EEB and Cell & Molecular Biology teamed up to establish a new Molecular Teaching Lab in Stern Hall to be shared between the two departments. Construction completed just in time for Dr. Tim McLean’s class, “Molecular Evolution & Ecology,” which is new this fall.

Congratulations to Dr. Jordan Karubian and Dr. Caz Taylor for being promoted to Associate Professor!

Congratulations to Dr. Bruce Fleury and Dr. Donata Henry for being promoted to Senior Professor of the Practice!

Several EEB students received accolades from institutions outside of Tulane: PhD students Liz Kimbrough and Zoe Diaz-Marlin were both awarded prestigious National Science Foundation Graduate Research Fellowships; Environmental Science major Gina Zwicky was awarded the National Oceanic and Atmospheric Administration’s Ernest F. Hollings Scholarship.

Dr. Hank Bart and former postdoc, current EEB instructor Dr. Mike Doosey played a vital role in the identification of the ultra-rare pocket shark. This is the second specimen ever discovered and will be permanently housed in the Royal D. Suttkus Fish Collection. Read about the pocket shark inside.

The inaugural Koch-Richardson Fellow in Plant Ecology and Evolution, Dr. John Schenk, has completed his appointment at Tulane and went on to accept a position as Assistant Professor of Plant Biology at Georgia Southern University. Good luck, John!

EEB had an unprecedented 8 graduate students successfully defend their PhD dissertations over the last year. While we’re sorry to see these folks go, we know that they’ll go on to great things. Congratulations to Dr. Erick Gagne, Dr. Greg Glotzbecker, Dr. Travis Haas, Dr. Jessica Henkel, Dr. Andrew Laughlin, Dr. Ashley Peel, Dr. Deborah Visco and Dr. Justin Yeager!

What’s that Photo? Undergraduate EEB major Sam Dellheim snapped this photo of a nest of killdeer eggs during a field trip with Dr. Donata Henry’s Natural History of Louisiana class this spring.

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New Department Grad Awards Established

By EEB Staff

The EEB Department is proud to announce the winners of two new awards devised by the EEB Faculty to support exceptional graduate students.

One-Term Fellowship

EEB One-Term Fellowships are intended to speed the process of completing the dissertation. Except in unusual cases, they are awarded to students who are at the final analysis and writing stage. The aim of the fellowship is to permit candidates to work full-time on the final stages of their dissertations. Andrew Laughlin was awarded a fellowship in Spring 2015. He graduated in May.

Graduate Grant

This competitive grant program was established for Thesis Masters and PhD Students. These awards are intended to help advance or enhance completion of dissertation or thesis research. The number and amount of awards may vary each year, depending on available funding and the number and quality of proposals received. Six awards were made in 2015 to Luke Browne, Sara Lipshutz, Anna Peterson, Julia Sonn, Peter Tellez and Yusan Yang.

Dr. Bruce Fleury Announces Plans to Retire at the End of Spring 2016

Dr. Bruce Fleury has announced that he will be retiring at the end of the 2015-2016 academic year. Dr. Fleury has been a stalwart supporter of EEB and its mission through many years of change. He is a favorite among students for his down-to-earth and humorous approach to lecturing. He has taught over 10,000 students at Tulane in some of the most popular EEB classes such as History of Life, Global Environmental Change and Ornithology. He has pursued his teaching conscientiously, with great enthusiasm and dedication. Bruce will be missed by EEB faculty, staff and students alike.

Events honoring his career will be announced later in the academic year.
EEB Degrees Lead to Career at EPA

By EEB Staff

Orleans County in the Northeast Kingdom region of Vermont is beautifully rural, filled with hardwood forests and dairy farms. By contrast Orleans Parish is in a region of Louisiana known for cypress-lined bayous and crawfish farms. But the difference in climate and culture weren't what shocked Dana Thomas most when she left home to attend Tulane in 1990; it was the region's heavy industry. "I was struck by the vast difference between environmental conditions in the New Orleans area versus northern Vermont." She soon scrapped her plans for medical school in favor of pursuing a career in the field of environmental research.

As an undergrad at Tulane she studied under Dr. John Barber doing ecotoxicology and aquatic toxicology research using duckweed, Lemna gibba. After graduating with a degree in Ecology, Evolution and Organismal Biology, she was awarded a Board of Regents fellowship to continue her work in Dr. Barber's lab as a grad student. She earned her PhD in Biology in 1998.

Dr. Thomas’s passion for water quality led her to the Environmental Protection Agency, where she has spent her entire career.

She started in New York City as the Nutrient Criteria Coordinator for Region 2. She oversaw efforts by New York, New Jersey, Puerto Rico and the U.S. Virgin Islands to develop and adopt numeric limits for water quality standards of nitrogen and phosphorus, which would protect their water sources from eutrophication.

She also worked on evaluating population level impacts of fish from the effects of power plant cooling water intake structures. In 2001, she accepted a detail assignment in Washington, D.C. to work on the EPA’s national rule-making effort to establish standards for the best technology for the EPA’s national program coordinating efforts across all 10 EPA regions.

While her career has kept her plenty busy, Dr. Thomas still has time to visit her alma mater. This past fall while in town for her 20th undergraduate reunion, she stopped by the EEB office. "It was really nice to see folks and the new space in the Boggs building, although I do miss the space in Dinwiddie Hall!"

Once the rule went final, she moved on to the water quality standards program, where she worked on efforts to address the hypoxic zone in the Gulf of Mexico.

She also consulted with states on their water quality standards in accordance with the Endangered Species Act.

In 2009, she was promoted to Branch Chief of the Ecological and Health Processes Branch within EPA’s Office of Water. Dr. Thomas and her staff of ten scientists work on biocriteria, which are measures that states and tribes use to evaluate the biological condition of their waters using surveys of the structure and function of the communities of resident biota, such as fish, benthic macroinvertebrates, periphyton.

And 10 years after starting her career at the EPA she’s also back to working on numeric nutrient criteria. This time overseeing the national program coordinating efforts across all 10 EPA regions.

The Jacana Chronicles

By Sara Lipshutz

This summer, undergraduates Gina Zwicky and Hannah Wilson joined PhD candidate Sara Lipshutz of Dr. Derryberry's lab as well as Panamanian undergraduate Pablo Gutierrez in a journey across Panama to study the hybrid zone between Northern and Wattled Jacanas. These tropical shorebirds have an exceptional mating system known as polyandry, in which females defend territories containing multiple mates and males exclusively perform parental care.

Team Jacana designed assays to measure aggression in populations of jacanas within and outside the hybrid zone. Behavioral experiments involved the use of mobile taxidermic mounts controlled manually from behind a camouflage blind. Each trial utilized conspecific vocalizations, many of which were recorded by Gina Zwicky. Gina’s independent project compared vocalizations of both species as well as across sexes. Hannah Wilson conducted vegetation plot surveys to characterize the habitats of both species.

When they weren’t sweating, swatting mosquitos, hopping fences, or wading knee-deep in manure, Team Jacana took time to hike to a waterfall, watch sunsets on the beach, eat patacones, and birdwatch.

Backyard Research: Studying the Louisiana Brown Pelican

By EEB Staff

The brown pelican is a symbol of state pride for Louisianans. But it’s also a vital part of the Gulf Coast ecosystem. Ph.D. student Brock Geary in Dr. Jordan Karubian’s lab is working on several research efforts related to the brown pelican, its ecology and the impact of threats to its habitat. Geary’s work takes place on Raccoon Island, which hosts the largest pelican colony in the region, and is a major target of barrier island restoration efforts. Here’s a snapshot of some of the things that Geary and Dr. Karubian are looking into.

• They’re using GPS telemetry to investigate the foraging ecology of brown pelicans.
• Colony-wide nest success surveys are being conducted to monitor long-term productivity.
• They are investigating potential relationships between pelicans, Gulf hypoxia and menhaden fisheries.
• Fire ant densities on the colony are documented to watch for effects on seabird nesting.
• They’re in the process of completing a genetic assessment of brown pelicans across the northern Gulf, and seeing how gene flow might have been impacted by the 2010 BP oil spill.

With the support of institutions such the Louisiana Sea Grant and Tulane’s Newcomb Institute, they have been able to fund research experiences for undergraduates who share their passion, and they happily accept volunteers who want to do help out and experience a unique part of the Gulf coast firsthand. Geary says: “I’m always excited to talk to others who are interested in pelicans!”
Some of the rarest and most mysterious sharks are very small, and live in such deep water that sunlight barely reaches them. One such fish is the pocket shark (*Mollosquama parini*), which is so rare that the only known specimen was captured off the coast of Peru in 1979.

That is until recently, when researchers at the Tulane University Biodiversity Research Institute (TUBRI) helped identify a second specimen.

It all started in 2010 when scientists from the National Oceanic and Atmospheric Administration (NOAA) trawled the Gulf of Mexico off the coast of Louisiana as part of a sperm whale feeding study. The specimens collected were stored en masse in a freezer at NOAA’s facility in Pascagoula Mississippi for later examination. In 2013, NOAA scientist Mark Grace began sifting through the specimens and came across a fish that he couldn’t identify.

He contacted Dr. Hank Bart, EEB Professor and TUBRI Director, for help. TUBRI operates the Royal D. Suttkus Fish Collection, the second-largest of its kind in the US, making it a great resource for species and genus identification.

“Mark suspected that it was related to the cookie-cutter shark,” Dr. Bart recalled of their initial meeting. The cookie-cutter shark is a similarly small, dark, cylindrical fish that while rare, is more well-known and better understood.

Dr. Bart tapped his a former PhD student and postdoc – and a current EEB visiting instructor – Dr. Mike Doosey to assist in the investigation. “It was really difficult to ID because it was not listed in any references as occurring in the Gulf of Mexico and none of us had ever seen a pocket shark,” said Dr. Doosey.

Dr. Bart explained that the process of identification involved “finding characteristics that suggested something about how the shark related to other sharks, and then finding characteristics that identified how it differed from other known sharks. It was in this last stage that Mike and Mark discovered that the Gulf specimen has pockets like the pocket shark caught off the coast of Peru.”

Like the cookie-cutter shark, the pocket shark is a member of the kitefin shark family. But unlike its relatives, it’s the only shark to have the two eponymous pockets located behind its front fins. While these tiny pockets were key in identifying the shark, the reason for their existence is unknown.

“There are rare animals around the world, but this is unusual because of how bizarre this shark is and the unusual aspects of its anatomy,” Dr. Doosey told the New Orleans Times-Picayune earlier this year.

Another aspect of the discovery that is of note to scientists is that the Gulf specimen is believed to be a baby due to its small size and an umbilical scar. This indicates that it was born in the Gulf and that others could be out there. Dr. Bart admitted that while the task won’t be easy, “there are plans to look for additional specimens early next year.”

After a 6 month tour of the United States, including stops at the Smithsonian Institute in D.C., and the American Museum of Natural History in New York, the pocket shark specimen has returned to Louisiana to become the newest member of the Suttkus Fish Collection. Researchers at TUBRI as well as other scientists who utilize the Fish Collection will have ample opportunity to study the specimen and perhaps discover more about the rare fish and its mysterious pockets.

Their findings were published in the April 22, 2015 edition of the journal *Zootaxa*.

The Derryberry lab was busy in San Francisco this year! Graduate student Jenny Phillips and her team began by finding and monitoring white-crowned sparrow nests to bring back to Tulane’s vivarium. “These birds will help us start to answer several questions about how urban noise affects song learning and preference,” Phillips explained. She then returned to the field after nest searching to perform playback experiments investigating whether a loss of bandwidth in urban song has functional consequences. “I ran over 165 playback trials, and found that song bandwidth is a salient feature for territorial males. I also tested the combined effect of trill rate and bandwidth, known as vocal performance, and found that vocal performance is an important feature on both noisy and quiet territories.”
At the Intersection of Arts & Sciences

By EEB Staff

Some say that the sciences and fine arts are about as different as oil and water. But this year, members of the EEB community have participated in a unique program called Flint and Steel, which partners an artist with a Tulane faculty member to foster a cross-disciplinary collaborative endeavor.

Flint and Steel was organized by Tulane’s A Studio in the Woods, an isolated retreat where artists go to gain inspiration from the natural beauty of the Mississippi River bottomland hardwood forest. Associate Professor Dr. Jordan Karubian and Postdoc/Adjunct Assistant Professor Dr. Renata Ribeiro were thrilled to collaborate with an artist to bring to life their research on how soil lead-levels in New Orleans affect mockingbird song cognition. “We saw this as an effective way to communicate to the general public about an important environmental issue and our research on it,” Dr. Karubian explains.

Dr. Karubian is quick to add, “We also thought it would be fun to collaborate with an artist!” They were paired up with Jessica Levine, a self-described environmental artist who works “to connect people to nature and each other through the arts.”

The West Virginia native specializes in site-specific collaborative works that draw inspiration from the environment as well as advocate for its conservation and protection. For this project she conceptualized an interactive mixed-media installation to showcase the beauty of the mockingbird as an animal as well as to teach New Orleanians how lead could threaten the birds’ mating. Dr. Karubian and Dr. Ribeiro participated by helping her create the interactive features, and they were also stationed at the booth for events, such as the New Orleans Farmers’ Market, to talk about their research.

Education is also important to Professor of the Practice Dr. Tim McLean, who as a marine microbiologist works with specimens that are perhaps less well-known to the general public. He was eager to participate when artist Pippen Frisbie-Calder, a visual artist based in New Orleans, approached him. “I’ve never had someone come up to me and say ‘I’m really interested in phytoplankton’ that was not a fellow colleague or scientist,” said Dr. McLean.

Frisbie-Calder has built a career documenting the beauty of the flora and fauna of the Louisiana wetlands as a way to promote local environmental conservation and restoration efforts. Her collaboration with Dr. McLean allowed her the opportunity to learn about organisms that are also important to the vitality of the marsh ecosystem, but which are not visible to the naked eye, and therefore not as well-known.

The two collected water samples just south of the city and then went back to Tulane to investigate. “We put it under the microscope, observe and identify what we have, and see if there are things Pippen can represent in one form or another,” Dr. McLean explains. Frisbie-Calder was inspired by the otherworldliness of the microbes and captured their exotic beauty in intricate woodcarvings, sculptures and drawings.

The duo hope that the artwork, as well as the story of their collaboration, bring to light the importance and beauty of the tiny organisms that make up a large and vital portion of the wetlands ecosystem.

To learn more about Flint and Steel, visit their website: http://flintandsteel.tulane.edu/

Sherry Lab Update

By Dr. Tom Sherry

First, two of my students defended their dissertations this Spring (2015): Dr. Deborah Visco Abibou (her new married name – congratulations Deb!) published twice in Biological Conservation (one co-authored by Bryan Sigel, PhD 2007, and Stefan Woltmann, PhD 2010); and Dr. Ashley Peele just published in The Auk: Ornithological Advances, and accepted a position as Research Faculty, Conservation Management Institute, Virginia Tech. Dr. Nathan Cooper (PhD 2014) is currently a Postdoctoral Fellow at the Smithsonian’s Migratory Bird Center, working on endangered Kirtland’s Warbler in Michigan—and published a paper this summer in Ecology. Cody Kent is beginning his PhD in the lab, and will be working on American redstarts wintering in Jamaica, focusing on causes and population consequences of non-territorial individuals. Donata Henry (PhD 2004, and newly promoted Senior Professor of the Practice in EE Biology) published a book chapter this summer; and Nicole Michel (PhD 2013), a postdoc with Canadian Wildlife Service, Saskatoon, has authored or co-authored two recent papers from Tulane work.

I organized and ran a symposium this summer on “The ecological value of migrant birds in the Caribbean”, part of the Birds Caribbean conference in Kingston, Jamaica. While there, I was able to rendezvous with former students Leo Douglass (Kingston, New York City) and Matthew Johnson (PhD 1999), who is now at Humboldt St. University and who was a plenary speaker at this conference.

When not traveling or teaching, I mostly edit students’ and colleagues’ manuscripts and facilitate research by others in the lab, although I did first-author one paper in 2015 (J. Avian Biology), with several more in the works.

I’m also attempting to solve a long-standing problem about how diffuse competition among species influences species-rich tropical communities (in collaboration with Susannah Halbrook, Tulane 2015, Nathalie Sanchez of Costa Rica, Cagan Sekercioglu of University of Utah and Liz Deryberry in EE Biology at Tulane, among others).

Finally, I advise “Divest Tulane,” one concrete way to address climate change and its threat to Tulane, New Orleans, and the planet.

Top, a composite of aquatic microbes captured via microscope by Dr. McLean. Bottom, a drawing of penate diatom by Pippen Frisbie-Calder.

Top photo by Cammie Hill-Prewitt
Bottom photo courtesy of Jessica Levine

Tulane undergraduate Dylan Taillie, top, learned about mockingbirds by interacting with an art exhibit co-created by visiting artist Jessica Levine, bottom.

TOP PHOTO BY CAMMIE HILL-PREWITT
BOTTOM PHOTO COURTESY OF JESSICA LEVINE
Do not hallucinate.

The image contains a page from a university's departmental newsletter, listing faculty members and providing information on how to donate to the department. The text is readable and legible, with no need to rotate or correct the orientation. The content is natural and informative, offering details on the faculty, departmental contact information, and methods to support the department financially.