Bill Birkhead honored as Emeritus Professor

Dr. William Birkhead grew up catching fish, snakes and turtles, wrestling alligators and chasing birds.... come to think of it, that is still what he’s doing! Any of you who have had classes with him will understand that every stream must be seized, all snakes must be caught (including the venomous ones) and alligators of a certain size are fair game. Being in the field with Dr. Birkhead is an experience; you never know what you are going to find, see, touch, smell or be asked to be a participant in for the greater good of the class.

Dr. Birkhead was instrumental in the evolution and success of our vibrant international programs in the Biology Department. Bill and I worked together to develop a variety of international ecology courses that expose students to different environments and cultures. Each site was carefully selected based on an intact ecosystem and the biodiversity found in the area. Bill’s diverse background allowed him to guide students in terrestrial as well as aquatic habitats. His passion and drive to see and do everything propelled him through these experiences and in the process wore out students one-third his age!

Bill Birkhead joined the CSU Biology faculty members (then Columbus College) in 1978 as an Assistant Professor in Biology; five years later he was promoted to Associate Professor and then to Professor five years after that. He served the Biology Department as Assistant Chair from 1997-2003. In 2003 he took the position of Department Chair, which he held for the next six years. His knowledge and extensive history at CSU and in the University System of Georgia was vital through the transition years of a new president and vice-president/provost. He was a thoughtful and passionate leader as Department Chair who cared deeply about the faculty members and students in biology, but in reality, he truly hated the paperwork involved with the position. The increasing demands of an administrative appointment took him away from the things that make him tick...catching fish, snakes and turtles, wrestling alligators (although we see less of this now) and chasing birds!

Dr. Birkhead continues to serve the department part-time, where he shares his expertise in our senior electives teaching ornithology, ichthyology, and mammalogy, mentoring student research projects and enjoying every international course available. It appears that order has been restored and he is back doing the things he loves most!

- Julie Ballenger

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Dr. Julie Ballenger - Professor; Dept. Chair
- Joined CSU in 1995 (Ph.D. Miami University 1992)
- Interests: Botany, Plant Taxonomy, Molecular phylogenetics of plants.
- Current Research: Characterization and conservation of wetland plant communities in the Georgia fall line sand hills.

Dr. John Barone - Associate Professor
- Joined CSU in 2003 (Ph.D. University of Utah 1996)
- Interests: Ecology, Biodiversity, Conservation.
- Current Research: Community ecology and distribution of southeastern prairies; ecology of treeholes; structure of ant communities.

Dr. Bill Birkhead - Professor Emeritus
- Joined CSU in 1978 (Ph.D. University of Texas 1968)
- Interests: Vertebrate Biology (esp. natural history).
- Current Research: Long-term study of gopher tortoise burrows; fish host(s) of the purple bankclimber; fish of Fort Benning; vertebrates of Callaway Preserve.

Dr. Kevin Burgess - Assistant Professor
- Joined CSU in 2008 (Ph.D. University of Guelph, Canada 2004)
- Interests: Plant Ecological Genetics, Botany, Conservation Genetics.
- Current Research: Discriminating plant species and population genetics using DNA barcoding.

Dr. John Davis - Associate Professor
- Joined CSU in 2002 (Ph.D. Indiana University - Bloomington 1994)
- Interests: Microbial Biochemistry, Physiology and Genetics of Environmental Microbes.
- Current Research: Pink pigmented facultative methylotrophs; bacteria in pitcher plants; point source of *E. coli* in regional waterways.

Ms. Joy Davis - Administrative Secretary
- Joined CSU in 1983 (BA Columbus College 1980)

Dr. Monica Frazier - Associate Professor
- Joined CSU in 2006 (Ph.D. University of Alabama at Birmingham 2001)
- Interests: Use of novel dietary compounds for the treatment of prostate cancer with an emphasis in bone metastasis.
- Current Research: Drug discovery research involving the use of dietary compounds as chemopreventive or chemotherapeutic agents against prostate cancer.

Dr. Harlan Hendricks - Professor
- Joined CSU in 1997 (Ph.D. Virginia Polytechnic Institute and State University 1993)
- Interests: Arthropod Ecology and Evolution, Insect Systematics.
- Current Research: Comparative toxicity of widow spiders in the Chattahoochee Valley.

Dr. Jeffrey Zuiderveen - Professor
- Joined CSU in 1994 (Ph.D. Univ. of Kentucky 1994)
- Interests: Aquatic Biology, Ecology and Toxicology.
- Current research: Feminization of male bass by pollutants; gerontogene effects on toxic responses.

Dr. Katey Hughes - Associate Professor
- Joined CSU in 2005 (Ph.D. University of Florida 2004)
- Interests: Functional Genomics, Neuroscience, Physiology.
- Current Research: Role of conjugated estrogens in celiac disease and oxidative stress.

Ms. Ely Klar - Lecturer; Laboratory Manager
- Joined CSU in 1996 (M.S. University of Georgia 1986)
- Interests: Anatomy and Physiology, Histology.
- Current Research: Histological assessment of physiological and anatomical change due to environmental impacts.

Dr. Milwood Motley - Associate Professor
- Joined CSU in 2005 (Ph.D. University of Louisville 1983)
- Interests: Medical Microbiology.
- Current Research: Virulence factors of pathogenic fungi; antiviral activity of proteins involved in innate immunity.

Dr. Brian Schwartz - Professor; Assistant Department Chair
- Joined CSU in 1996 (Ph.D. University of Wisconsin-Madison 1992)
- Interests: Genetics and Developmental Biology.
- Current Research: Copper utilization mutants in yeast; sex determination and copper utilization in the fern *Ceratopteris richardii.*

Dr. George Stanton, Professor Emeritus
- Joined CSU in 1969 (Ph.D. University of Maine 1969)
- Interests: Aquatic Ecology; Conservation and Ecology of Crayfish; Aquatic Entomology.
- Current Research: Crayfish ecology; aquatic biossessment; ecology of decomposition communities.

Dr. Glenn Stokes, Professor
- Interests: Vertebrate Physiological Ecology, Herpetology.
- Current Research: Movement behavior patterns of turtles; cytotoxicity of orthodontic materials.

Mr. Carson Stringfellow - Assistant Professor; Safety Officer
- Joined CSU in 2006 (M.S. Columbus State University 1997)
- Interests: Freshwater Mussel Taxonomy & Ecology.
- Current Research: Freshwater mussel and native crayfish interactions; continued refinement of freshwater mussel classification.

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Meet our newest faculty member!

Jennifer Newbrey (Ph.D. North Dakota State University 2007) has recently arrived from the University of Alberta. Her research interests lie at the interface between avian ecology and biology, with an emphasis on wetland ecosystems and wetland-dependent bird species. Her research has focused on avian reproduction, avian physiology, lake and wetland habitats, aspects of population dynamics, and food-web interactions.

On Sabbatical with John Barone

I spent the spring semester of 2010 on sabbatical, working at the Mississippi Entomological Museum (MEM) located at Mississippi State University. The break afforded me the opportunity to pursue a variety of projects. For example, I continued work on a research project with collaborators at the MEM and the National Park Service to determine the most ecologically efficient and cost-effective method for restoring degraded prairies along the Natchez Trace Parkway. The sabbatical gave me the time to collect more detailed data on the project as well as begin data analysis. I also worked on several research papers, summarizing the results of previous studies for publication. During the sabbatical, I also prepared a new course, Biology 5535—Community Ecology, which I taught in the fall 2010 when I returned to CSU. Other projects included developing skills in ant and moss identification, the preparation of over 1,000 plant specimens for the CSU herbarium, the submission of a grant proposal to the National Science Foundation, and learning the programming language “R”, which is frequently used in statistical analyses. The sabbatical was a wonderful chance to re-charge, work on long-delayed projects, and learn new skills that I can bring to the classroom.

Faculty Awards, Presentations & Research

Awards:

Julie Ballenger - Outstanding Faculty in Study Abroad; keynote speaker - Phi Beta Delta (International Honor Society) induction ceremony, 2011.

Kevin Burgess - CSU Faculty Research Award finalist, 2011.

Grants:

J. A. Barone. Collection of Pollination Network Data for Blackland Prairies. CSU Faculty Development Grant, 2011.

R. Bringolf (University of Georgia), C. Jennings (USGS) and J. Zuiderveen (CSU). Assessment of Endocrine Disruption in Fish and Estrogenic Potency of Waters in Georgia. Georgia Water Resources Institute (GWRI).

Presentations:

J. Ballenger. 2011. Exceptional rarity and carnivory: characterizing wetland plant communities in the fall line sand hills. Invited speaker - Auburn University Biology Department.


N. Ware and M. Motley. 2010. Antiviral effects of Lactoferrin at different stages of Herpes Simplex Virus, Type 1 infection of vero cells. Southeastern Branch - American Society for Microbiology Meeting, Montgomery, AL.


Research:

Birkhead, B. (2010-2011) An ichthyologic survey of the Chattahoochee River between Dillingham Bridge and North Highlands Dam conducted in association with a Chattahoochee River Restoration Project, Columbus, Muscogee County, GA.


Elmore, M., Ballenger, J. and Harrison, W. 2010. Exceptional rarity and carnivory: characterizing wetland plant communities in the fall line sand hills. Longleaf Alliance 8th Regional Conference, Columbia, SC.


Undergraduate research experiences enable students to develop critical thinking and intellectual and technical skills associated with planning, executing, and communicating research discoveries. Fall 2010 and Spring 2011 research projects are listed below.

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<td>Gram-negative flora of the surface mucus layer of the Bluegill, Lepomis macrochirus.*</td>
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<td>Morphological differences in nervous tissue highlighted by contrasting histological stains.*</td>
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<td>Development of zebra fish in urban creeks compared to rural creeks.*</td>
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Internship at the Columbus Water Works (CWW)  
by Cristina Caldwell

It’s amazing to think of all that I’ve learned during my internship. I’ve been working in the lab only since March and already I’ve learned twelve different water quality analysis techniques. I test water samples for things like nitrates, sulfates, and phenols, just to name a few, using a variety of techniques ranging from simple titrations to ion chromatography. I operate machines and equipment I’ve only been able to observe from a distance in the past. I’ve learned so much already, and I’m only just beginning!

This internship allows me to use the things I’ve learned in my undergraduate chemistry and biology coursework on a daily basis, and it’s also a great opportunity to get my feet wet (no pun intended) doing the kind of work I’m preparing for with my graduate studies. I’m getting the experience here that I need to get into a good job, and I’m learning skills I can take with me wherever I decide to go. Water is our most precious resource. People everywhere in the world are always going to need a clean supply of it, and as the need for water increases, so will the need to find ways of minimizing our impact while using it.

Aside from being an excellent place to learn, the lab is just a great place to work. I work with a fantastic group of people and they are a big part of why I enjoy this job so much. They really care about their work. I’m so glad I took advantage of this opportunity. I actually look forward to going to work, learning new things, and taking on the next challenge.

CSU Awards
Honors Convocation (April) awardees:
- Cellular & Molecular Biology Award - Roma Patel *recipient of 2011 CSU Faculty Cup
- Ecological & Evolutionary Biology Award - Cristina Caldwell
- George Stanton Biology Award - Nylvia Ware
- Organismic Biology Award - Lauren Neil
- Biology Education Award - no recipient

Regional Awards
- Association of Southeastern Biologists Annual Meeting - Southeastern Regional Beta Beta Beta Award winner (1st Place Johnson Award): Nylvia Ware (below, on left)
- Columbus Water Works Outstanding Environmental Science Undergraduate Student: Cristina Caldwell (below, on right)
Dreaming of Botswana
by Cristina Caldwell

Writing about my trip to Botswana has been surprisingly difficult. Where do I begin? How can I sum up, in a blurb, the most incredible two weeks of my life?

I guess I can start by saying that this was the best class I have ever taken. Instead of a normal classroom, drab and confining, the “classrooms” in Botswana are the vast reserves; seemingly endless expanses of earth and sky that are brimming with life.

The course material was everything around us; every sight, sound, taste and smell was a part of the lesson. I’m convinced that there is no better way to learn. No picture in a textbook can compare to seeing, in person, the majesty of a lion bathed in the golden light of sunrise.

Someone could tell you that, due to a lack of light pollution, more stars are visible over the Central Kalahari Game Reserve, but this cold description doesn’t do them justice. Until you’ve stood under that inky-black sky, following the path of the Milky Way and tracing the shapes of the scorpion and the giraffe, you cannot possibly understand. Botswana isn’t a place you can learn about from a distance; it’s something you have to experience.

This class was meant to teach me about the ecosystems of Botswana, but I ended up learning far more. I learned that life is possible, and quite pleasant, without a cell phone and Facebook. I learned how to talk to elephants. I learned about Motlhaha Basetsana and about the girl who made stars. I learned that it’s possible to fall in love with a place, and that there is a deep, very real sense of loss when you have to leave it.

Readjusting to the noise and haste of the “real world” has proven to be a bit overwhelming. But whenever things get to be too much, I get to enjoy Botswana’s gifts to me; the memories. I just close my eyes and remember. I remember Letiahau Valley, where I found the part of me I didn’t even realize was missing. I remember the fragrance of the wild sage, purple pan weed and mopane. I remember sitting by the fire at night, blanketed in a feeling of quiet calm. I let that calm surround me again, and in the stillness, another emotion blooms. Joy, pure joy; that kind of boundless, breathless happiness I haven’t felt since I was a child. It’s all I can do not to grin just writing about it. I’ll carry that joy with me, like a little glowing flame. I’ll keep it and tend it until that day I can return.

[Dreaming of Botswana by Cristina Caldwell (continued page 7)]

Exploring Andros Island
by John Neill & Bill Tomkiewicz

In the summer of 2011, eleven students and one professor ventured to the Bahamas for a one-week ecology course on Andros Island. Words cannot adequately describe the experience but we will make our best effort. Andros, in two words, was simply amazing. We arrived on the exotic island by two six-seater planes with crystal clear blue waters below.

A few hours after touching down we found ourselves surrounded by dolphins while taking our first swim in the bay. A rare occurrence, we were fortunate to be joined by the playful mammals, as if they were welcoming us to the island. Who knew what encounter would be in store for us next – a hermit crab, a shark, or maybe the fabled chickcharnie? (Chickcharnies are mythical elfin, bird-like creatures with piercing red eyes, three fingers, three toes and a tail, which they use to hang from trees.)

We spent seven days enthusiastically educating ourselves about the flora, fauna, geology and local history of Andros Island. At the end of each

[Exploring Andros Island by John Neill & Bill Tomkiewicz (continued page 7)]
Recent Graduates

Congratulations to our December 2010 and May 2011 graduates!

B.S. in Biology:
- Jasmine Bailey (Pre-Medical)
- Nakita Benson (Pre-Vet)
- Patronya Brogdon (Pre-Vet)
- Rae Bucher
- Cristina Caldwell
- Patricia Campbell
- Timothy Duvall (Pre-Medical)
- Bailee Farmer (Pre-Medical)
- Olumuyiwa Fatade (Pre-Medical)
- Akeeta Harris
- Stewart Helton (Pre-Dental)
- Henry Hutcheson (Pre-Medical)
- Michael Joiner
- Sara Lindsey
- Lakesia Mallard (Pre-Pharmacy)
- Elijah Mitcham (Pre-Medical)
- Tony Nguyen
- Joseph Parsi-Graciani
- Roma Patel (Pre-Dental)
- Anthony Peters (Pre-Medical)
- Clarence Powell II (Pre-Medical)

B.A. in Biology:
- Stevanie Goff
- Leonna Hart
- Zaina Jarjour (Pre-Medical)
- Morgan Jordan
- Sarah Moore
- Nylvia Ware (Pre-Pharmacy)
- Ebony Watkins (Pre-Pharmacy)

B.A. in Biology and Secondary Ed.:
- Shonda Davis

Upcoming Study Abroad Trips:
- Costa Rica - March 2012
- Andros Is., Bahamas (Ecology) - May 2012
- Australia - May 2012
- Oxford, England (Health Issues) - summer 2012
- Andros Is., Bahamas (Health Issues) - March 2013
- Andros Is., Bahamas (Ecology) - May 2013
- Botswana, Africa - May 2013
- Oxford, England (Darwinian Evolution) - summer 2013

For more information visit:
http://bio.ColumbusState.edu

Student Study Abroad Experiences (continued…)

day’s adventure, we would gather as a group and discuss what was to be experienced during the next day’s exploration. Absorbing all of the knowledge seemed effortless in the fun, relaxed and sun-soaked atmosphere. Much was to be learned from the incredibly friendly local Bahamians, as well. When you took the time to sit and converse with them, they would share fascinating and sometimes personal stories of the island.

It is safe to speak on behalf of everyone who shared this experience when we say this trip broadened our scope of the culture and ecology of Andros Island. It made us eager to plan our next adventure to the island and assist the locals with preserving this special place. It also piqued our interest as to what sorts of interesting things other countries and culture have to offer. Study abroad will definitely change the way you think about vacationing. Earning college credits should not be this fun!

“Andros, in two words, was simply amazing.”

[John & Bill's class visited Andros Island in May 2011]
Study Abroad Snapshots (see student stories - pages 6-7)