctata*).

David Matlaga was awarded an Organization for Tropical Studies (OTS) Grant by the OTS in May, 2005. He will use the \$1400 to determine the extent of physiological integration between *Calathea marantifolia* parent plants and clonal propagules. David also was awarded the Heliconia Society International Award for Botanical and Horticultural Research Projects on the Zingiberales in August 2005. The \$500 award will be used to investigate the trade-off between sexual and asexual reproduction in *Calathea marantifolia*. If that’s not enough, David also was awarded \$1200 by the Center for Latin American Studies to investigate the demography of *Calathea marantifolia*. Look out, *Calathea*. David is on your trail. You can runner, but you can’t hide.

Hugo Romero-Saltos’ Ph.D. research on water and nutrient cycling by lianas in Amazonian Ecuador is now being supported by a Young Scientists Award from UNESCO’s Man and Biosphere Program, a research grant from the Center for Tropical Forest Science, Smithsonian Institution and by a Tropical Biology Fellowship from the University of Miami Biology Department. Hugo is on site in Ecuador completing his work.

New Graduate Students

Vladimir Dinets

Moscow Technical University (M.S.)

Advisor: Dr. Steven Green

Patrick Ellsworth

University of Wyoming (M.S.)

Advisor: Dr. Leonel Sternberg

Eric Manzane

Universidad de Panama (B.S.)

Advisor: Dr. Guillermo Goldstein

Thaddeus McRae

Cornerstone University, Grand Rapids, Michigan (B.S.)

Advisor: Dr. Steven Green

Bob Muscarella

Lewis and Clark College, Portland, Oregon (B.A.)

Advisor: Dr. Theodore Fleming

Xin Wang

Sichuan University, China (B.S.)

Advisor: Dr. Leonel Sternberg

Yongjiang Zhang

Sichuan University, China (B.S.)

Advisor: Dr. Guillermo Goldstein



Our Alumni Make Us Proud

John Behler (B.S., 1966) recently celebrated his 35th year at the Wildlife Conservation Society, where he heads the Department of Herpetology. His latest book, *“Frogs, a Chorus of Colors”*, co-authored by his wife, Deb, was published in August 2005. Since 2000, he has completed amphibian and reptile surveys in eleven northeastern parks for the National Park Service.

Jason Campagna (B.S., 1991) is currently living in beautiful Santa Barbara, California. All the sun, but none of the hurricanes, of sunny southern Florida!



Native Firebush (*Hamelia patens*) from the Gifford Arboretum

Detra Lee Croke (B.S., 2002) welcomed her first child into the world this past summer (2005). She was married on November 15, 2003, and is now finishing her Master’s Degree in Business Administration with Real Estate concentration at Florida Atlantic University.

Gina D’Amato (B.S., 1994; M.D., 1998) is currently working at the University of South Florida’s H. Lee Moffitt Cancer Center and Research Institute, where she is Assistant Professor in the Hematology/Oncology Sarcoma Program. She is engaged in both laboratory research and clinical investigations. She presented data at the meetings of the American Society of Clinical Oncology (ASCO) in 2004, and

was a moderator for ASCO in 2005. She recently presented her research at the European Sarcoma Conference in Trieste, Italy.

Two of our Ph.D. alumni – married shortly before they left Miami to pursue academic careers in Arkansas – are making a big difference to science education in the Bible Belt. **Dr. Ann Paterson** (Ph.D., 1999) and **Dr. Stephen McMann** (Ph.D., 1998) are on the faculty of Williams Baptist College in Walnut Ridge, Arkansas, where both recently achieved tenure. Ann is now Chair of, and Steve is Assistant Professor in the Department of Natural Sciences. The couple recently welcomed their first child, daughter **Kiri**.

The family still includes Ann and Steve’s numerous pet reptiles and amphibians, as well as the passing rescued wildlife that they rehabilitate. They seem to rescue a lot of opossums these days, but Ann believes that’s because no one else wants to rescue them.

While one might not expect an institution such as Williams Baptist College to be particularly hospitable towards evolutionary biologists, Ann and Steve have been delighted to learn that their Department is progressive and open to modern evolutionary theory. They have found life in the Heartland of America to be both challenging and rewarding, and they enjoy both their colleagues and their students.

Team McMann-Paterson regularly visits Miami over the summer to continue research on the mating behaviors of *Anolis* lizards, and this summer is no exception. It will be wonderful to welcome our alumni colleagues back for another productive season. And although Steve is an avid storm watcher, we hope he’ll refrain from trying to attract any major hurricanes to the area while he’s here.

Meryl Shriver-Rice (B.A., 2005) worked with our current graduate student **John Cozza**, on his begonia research. Meryl is now starting a Master’s program in Mediterranean Archaeology at the University of Nottingham, England. She will be focusing on the paleoecology of past human societies, with an emphasis on paleoentomology, zooarchaeology, and paleoethnobotany. We always knew begonias could lead to the heavier stuff.

Barbara Weinstein Webb (B.S., 1965) received her M.S. degree from the University of Florida in 1991, and her Ph.D. in neuroscience, also from the University of Florida, in 1995. Now retired and living in Montana, she owns a Bed and Breakfast with Overnight Stabling, Mill Creek Lodging, Inc, in southwestern Montana.



Golden Dewdrop (*Duranta erecta*) from the Gifford Arboretum



Departmental Seminars, Fall 2005 - Spring 2006

Fall 2005

- ◆ **Dr. Amit Singh**, Baylor College of Medicine, “*Drosophila eye as a model to study patterning, survival and genetic disorders.*”
- ◆ **Dr. Gregory Macleod**, University of Arizona, Tucson AZ, “*Dissecting presynaptic Calcium regulation in the Drosophila genetic model system.*”
- ◆ **Dr. Mark Masino**, Cornell University. “*Dissecting spinal premotor circuits by combining genetic, optical and electrophysiological approaches.*”
- ◆ **Dr. Susan Chapman**, University of Utah. “*The endoderm gave me my GPS coordinates: Inductive tissue interactions pattern regional identity in the chick neuroectoderm.*”
- ◆ **Dr. Daniel Szeto**, University of Washington. “*Development of body musculature in zebrafish.*”
- ◆ **Dr. Tanja Godenschwege**, University of Massachusetts, Amherst. “*Complex questions - Simple circuit: Semaphorins and LI-type proteins in synaptogenesis and neurological disorders.*”
- ◆ **Dr. Robert Heath**, USDA/ARS Subtropical Horticulture Research Station. “*Interdiction of exotic insects that threaten US agriculture: chemical ecology.*”
- ◆ **Dr. Jon Aars**, Norwegian Polar Institute. “*Polar bears and ecological challenges.*”
- ◆ **Dr. J. Whitfield Gibbons**, University of Georgia and Savannah River Ecology Laboratory. “*How productive can an isolated wetland be? A tale of remarkable amphibian biomass and abundance.*”
- ◆ **Dr. Douglas Soltis**, University of Florida. “*Darwin’s abominable mystery: genomic and genetic insights into the origin of flowering plants.*”
- ◆ **Dr. Guillermo Goldstein**, University of Miami. “*Homeostasis in savanna plants: coping when times are tough.*”

Spring 2006

- ◆ **Dr. H. Robert Horvitz**, Massachusetts Institute of Technology. “*Genetic control of programmed cell death in C. elegans.*”
- ◆ **Dr. Matthew Osentoski**, University of Miami. “*Invasive swamp eels in Florida: Genetic lessons and insights.*”
- ◆ **Dr. Dennis Grab**, Johns Hopkins University School of Medicine. “*Taking a trip across the human blood-brain barrier and what to do when we get there.*”
- ◆ **Dr. Michelle Dudash**, University of Maryland. “*The role of inbreeding and phenotypic plasticity in population persistence in native and novel habitats of Mimulus guttatus (monkey flower).*”
- ◆ **Dr. Dean Williams**, University of Miami. “*Introduction history and patterns of genetic diversity in exotic populations of Brazilian peppertree.*”
- ◆ **Dr. Akiko Satake**, Department of Ecology and Evolutionary Biology, Princeton University. “*Coupled ecological and social dynamics in a forested landscape: an agent-based model.*”
- ◆ **Dr. Alexandra Worden**, Rosenstiel School of Marine and Atmospheric Science, University of Miami. “*Ecology and diversity of marine picophytoeukaryotes.*”





Departmental Honors and Awards in 2005

Faculty Awards

Outstanding Faculty, University of Miami: Daniel Wang

Outstanding Biology Educator: Barbara Whitlock

Graduate Student Awards

Best Graduate Student Research Paper: Dante Fenolio

Outstanding Teaching Assistant, Department of Biology: John Cozza

Outstanding Teaching Assistant, College of Arts & Sciences: Jennifer Ciaccio

University of Miami Research and Creativity Forum Poster, First Place: Rindy Anderson

Undergraduate Student Awards

Outstanding Biology Senior: Luis Duarte

Outstanding Senior, Beta Beta Beta Biological Honor Society: George Marzouka

Best Honors Thesis Award: Lisa Kamin

Departmental Honors and Awards in 2006

Faculty Awards

Outstanding Biology Educator: David Wilson

Graduate Student Awards

Best Graduate Student Research Paper: Dante Fenolio (again!)

Outstanding Teaching Assistant, Department of Biology: Lisa Ganser and Jane Indorf

Outstanding Teaching Assistant, College of Arts & Sciences: Dante Fenolio and David Matlaga

University of Miami Research and Creativity Forum Poster, First Place: Christy Wolovich

Undergraduate Student Awards

Outstanding Biology Senior: Jack Louro

Outstanding Senior, Beta Beta Beta Biological Honor Society: Lisa DelValle

Best Honors Thesis Award: Jack Louro



2005 Biology Graduates

Biology Majors

Sarah R. Abdelfattah
Arabelle Abellard (BIL/FRE)
Ashkan Afshari
Zeeshan Ahmed
Juan P. Alvarez
Yaneya Armas
Angela M. Ascencio (BIL/PSY)
Abigail G. Ashe
Allison M. Baker
Jennifer Bauza
Michael J. Belsky
Stephanie A. Berg
Abbey N. Berns
Shazmin I. Bhanji
Katherine A. Brezina
Teresa N. Cabezas
Sarah M. Cabral
Leslie Chavez
Siming Chou
Ebony R. Coats
Anna M. Cohen (BIL/EXP)
Victor Cueto
Jacqueline E. Cunname
Katherine M. Cure
Luis A. Dabul
Sonia Daryanani
Christian E. Deane
Trevor J. Derderian
Arjun R. Dhingra
David R. Doeringer
Luis F. Duarte
Elizabeth M. Duenas
Chantal M. Duignan
Jeffrey D. Duncan-Bladon
Patricia C. Esquivel (BIL/SPA)
Margaret Estevez
Naureen Farid
Patricia Florit
Melissa T. Franco (BIL/POL)
Samuel S. Garson
Danielah A. Gautier
Daniel J. Guerra
Vanessa M. Guerra
Laura O. Hamilton
David J. Healey
Christopher L. Igtiben
Ryan M. Ilgenfritz
Arif H. Ishmael (BIL/CHM)

Ronald S. Isom
Melissa Jean-Baptiste (BIL/EXP)
Neha Joshi
Joel Jules
Saba F. Khan
Christina M. Kovacs
Kaye C. Lagdaan
Amanda I Laird (BIL/PSY)
Megan C. Leonard
DeAnna M. Longo
Katherine Machado
Anne L. Maiden
Lindsey H. Malik
Doralyn R. Maya
Sebastien R. Miot
Rishi A. Modh
Langdon G. Morrison
Carlos J. Murillo (BIL/PSYB)
Ahn P. Nguyen
Toshiko Ogawa
Rebecca L. Ohm
Sujinun Ovathanasin
Rekha Pagadala
Hugo A. Pastora
Anand Patel
Arti S. Patel
Tatiana Perez
Daniela J. Perez-Velasco
Dana P. Phillips
Dalia Potosme
Nickolas E. Poulos
Kirah J. Rahill
Kehmisha K. Reid
Liana V. Roa
Matthew M. Rochefort
Alejandro M. Rodriguez
Andria F. Rodriguez
Jorge G. Rodriguez
Maidelin Rodriguez (BIL/SPA)
Suzanne Roggiero (BIL/SEC)
Martin G. Rosenthal
Kathryn J. Russell
Sergio San Jose
Gabriel Santamaria
Nikki E. Schopp
Krista L. Scott
Jigar K. Shah
Seema A. Shah (BIL/PSY)
Meryl Shriver-Rice (BIL/APY)

Sanjeev Sirpal
Sasha E. Turok
Aliza Vazana
Nupur Verma
Fabian D. Von Bergen
Janette A. Wescott

Terrence T. Smith
Marie A. Vasher
Mario J. Velez
Sameer Verma
Justice T. Walker

Marine Science/Biology

Kyle A. Bartow
Melissa B. Dolinsky
Megan E. Fairobent
Lindsay E. Glassman
Lisa M. Kamin
Edward L. Kekoa
Nicole T. Kirchoff
Shefali Lemaire
Katherine M. Moore
John R. O'Connell
Colleen M. Petrik
Angelo M. Rossi
Ashley L. Stephens
Stephen M. Trbovich

Danielle Diaz
Leslie A. Duncan
Danile J. Gangeri
Caitlin M. Julian
Amanda E. Kasper
Amy L. Kingery
Robyn E. Klos
Justin D. Lerner
Matthew A. Nuttall
Alexander M. Osuna
Turner J. Pittkin
Jessica Serrano
Joseph A. Tomoleoni
Tara J. Wohlrahe

Neuroscience Majors

Christian M. Andrade
Melissa A. Bent
Enrique D. Escobar
Kevon B. Hekmatdoost
Marc V. Kaufman
Michael M. Lopez
Justin A. Magid
Jennifer N. McDonald
Alexis D. Ortiz
Michael D. Ricafort
Mark G. Sinclair

Rachel H. Bardowell
Ivan M. Dequesada
Mrinal S. Garg
Karen P. Irani
Samuel N. Lockhart
Lilia C. Lovera
Ursula M. Maldonado
Marcia E. Miranda
Anthony P. Pierro
Napoleon Santos
Vinod Suresh

Psychobiology Majors

Danish A. Ahmad
Nicole M. Christin
Alexandra R. Grace
Andrew S. Mallon
Carlos A. Salgado
Bianca R. Stefan

Brady L. Bradshaw
Theresa M. Dulski
Anik M. Huffman
Gayle Irene I. Mendoza
Andre R. Sanchez
Miguel A. Villalobos

Doctor of Philosophy

Derek Russell Artz
Vanessa Lynn Nero

Terry Ray Krueger
Michael Patrick Robinson



2006 Biology Graduates

Biology Majors

Cynthia Abraham (BIL/PSY)

Cindy Achat

Damiola Akinnifesi

Bibi Ali (BIL/REL)

Edilberto Alvarez

Eric Amaro

Lara Angelo

Adriana Arita

Wendy Ayerdis (BIL/GER)

Omar Baez

Kristina Barreiro

Lorraine Berges(BIL/ENG)

Cynthia Bouchard

James Brodbeck

Jillian Cepeda

Swati Chalavarya

Tracy Chandler

Eric Chavoustie

Brian Cichococki

Lisa Clevenger

Daniel Cohen

Chelsea Comeau

Laura Comeau

Antoinette Cordova (BIL/CHM)

Jessica Cornett

Fred Daues

Cara Davis

Alex Deem

Elizabeth DelValle

Mairo Diolombi (BIL/FRE)

Travis Douglass

Christina Eapen

Timothy Ekhlassi

Kimberly Esham

Brent Fleming

David Garcia

Jocelyn Garcia

Karen Garcia

Megha Garg (BIL/ITA)

Kayla Gertsema

Jackelyn Gouthman

Dory Green

Priyanka Handa

Grisell Hernandez

Mary Hilal

Paula Hinojosa

John Howell

Trenton Hubbard (BIL/SPA)

Macaria Isip

Nikkiah Jaworski (BIL/APY)

Kimberly Juanico

Krista Kanya

Amy Kennedy

Karyn Ledford

Joshua Lennon

Tressa Levenson

Apple Lewis

Brahiam Linares

John Loftus(BIL/CVC)

Javier Lopez

Oscar Lopez

Jack Louro

Lisa Ma

Ashley Marincsin

Crystal Marquez

Ana Marsal (BIL/ELED)

Jazmin Martin

Yela Martinez-Rubio

Alina Mateo

Daniel McBride

Molly McIntyre

Shannon Mendes

Lizzeth Meza

Ellen Mikesh

Allison Murray

Corey Neal

Christine Nelson

Melissa Newman

Anika Nichlany

Rajiv Nijhawan

Christopher Nolidis

Susan O'Brien

Vivian Orizu (BIL/PSY)

Teeranai Ovathanasin (BIL/ENG)

Arjun Parasher (BIL/POL)

Angeli Patel

Deep Patel

Deepa Patel

Nicole Patterson

LeShon Peart

Jasmin Prchal

Alisha Price (BIL/REL)

Vasthie Prudent

Danielle Quesada

Lisa Radkay (BIL/CRI)

Lydia Ramessar

Raj Raturi

Steven Raymond

Katie Reid

Bryce Reiser

Leslie Reyes-Espinosa

Eric Rideman

Giovanna Rodriguez

Ricardo Rodriguez

Matthew Rowan

Susana Salazar (BIL/SPA)

Kay Salinas

Allen Sanchez

Jessica Schilke

Randall Schwartz

Evan Scherer

Marianna Shkolnik

Kelly Spear

Jillian Sullivan

Taunk Pushpak

Melanie Thomas

My Linh Tran

Jennifer Treise

Shana Valliani

Amanda Van Dillewyn

Genevieve Vasquez

Ariel Vega

Kristin Viviani

Richard VonDerHaar

Katherine Williamson

Jason Wilt

Tiffanie Wong

Odessa Woodall (BIL/SPA)

Charlotte Woods-Hill (BIL/REL)



2006 Biology Graduates

Marine Science/Biology

Robin Abramowitz
 Alexandra Brown
 Brianna Capuano
 Rachel Clausin
 Ian Enochs
 Mary Fisher
 Pamli Fraungruber
 Alena Gusic
 James Herlan
 Jason Hilton
 Aaron Jozsef
 Nicole M. Knauer
 Jose Lobon-Dominguez
 Paul McLaughlin
 Adam Obaza
 Kathryn Osborn
 Cassandra Plute
 Zachary Rome
 Skyler Sagrese
 Melanie Schultz
 Christina Senft
 James Strickland
 Kristian Taylor

Marine Science/Biology (cont)

Brendan Turley
 Lauren Wyatt

Neurosciences

Jennifer Alonso
 Adam Basler
 Draupadi Beloved
 Fernando Bermudez
 Candace Biggs
 Brian Bleisner
 Jessica Cornett (NEUB/REL)
 Linda Daniels
 Frances DiFranco
 Kimberly Esham (NEUB/FRE)
 Erica Givens
 Julie Goldstein
 Matthew Irwine
 Krista Joseph
 JLee Katzman
 Krista Kova cs
 Bonita Kosma

Neurosciences (cont)

Reynick Martinez
 Neil Masters
 Carly Moerdyk
 Sheila Nadiminiti
 Kevin O'Brien
 Bryan Olson
 Diego Perilla
 KLarina Portnoy
 Yasser Rodriguez
 Reginal Saint Hilarie
 Yasser Samra
 Nichole Starr
 Alison Tam
 Luis Tuesta
 Maria Zutel

Doctor of Philosophy in Biology

Summer Scobell

The Fund for Biology

Please consider contributing to the following developmental opportunities in the Biology Department.

For further information, contact:

Holly Davis
Director of Development
at (305) 284-4638

or

Dr. Kathryn Tosney
Biology Chair
at (305) 284-3973

- Research Experiences for Undergraduates:** Support for students working in faculty members' research laboratories.
- Scholarships for Minorities:** Scholarships for minorities that are underrepresented in the sciences.
- Faculty Development:** Travel to laboratories, meetings, and workshops to promote excellence in teaching, and acquisition of new research skills.
- Graduate Education:** Graduate student stipends, fellowships, and support to attend outside meetings.
- Outreach Activities:** Programs for elementary, middle school, high school, community college students, and teachers.
- Equipment:** Computer hardware and software for biology courses and equipment for updating teaching laboratories.
- Gifford Arboretum:** Plants for the collection, support for public lectures and publication costs related to annual checklist.
- Earl Rich Scholarship Fund:** A scholarship established for undergraduates in memory of Earl.

