

MUSEUM QUARTERLY

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Tufted Puffin | Farallon Islands, California 2009
Photo by LSUMNS Graduate Student Matthew Brady

Letter from the Director...

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I write this sitting in a hostel in the Miraflores neighborhood of Lima, Peru, where I'm in transit to the 10th National Ornithological Congress in Chachapoyas, Peru. I am honored to be giving one of the plenary addresses at the meeting. Thanks to the **LSU Museum of Natural Science**, Peru is the country where I first tasted the thrill of tropical research. I took off the fall semester in 1989 to work as **Remsen's** PhD student **Ken Rosenberg's** field assistant. On that first morning I'll never forget waking up to the bizarre sounds of what turned out to be Howler Monkeys. Ken's dissertation project involved studying antbirds that search for their arthropod prey solely by probing their bills inside curled dead leaves. Remarkably, these specialist birds completely ignore adjacent green leaves that also harbor delectable caterpillars and katydids. It was this two-month field experience, my participation in several research projects measuring bird specimens in the collections, and the hospitable community of people at the MNS that galvanized my decision to pursue a career in collections-based research. Providing unique training opportunities like this to undergraduates is something we are still doing every day.

Summer is almost here, which means Museum personnel are embarking to far-flung locales to collect specimens for their research. We have ornithological expeditions headed to Peru and Brazil this summer, and an ichthyological expedition to the Darién region of eastern Panama. Dr. Warny is in Antarctica right now. It's also the season for scientific meetings, where we go to share our research discoveries with our colleagues, foster collaborations, and meet new students.

I have some great news to share. After a multi-year hiatus the Museum will be restarting in Fall 2016 its wildly popular Special Saturdays science education program. On one Saturday per month the Museum will provide a hands-on program that teaches children about the world of natural science. I want to thank our talented Science Outreach Coordinator **Valerie Derouen** for raising the funds to make this happen. The Special Saturdays program is being funded by a grant from the Lamar Family Foundation, with matching funds from the College of Science. I want to thank the Lamar family and Dean Peterson for making this possible. It has been a long dream of mine to get this program restarted.

The bittersweet part of academia is the transience of the students and post-docs. They come to the Museum, build lifelong friendships, hone their skills in collections-based research, and at the end of their time here move on to other career opportunities. In hindsight the time is always fleeting. Decades of Museum alumni are now scattered across the globe, working in various capacities to study the biological world and to help preserve it. It's always great when I run to a Museum alumnus, as happened yesterday when I ran into Gary Graham (graduated in 1979) waiting with me in Houston for the plane to Lima.

Robb



Ornithological Expedition to Equatorial Guinea

by Oscar Johnson

Ryan Terrill and I had the incredible good fortune to have the opportunity to go on a collecting expedition to Equatorial Guinea for the LSU Museum of Natural Science this past January. Although a considerable amount of early ornithological work was done on Bioko Island (formerly Fernando Po), there has been very little recent ornithological research in the country, aside from two small collecting trips done by the Kansas University Natural History Museum (KUNHM) in 2002 and 2003. Thanks to the logistical support and hard work of our colleagues at the Equatorial Guinea Bird Initiative, who have been working in the country for the past three years, we were able to quickly and efficiently collect for 12 days on the mainland near the town of Oyala and for 15 days on Bioko Island. By all accounts, this was a very successful and fun trip to a poorly known part of the world.

Despite a delayed arrival in the capital of Malabo, due to airline hassles in Spain, we were able to catch a quick domestic flight to the mainland and meet up with our friends at the city of Oyala (which will soon

be the new capital city), which is a six hour drive inland from the coastal town of Bata. The city of Oyala, the associated university, and the two-lane freeway from the coast, is all still under construction and is placed in the middle of miles of primary rainforest. However, none of this is yet 'open' to the public, so our drive to Oyala was on an empty highway through gorgeous Guinean rainforest, a surreal experience. Also, because of this, our dormitories were just a few hundred meters away from primary rainforest. We were also supplied with beds, a shower, a kitchen, and cold drinks, which needless to say, drastically increased our productivity in comparison to other expeditions that we've been on.

During our time on the mainland we collected 120 specimens, including six new species and one new genus for the LSU collections, including such birds as **Congo Serpent-Eagle**, **Black-headed Waxbill**, and **White-bearded Greenbul**. Other highlights from the mainland included **Ethiopian Swallow**, which represented the first specimen records for the country, and was first recorded in Equatorial Guinea just last year,



three of us, we obtained another 245 specimens, for a grand total of 365 specimens for the trip, of which 100 will go to KUNHM.

In addition to collecting at middle and low elevations on the southern part of Bioko, we also made two day trips to the summit of Pico Basilé, a ~3000 meter peak on the northern part of the island, and home to the endemic **Bioko Speirops**. On our second trip up the mountain (and our last day in the country), we obtained a single specimen of this species, along with associated tissue samples. The genetic data from this individual will help us figure out the relationship between the enigmatic Bioko Speirops and the other species of Speirops, which are endemic to the volcanic peaks of the Cameroon Line. Additional highlights from Bioko included two new genera and eight new species for the LSU collection, including **White-tailed Warbler**, **White-bellied Robin Chat**, **Cameroon Blue-headed Sunbird**, **Tiny Sunbird**, **Black-necked Wattle-Eye**, and **Mountain Sooty Boubou**. Due to the lack of recent ornithological collections from Bioko, most of the species that we collected there will represent the first tissue samples from the island.

As part of our work in Equatorial Guinea, we



The folks from the Equatorial Guinea Bird Initiative, all of whom are former LSU students, with current LSU graduate students Ryan Terrill and Oscar Johnson. **Left to right:** Jacob Cooper, Jared Wolfe, Kristin Brzeski, Ryan Terrill, Luke Powell, and Oscar Johnson.

Above: Yellow-bellied Wattle-Eye. Photo by Ryan Terrill.

Title Photo: Sunrise at the Moka Research Station

Green Twinspot (the first record for mainland Equatorial Guinea), **Brown-crowned Tchagra** (another first country record), and **Jacobin Cuckoo** (another first country record). The sheer number of range extensions and first country records that we were able to find in such a short period of time highlights just how poorly known the avifauna of the country is, and how much more work there is to do.

After a fun week and a half on the mainland, we flew back out to Bioko Island, where we were hosted by the great folks at the Bioko Biodiversity Protection Program, who provided transportation, food, and housing for us during our stay. Most of our time on the islands was spent at the Moka Research Station, situated in lower montane forest on the southern part of the island. On this second half of the trip we were joined by **Tristan Davis**, former LSU Ornithology collections manager, who was skinning birds for KUNHM. Between the



were also able to obtain audio recordings for the Macaulay Library of Natural Sounds, which resulted in a lot of great material, including the first tracks for Macaulay of six species, such as **Rufous-bellied Helmetshrike**, **Bioko Batis**, and **Bioko Speirops**.

All things considered, this was an incredibly fun and productive trip, and we can't wait to return next year!

Gray-headed Nigrita. Photo by Ryan Terrill



Northern Double-collared Sunbird. Photo by Ryan Terrill.



Big Day 2016

by Andre Moncrieff

Most people in Baton Rouge probably didn't have plans for 11:40 p.m. on Thursday night, 21 April 2016. Six LSUMNS ornithology graduate students, however, were meeting at this time after a few hours (at best!) of sleep to attempt breaking the record for most bird species seen or heard in the state of Louisiana in a day. Crazy? Perhaps, but it is a great excuse to get outside and see a lot of birds during spring migration when bird diversity is at its peak in the state. Also, this Big Day event is an annual tradition that raises funds for graduate student research in ornithology. The Big Day participants this year were **Glauca Del-Rio, Oscar Johnson, Andre Moncrieff, Marco Rego, Glenn Seeholzer, and Ryan Terrill.**

After quickly loading our gear into the Big Day van, we drove across the street from the LSUMNS to wait next to our stake-out American Robin nest for the Big Day to start. 11:58, 11:59, midnight!! Ryan briefly lit up the nest with his flashlight, revealing a tail sticking out to one side (our only robin of the day in fact). With adrenaline running high we dashed backed to the van.

The next hour we spent on our night circuit of Baton Rouge, spotting birds in the moonlight or with our spotlights including a Great Horned Owl perched on a distant bare tree, Black-bellied Whistling Duck, Blue-winged Teal, Canada Goose, Wood Duck, Dou-

ble-crested Cormorant, and Rock Pigeon, all difficult species to find later on the route. With these targets down we began working our way towards the rice country. Right on schedule—leaving Baton Rouge at about 1:15 a.m.

Upon reaching the rice country at 3:25 a.m. we zoomed past a Barn Owl perched on a telephone pole, but it flew before everyone could see it. Fortunately, we knew of a nearby barn where this species roosted, and after we broadcasted a few shrieks an owl came zooming over our heads illuminated by our spotlights. This was one of several lucky occasions during the day when “dirty birds” (species not seen by the whole team) reappeared in a stunningly obvious way later on. Another example was in the afternoon when Andre saw a young King Rail dash into some reeds at Cameron Prairie. Twenty minutes later, an adult King Rail came strutting out into the middle of the road calling in response to our playback.

In order to reach the Kisatchie National Forest with time to listen for Eastern Screech-Owl and Barred Owl (birds we missed at our usual location near Baton Rouge) we left the rice country a little earlier than planned. At 5:05 a.m. we picked up the Barred giving distant hoots at Castor Plunge. Despite continuous trolling for screech-owl, no luck. Thus, we headed to



Above: Blackpoll Warbler at Peveto Woods seen during scouting for the Big Day on 20 April 2016. Photo by Oscar Johnson.

Title Photo: Scouring Oak Grove for migrants (L to R: Ryan Terril, Glenn Seeholzer, Glauca Del-Rio, Oscar Johnson).

our dawn location next to a cluster of trees with known Red-cockaded Woodpecker nests. Since these birds are cavity nesters, our plan was to wait until the first one woke up and called, which is usually right around dawn. We stood waiting, listening to the occasional Yellow-breasted Chat, and then hold on . . . screech-owl! Whew, close miss. As dawn approached, the birds began coming in fast: Brown-headed Nuthatch, Bachman's Sparrow, Prairie Warbler, and Eastern Wood-Pewee to name a few. Right on cue at 6:30 a.m. our target woodpecker gave a few calls and we dashed back to the car.

We made several more quick stops around the "piney woods" and Kincaid Reservoir where we picked an unusual number of tough species that eluded us last year including Wild Turkey, Eastern Towhee, and American Goldfinch. Score!! A quick stop by Castor Plunge provided a singing Louisiana Waterthrush, which we also missed last year. With a great start to the day we left the Kisatchie area with 91 species and headed south on LA 165 towards the rice country. During scouting we had failed to find a Swainson's Warbler on our route, but had noticed a location with appropriate habitat for them just off the highway. We decided to make a quick stop just in case a Swainson's had dropped in. Surprisingly, success!!

At 9:25 a.m. we reached our first big shorebird field, and we quickly racked up Black-bellied Plover, American Golden-Plover, Upland Sandpiper, Whim-

breil, and a host of other shorebirds. We had a man down for a few minutes: Oscar got a sting in one eye but he valiantly kept spotting birds and eBirding all our sightings. Thankfully after 20 minutes or so his vision was back to normal. On our way out of the rice fields we netted several more goodies including a migrating Swallow-tailed Kite at 10:15 a.m. and a singing Bobolink, species 136 and a rarity in the rice country, at 10:25 a.m.

Cameron Prairie National Wildlife Refuge was next on our route, and it provided us with a few birds including Snow Goose, Least Bittern, Purple Gallinules galore, Yellow-crowned Night-Heron, and the aforementioned King Rails. Unfortunately, compared to previous years, the number of lingering ducks was pitiful. Perhaps this was due to the mild winter that failed to push as many ducks to southern Louisiana. Oh well. Besides ducks, we were doing great.

We arrived at Oak Grove at 11:42 a.m. where we hoped to start racking up warblers. The first we set eyes on was a male Cerulean Warbler—a good sign and bringing us to 153 species. Despite there being fair diversity, migrants were not abundant and we had to work for each new bird. This would be the trend for the rest of the day—very few birds, but sufficient diversity to keep our hopes alive of breaking the record. A Philadelphia Vireo and two Inca Doves were additional highlights at



Listening for Louisiana Waterthrush at Castor Plunge (L to R front: Oscar Johnson, Glauca Del-Rio, Marco Rego. L to R back: Glenn Seeholzer, Ryan Terrill). Photo by Andre Moncrieff.



Clapper Rail. Photo by Oscar Johnson.

Oak Grove.

When we reached Willow Island at 1:52 p.m. we had high hopes for some bigger numbers of migrants like what we had there last year, but the day just wasn't right and it was getting hot. Twelve minutes later we were on the road, but we did pick up a male Blackpoll Warbler.

From 2:34 p.m. to 2:56 p.m. we had a productive stop at East Jetty Beach, netting some nice coastal birds like Reddish Egret, Clapper Rail, Baird's Sandpiper, and American Oystercatcher. With 200 species we crossed the Cameron Ferry and soon found another good coastal species along Holly Beach—Piping Plover.

When we arrived at the famous Peveto Woods chenier, it was 4:12 p.m. Last year we had spent an hour and a half here while adding only one bird. Determined not to repeat that mistake we were ready to leave Peveto quickly if we failed to pick up new birds. Although Peveto was not particularly "birdy" we did pull out five additions—Magnolia and Blackburnian Warblers, Warbling Vireo, House Wren, and Swamp Sparrow—but it took an hour and 12 minutes.

We knew we were ahead of last year's pace, but the fate of our day hinged on Lighthouse Woods right at the Louisiana-Texas border. Due to the fantastic number of migrants we've had there on our 2014 and 2015 Big Days, we had high hopes. Although the numbers of individual birds were not as great as last year, Lighthouse Woods did not disappoint. What an awesome birding location. We arrived at 5:56 p.m. and

immediately started adding new birds. First, a Seaside Sparrow—210! Then, as we were driving further down Lighthouse Road Andre heard a Black Rail out the window, though his first reaction was to ask Oscar if he had just played a recording of one. We all jumped out of the car and got to hear and record the rail call from no more than 4 meters away! Apparently the 12th state record. The birds kept coming: Black-billed Cuckoo (212—and pushing us past last year's total of 211), Crested Carracara, Nelson's Sparrow, and Le Conte's Sparrow. When we arrived, 215 seemed possible, but as dusk neared the state record of 221 seemed within reach!! Bird number 219 was a distant White-tailed Kite—a great spot by Oscar in the diminishing light.

After talking strategy and clearing up some confusion about our day total (bringing our count from 220 to 219), we realized that our chances of breaking 221 were very slim. Feeling satisfied with the day, we opted for sleep! The general consensus is that our route, painstakingly optimized by LSU grad students over the years, is largely to be credited for bringing us this close to the record. With a good coastal fallout of migrants or greater diversity of lingering ducks, the current record is definitely breakable. Looking forward to another chance at the record next year!

If you are interested in donating to ornithology graduate student research it's not too late. We thank you for your support!!!

Donate here:

<http://www.lsufoundation.org/givetoscience>

When you arrive at the section entitled "**Designations**," choose "**Other**" and type "**Ornithology Student Support Fund**" in the "**Gift Comments**" blank.

Also, if interested in listening to a recording of the Black Rail we discovered on the Big Day check it out here:

<http://ebird.org/ebird/view/checklist?sub-ID=S29240223>

11th Annual Eagle Expo

By Donna L. Dittmann &
Steven W. Cardiff



The 11th Annual Eagle Expo was held 26 – 28 February 2016, in Morgan City, Louisiana. Organized by the Cajun Coast Visitors and Convention Bureau and co-sponsored by LSUMNS, LUMCON, BTNEP, and numerous other entities, this annual event features field trips, socials, and an educational seminar series on Saturday morning. LSUMNS graduate student Matt Brady was one of the featured speakers this year and discussed

his thesis project: *Louisiana Summer and Winter Bird Atlases*.

Louisiana's winter-breeding Bald Eagle population has now increased to the point where the species is considered "recovered" after teetering on the brink of extirpation as a result of the use of DDT pesticides. Morgan City and Eagle Expo are situated in the State's premier Bald Eagle breeding location, with highest densities of nesting individuals. It is hard to venture into this area from late fall into spring and not see an eagle. The event provides a great opportunity for participants to see and photograph Bald Eagles. There is also a photography workshop by C. C. Lockwood offered each year. As the trees are just beginning to leaf out in late February, eagle nests are not yet obscured from view. Many of the trip routes pass nests in shorter willows, and those close to channel banks sometimes allow views of eaglets of various sizes. If lucky, you can even witness a food delivery.

LSUMNS collection managers **Donna Dittmann** and **Steve Cardiff** again assisted with the Turtle Bayou boat tours on Friday and Saturday afternoon. This tour location consistently produces the largest concentrations of eagles and nests. This year our eagle high-count was 48 on the Saturday tour, including 4



Above: An adult Bald Eagle broods chicks in its huge nest in a willow. Photo by Donna Dittmann (DLD).

Title Photo: Adult Bald Eagle monitoring its territory along Turtle Bayou. Photo by DLD.



A medium-sized American Alligator sunning on the bank on the Turtle Bayou Tour. Photo by DLD.



As seen from our Turtle Bayou Tour on its way back to the Bayou Black Marina in Gibson, another Eagle Expo boat, the Cajun Man Tour returns to the marina. Photo by DLD.

confirmed active nests with at least 1-2 eaglets each. In addition to seeing lots of eagles, the Turtle Bayou tours afford participants spectacular views of majestic, Spanish moss-draped cypress trees, high densities of a variety of other bird species, and sightings of other swamp wildlife such as alligators and nutria as the boat meanders through natural bayous and old canals. Of local inter-

est was a female Vermilion Flycatcher observed during the Friday afternoon tour. You can view our eBird lists for these trips at: <http://ebird.org/ebird/view/checklist?subID=S27868114> or <http://ebird.org/ebird/view/checklist?subID=S27868776>.



A pair of eagles survey their territory from atop a stand of huge, moss-draped Bald Cypress trees. Photo by DLD.

In addition to helping lead field trips, Steve Cardiff also assisted the Cajun Coast Visitors & Convention Bureau by recruiting and coordinating leaders for their other field trips.

If interested in attending this event next year, contact the Cajun Coast Visitors and Convention Bureau at 985-380-8224, visit online at www.cajuncoast.com/eagleexpo or email info@



Top: Following breakfast at the Holiday Inn in Morgan City on Saturday morning, Matt Brady gives his presentation during the seminar series.

Bottom: A fun challenge during Eagle Expo tours is to age immature eagles based on their plumage. Here a 2-year old flies over the boat, and you can see that it has one secondary and four outer primary feathers remaining from its juvenile plumage. Photos by DLD.

Mammal Expedition to North Sulawesi, Indonesia

by Mark Swanson

Natural history museums document biological diversity by collecting, preserving, curating, and studying organisms sampled across space and time. After hundreds of years and thousands of researchers engaging in this work, there are still many spaces to explore! Curator of Mammals **Jacob Esselstyn** and I set off in late January to fill in one of the globe's major blank spaces for mammals. We were headed for the eastern portion of Sulawesi's northern peninsula, an area that has only rarely been surveyed for mammals, with little activity since the 1930s. Consequently, prior to our expedition, no tissue specimens from this region were held in museums. This lack of basic distributional data and genetic resources has constrained our ability to decipher island wide patterns of mammalian diversity which could help us understand how species are formed and diversity is generated. We were excited by the opportunity to start filling in this gap and potentially find new animals in the Indonesian forests.

Our trip began in Jakarta where we met our collaborators Kevin Rowe, Heru Handika, Anang Achmadi, and Reksa Robi from the Museum Victo-

ria in Melbourne, Australia and Museum Zoologicum Bogoriense in Bogor, Indonesia. Our enthusiasm for finding mammals in the tropical forests was soon challenged by having to navigate a complex system of government bureaucracy and permitting. This process took three weeks and each delay brought frustration. Luckily our team was skilled at forging jokes to help each other cope and the food in Jakarta is delicious. Chicken sate, fried noodles, goat lungs, barbequed duck, and squid dishes prepared with an array of seasonings offered abundant culinary delights and digestive challenges for those of us accustomed to a Western diet.

While our wait for permits was longer than anticipated, we soon found ourselves



A squirrel of the genus *Prosciurillus*. Photograph by Kevin Rowe.



Above: A Sulawesi Dwarf Cuscus (*Strigocuscus celebensis*). Photograph by Kevin Rowe.

Title Photo: Danau Aliyah in the crater at the base of Gunung Ambang. Photograph by Mark Swanson.

hurtling down a Sulawesi highway towards our field site. Ascending into the mountains brought relief as the cool air made us feel like we were no longer experiencing a Louisiana summer, and finally doing something useful. The mass of gear needed to camp, trap, and prepare specimens for two weeks was expansive and we hired 27 porters from the local town to help us carry it all to the crater of Gunung (Mount) Ambang. However, our arrival at our campsite was greeted by an unwelcome surprise. The river we were planning to get drinking water from was dry! Luckily Lake Aliyah, which fills the crater of Mt. Ambang, was nearby so we set up camp next to the dry riverbed. Snap traps, live traps, and pitfall lines

were deployed in all directions.

Our first night of trapping was resoundingly successful as we caught specimens of the genus *Bunomys*, which Heru is studying for his Master's thesis. We also caught a variety of shrews as well as a funky looking and blunt nosed *Prosciurillus* squirrel. We were pleased with our efforts until our guides, Pak Alo and Pak Inyo, proved to be rat trapping rock stars. The Minahasa people of North Sulawesi eat rats during special occasions such as Christian holidays and our guides had been catching rats to sell at the market their whole lives. They were the only people to catch specimens of the arboreal Trefoil-toothed giant rat (*Lenomys meyeri*). These massive rodents were over half a meter long, weighed 400 grams, and were only caught in trees. Our *Lenomys* specimens were the first collected since Gerd Heinrich and family worked the region in the 1930s. Pak Alo and Pak Inyo also caught specimens of the elusive, carnivorous shrew-rat, *Echiothrix leucura*.

With so little known about these organisms (and potentially some new species in our grasp), we tried to maximize the ancillary data associated with each specimen. This kept us busy preparing specimens in camp! For instance, we want to know what each species is eating and how diverse their food items are so we preserved stomachs from each specimen. We also saved portions of their intestinal tract for an examination of the microbial diversity harbored in each animal's gut. We froze glands from rats and shrews in liquid nitro-



Pak Inyo, Reksa Robi, Mark Swanson, and Kevin Rowe after the camp had flooded. Photograph by Jacob Esselstyn



The Trefoil-toothed giant rat (*Lenomys meyeri*). Photograph by Heru Handika

gen that may be useful to illuminate the role of sexual selection in these animals. This is all in addition to the standard skin, skeletal, fluid, and tissues preparations we collected. Kevin and Heru also worked hard to photograph each species so that we know what they look like in real life.

We had completed most of our sampling when our decision to camp near a dry riverbed had the expected consequence. After nearly two weeks of unusually dry weather, an afternoon storm formed and unleashed a torrent of rain. An initial trickle of stream quickly grew into a flood. Everyone raced to dig trenches and move equipment onto tables. We stowed specimen boxes on top of less valuable gear. The flood peaked with our entire camp covered in 6 inches of water. Even though we were soaked, the thrill of averting disaster caused everyone to burst into laughter, wide smiles, and whooping once the situation was stabilized. It was a small price to pay for two weeks of beautiful weather, scarce leeches, and excellent camp food.



Jacob Esselstyn and Mark Swanson with the porters and guides after having reached the base of Gunung Ambang. Photograph by Heru Handika.



Field Work in our Backyard: Collecting Louisiana Salamanders

by Cathy Newman

On Saturday, March 5, I drove 2.5 hours north of Baton Rouge to Sicily Island Wildlife Management Area (recently renamed to J. C. “Sonny” Gilbert WMA), to search for the southern red-back salamander, *Plethodon serratus*. I was joined by my advisor and Herpetology curator **Dr. Chris Austin**, our collections manager **Seth Parker**, and graduate students from herpetology (**Genevieve Mount** and **Zach Rodriguez**) as well as ornithology (**Subir Shakya**) and ichthyology (**AJ Turner**). The main goal of the trip was to collect blood smears on microscope slides for use in analysis to determine the genome size of the southern red-back salamander. We know the genome sizes of various closely related salamander species from published studies, but this species remains a mystery. Salamanders in general have enormous genomes – up to 40 times the size of the human genome! – and the large genomes present challenges for many laboratory methods in genetics.

In Louisiana, the southern red-back salamander is only known from two parishes: Natchitoches and Catahoula. Within those parishes, the species is found only at two sites: the Longleaf Vista Outlook in the Ki-

satchie National Forest (Natchitoches) and at Sicily Island WMA. They seem to be more abundant at Sicily Island WMA, so we decided we would probably have better luck finding them at that site. This species is only active on the surface during the winter and early spring – roughly November through March – and spends the warmer months underground. During the winter, they forage on the surface, under rocks and logs, especially during wet periods.

Sicily Island WMA consists of 7,524 acres owned by the Louisiana Department of Wildlife and Fisheries. Some of the steepest and most rugged terrain in the state is found here. One of the three maintained trails features a waterfall that may or may not be the tallest in Louisiana (depending on who you ask).

Once we arrived at the south end of the WMA, the first site we checked was an ATV trail. But that area had little tree cover and was very dry. We then moved north to the Rock Falls Trail, but once again, we were unsuccessful, even though this area had plenty of hardwood and pine tree cover, lots of logs and rocks to flip

over and look under, and was fairly damp. At this point, I was feeling a bit gloomy.

Our last hope – and final stop – took us back outside the WMA and around to the northeastern entrance, where we walked St. Mary’s Falls Trail. This was the site where former herpetology graduate student Eric Rittmeyer and I found a dozen southern red-back salamanders in 2013, so if we had no luck at this site this time, it was likely too late in the season to find them anywhere. We began walking the 1 ¾ mi trail and scattered to search the hillsides. Shortly after beginning the hike, we came upon a large decaying log with two southern red-back salamanders inside! Finding the salamanders turned out to be the easy part. These salamanders are small, so it was very hard to make blood smears. With

the extra hands of Zach and Genevieve and the guidance of Dr. Austin, I was able to collect blood smears and tail tip tissue samples from both of the salamanders. While we were working, Subir found three more southern red-back salamanders inside a nearby decaying log! After collecting the blood and tissue samples, we released the salamanders back to the logs where we had found them. While genome size can usually be determined from a single blood smear, I collected a total of five to maximize the chance that at least one of them will have enough blood for analysis. Once we released the last salamander, we packed up and headed back to Baton Rouge. My collaborator at the University of Guelph in Canada, Dr. T. Ryan Gregory, is currently analyzing my southern red-back salamander samples, and hopefully we will soon know the genome size of this species!



Above: Processing a southern red-back salamander: preparing a blood smear and collecting tissue. L to R: Zach Rodriguez, Genevieve Mount, Cathy Newman. Photo by Chris Austin

Title Photo: Southern red-back salamander, *Plethodon serratus*, at Sicily Island WMA. Photo by Cathy Newman.

FLY GUY PRESENTS:

SNAKES



Tedd Arnold

SCHOLASTIC

Fly Guy Presents: Snakes

(Scholastic Reader, Level 2)

Paperback - January 5, 2016

by Tedd Arnold

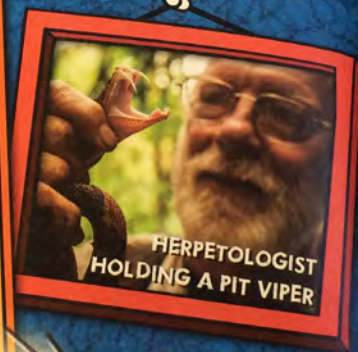
Fly Guy Presents: Snakes

by Dr. Sara Ruane

accurate as possible (like every biologist, I hate it when you look through books and photos are mislabeled for the species!). It was fun to be involved and learn about how books like this are developed. And while I didn't get compensated monetarily for this project (but did get some great books from Scholastic) volunteering my time to make sure that kids are able to learn how cool snakes are was certainly payment enough!

My involvement with this book came about through a colleague at my former institution, the American Museum of Natural History. The collection manager for ornithology at the AMNH (Paul Sweet) put his girlfriend Elizabeth Herzog, in contact with me. She works for the Scholastic publishing company and was involved in putting together a book, *Fly Guy Presents: Snakes*. Fly Guy is a series that presents scientific matter that is appropriate for kids 5 to 7 years old. Other topics that have been covered in the series include sharks, space, and bats. The series features a human kid named Buzz and his pet fly, Fly Guy. They go on adventures together to learn about science in a kid friendly way. This particular book involves a trip to the reptile house at a zoo to learn about snakes. Originally, Elizabeth contacted me to ask if I had any photos of myself in the field I might want to contribute. Ultimately, I ended up also doing a lot of fact checking on the content and the photos to make sure that everything about the snakes was as

A scientist who studies snakes is called a herpetologist (hur-puh-TAH-luh-jist).



The page from the book Sara's photo is featured on.

News from Paleontology

by Judith Schiebout (Vertebrates) & Lorene Smith (Invertebrates)

Vertebrate Paleontology

Vertebrate Paleontology Curator **Dr. Judith A. Schiebout** and Dr. Gary L Stringer of the Museum of Natural History, University of Louisiana at Monroe, developed a Symposium entitled “Fossil Vertebrates from the Gulf Coastal Plain” for the South Central Geological Society of America 150th meeting, held in Baton Rouge on March 20–22. She spoke on “Miocene Large Mammals of Louisiana.” Her former student Lindsey Yann, now at the Oklahoma State University Center for Health Sciences, spoke on “Using Rare Earth Elements as a Tool to Determine the Age and Source of the McPherson Collection.” Dr. Schiebout was a co-author.

Illustrations for Dr. Schiebout’s paper, also to be used later for other publications, were done thanks to the Shared Instrument Facility and Dr. Dominique G. Homberger’s Lab with help by Dr. Amanda Cozic, Dr. Homberger’s student, and invertebrate paleontology collections manager **Lorene Smith**.



Above: Amanda Cozic and Judith Schiebout image fossils from the LSU MNS Vertebrate Paleontology Collection in the lab of Dominique Homberger. Photo by Lorene Smith.

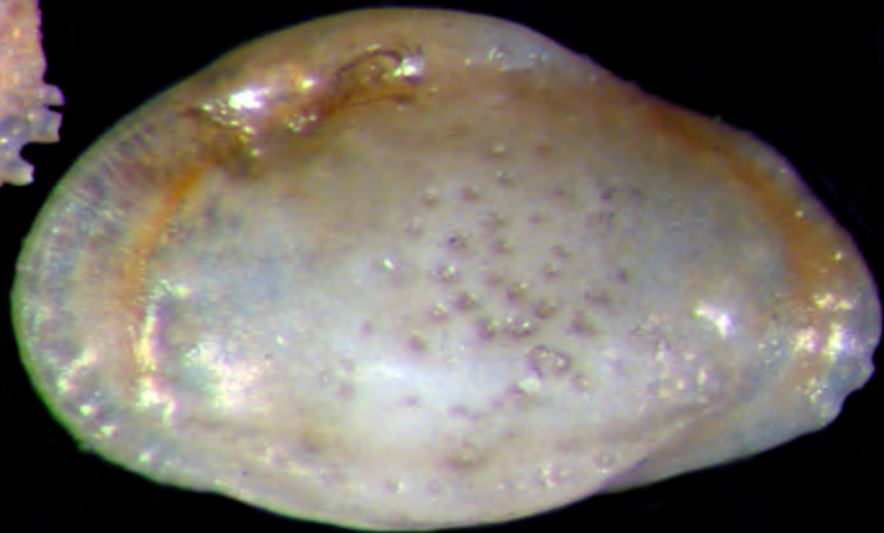
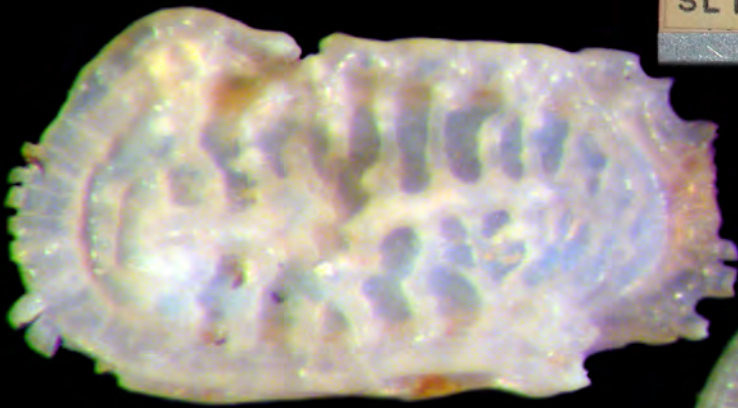


Top: Volunteer Kathleen McDonald holds a Miocene horse jaw she prepared by painstakingly removing carbonate nodular material. The specimen is approximately 13.5 million years old. Photo by William A. Dazet.

Bottom: Fossil merychippine horse jaw; photo by Lorene Smith. **Inset:** Occlusal surface of tooth; photomicrograph by Amanda Cozic.

Fossil Protists & Invertebrates

In March 2016, Dr. Gene Hunt, Curator of Ostracoda at the National Museum of Natural History, and NMNH scientist Dr. Maria João Fernandes Martins made their third visit to the Fossil Protists and Invertebrates section. They examined fossil ostracodes in the research collections of the late Joseph Hazel, LSUMNS adjunct curator of microfossils (Ostracoda), as well as faunal assemblage slides in the H.V. Howe Stratigraphic Collection. Drs. Hunt and Martins are studying sexual dimorphism and the speciation and extinction rates of Cretaceous Ostracoda from the U.S. Gulf Coastal Plain.



Above: Microfossils slide and Cretaceous ostracodes collected in Arkansas by Henry V. Howe.

Top: Gene Hunt and João Martins of the Smithsonian Institution examine ostracodes in the LSUMNS microfossil collections.

Studies: Ice Melt from Carbon Dioxide Increase Could Raise Sea Level 100 Feet

by ANDRILL SMS Group

Atmospheric carbon dioxide levels expected during the 21st century would equal those from a geologic era that saw contraction of the Antarctic Ice Sheet and a substantial rise in sea level, according to two studies published Feb. 22 in the *Proceedings of the National Academy of Sciences*.

A new climate and ice sheet model reported in one study projects the sea level to rise approximately 100 feet if the current carbon dioxide level of 400 parts per million increases to 500 ppm, as predicted by the Intergovernmental Panel on Climate Change.

Scientists with the Antarctic Geological Drilling Program, or ANDRILL, reached the conclusions after extracting and examining a 3,375-foot-long drill-core sample of rock from beneath Antarctica's McMurdo Sound.

The core sample gave researchers access to layers of sedimentary rock deposited between 20 and 14 million years ago.

Analyzing this rock record for numerous factors that included geochemical signatures, sediment properties and changes in fossil types allowed the scientists to meticulously reconstruct many shifts in water temperature, ice coverage and sea level that occurred throughout the period. MNS Curator **Dr. Sophie Warny's** research group (CENEX-The Center for Excellence in Palynology) at LSU was in charge these past 7 years of analyzing the fossils of pollen, spores and organic-walled algae for this international project (see Warny et al., 2009; Feakins et al., 2012; Griener et al., 2013; Griener et al., 2015; Griener and Warny, 2015). The project provided funding for 7 LSU graduate students.

During times when carbon dioxide concentrations reached 500 ppm, ice retreated at least 50 miles inward from the Antarctic coast as the Ross Sea warmed about 5 degrees Celsius above its current temperature, according to one study.

"These changes happened in the past; they're going to happen again in the future," said co-author David Harwood, professor at the University of Nebraska-Lincoln and research director of ANDRILL's Science Management Office. "Carbon dioxide driving Earth's warming in the past and future is just a fact of how the greenhouse gases work. We now have a clear example of how ice sheets can behave under elevated levels projected for the next century."

Harwood said geological evidence suggests that the planet is already overdue for a 40-foot rise in sea level, based on the carbon dioxide increase from 280 to 400 ppm catalyzed by the Industrial Revolution. That shift occurred so rapidly by geologic standards that Earth's ice sheets have yet to fully respond as they did in the past, he said.

The team's findings also informed the development of a computer model that can simulate large-scale contractions of Antarctic ice, a feat that Harwood said previous models struggled to achieve. Both the drill-core sample and the ice sheet-climate models demonstrated substantial changes in ice volume under only modest increases in carbon dioxide.

Though previous research has indicated the vulnerability of ice shelves and marine-based ice sheets, the new PNAS studies have shown that even land-based portions of the East Antarctic Ice Sheet were vulnerable to past warming similar to that projected over the next

several decades.

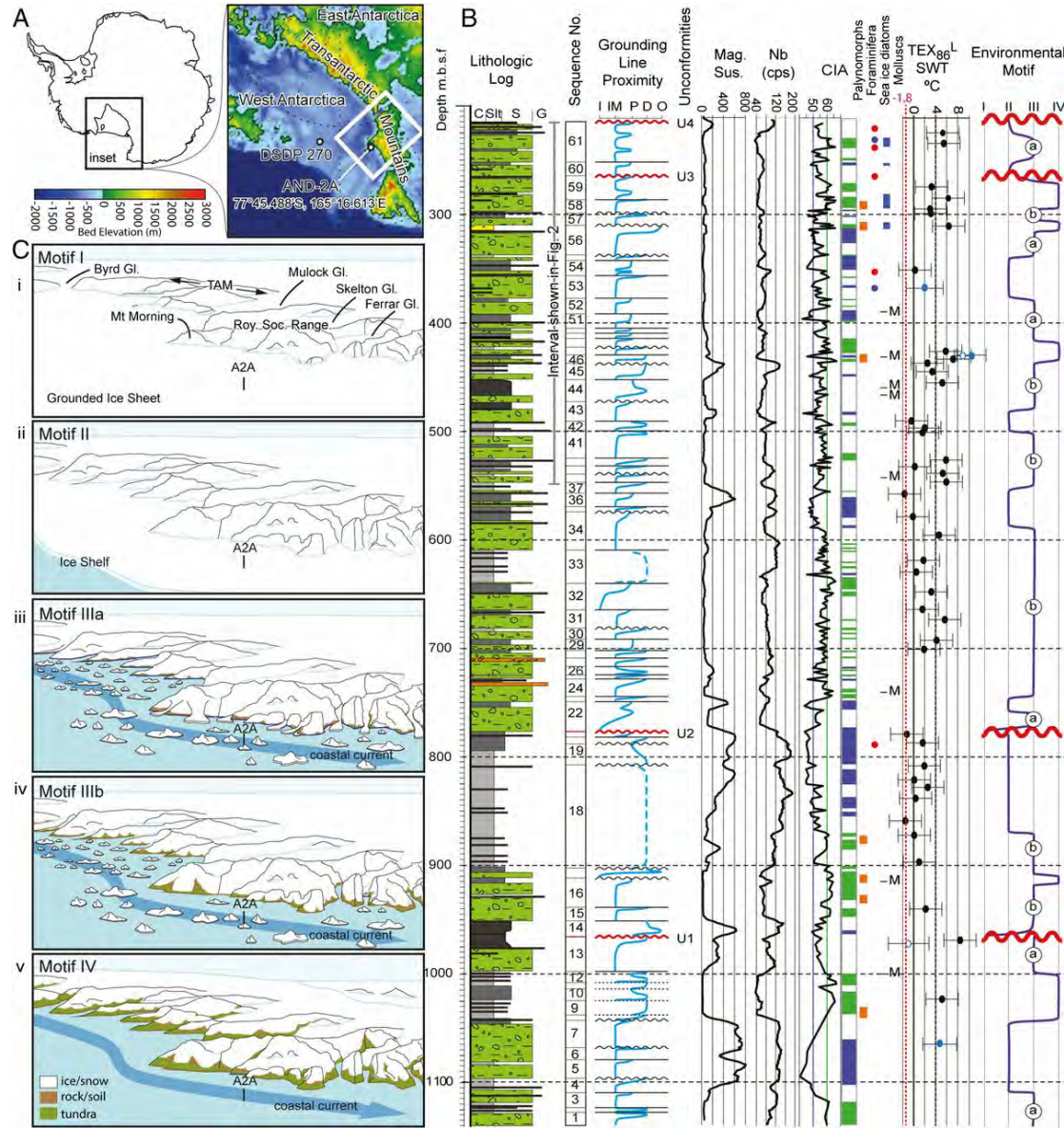
“You’ve got to go back in time to make the models better at forecasting the future,” Harwood said. “By testing and grounding our models on past warm periods, which we might see equivalents of in our near future, we can then understand how this might all play out. This work has allowed the models to mature to the point that they can understand the dynamics of an ice sheet in its many complexities and give a clearer view of the timing and magnitude of change.”

While cautioning that establishing a definitive time-frame for ice melt and sea level rise remains difficult, Harwood said the new model has called for the phenomena to occur at “alarming rates” that exceed prior projections.

“We’re talking about 2 to 3 thousand years (to see a 100-foot rise), whereas previous models might have called for a slower rate of change,” he said. “The models give us important windows into the future. Taken together, the results from these two studies demonstrate that the Antarctic Ice Sheet can respond to elevated atmospheric carbon dioxide levels similar to those projected for the near future.”

Funded in part by the U.S. National Science Foundation and the Antarctic research programs of New Zealand, Italy and Germany, the ANDRILL Program involved more than 100 researchers. The PNAS study “Antarctic Ice Sheet Sensitivity to Atmospheric CO₂ Variations in

the Early to Mid-Miocene” was authored by researchers from more than 20 institutions, led by Richard Levy of GNS Science in New Zealand. Its companion study, “Dynamic Antarctic Ice Sheet During the Early to Mid-Miocene,” was led by Edward Gasson from the University of Massachusetts Amherst.



(A) Map showing Ross Sea area (Inset) and AND-2A drill site (white box indicates approximate area for schematic reconstructions shown below). (B) Stratigraphic summary of lower 925 m of AND-2A (214.13–1,138.54 mbsf) showing 61 sedimentary cycles. Glacial proximity curve tracks relative position of the grounding line through ice-contact (I), ice-marginal (IM), ice-proximal (P), ice-distal (D), and open marine (O) environments. Continuously acquired datasets include magnetic susceptibility and Niobium (Nb) XRF-CS counts. CIA (curve and bar) indicates arid (<50, blue) and less arid (>60, green) conditions. Intervals of peak palynomorph concentration shown by orange boxes. Foraminifera assemblages include cold water/ice marginal benthic species (red circles) and cool water planktonic species (blue circles). Blue bars, sea ice diatoms; M, intervals with well-preserved molluscs. Sea water temperature estimates based on TEX₈₆L (black circles) and Δ47 (blue circles, open, less well-preserved specimens). Environmental Motif curve based on the proxy environmental dataset. (C) Schematic reconstructions of region around AND-2A showing likely conditions for each environmental motif (I–IV).

OUTREACH ROUNDUP

LEEC CONFERENCE



From February 19 - February 20, the LSUMNS was represented at the Louisiana Environmental Education Symposium geared towards science educators in the state. Our goal was to show teachers what the museum has to offer

them in regards to museum education and field trips. In addition to self-guided field trips, we offer hands on options for all ages including behind the scenes tours, themed education programs featuring specimens, and scavenger hunts. We also brought a few specimens from our bird, mammal, fish, and amphibian & reptile collections. It was great to connect with teachers at this conference and we look forward to participating in the future!

BREC BIOBLITZ



On April 2, the LSUMNS participated in BREC's Bioblitz. A Bioblitz is a 24 hour event in which teams of volunteer scientists, families, students, teachers, etc. work together to find and identify as many species of plants, animals, fungi, etc. as possible. Museum grad student, **Jon Nations** helped lead the mammal team and we also had a table featuring specimens from our collections. Thanks to Jon Nations, **Vivien Chua**, **Alicia Reigel**, and Perrin Teal-Sullivan for helping out.

EARTH DAY



On April 17, the LSUMNS brought along specimens from our teaching and research collections to Baton Rouge's Earth Day Celebration downtown. We covered topics such as global biodiversity, Louisiana biodiversity, as well as how to tell the difference between venomous and harmless Louisiana snakes. Thousands attended the event and the museum's table drew in a lot of attention. Thanks to **Sara Ruane**, **Vivien Chua**, **Rafael Marcondes**, **Jessie Salter**, **Mark Swanson**, and **Melissa DeBiase** for helping with the event.

LOS WINTER MEETING



The Louisiana Ornithological Society Winter Meeting at Monroe, Louisiana kicked off Friday evening 29 January with a social hosted by Friends of Black Bayou and Black Bayou Lake NWR. Judith O'Neale

and Joseph Vallee presented the evening program about their recent travels to Barrow, Alaska in search of Ross's Gull with a FieldGuides tour led by LSUMNS research associate **Dan Lane**. On Saturday 30 January, an assortment of field trips visited different Monroe-area sites. **Donna Dittmann** (LOS Vice President) and **Steve Cardiff** lead one of the trips for about 20 participants to D'Arbonne NWR. The 'Waking up with the Woodpeckers' trip, also assisted by Refuge Biologist Gypsy Hanks, was successful and participants saw Red-cockaded Woodpeckers leaving their roost cavities at sunrise. The remainder of the day was spent looking for birds around Lake D'Arbonne. A total of about 100 species were reported for the LOS Winter Meeting weekend despite windy conditions and flooding in the area. Phillip Hoose gave the Saturday evening presentation about Red Knots, the subject his book: *Moonbird: A year on the Wind with the Great Survivor B95*. The LOS Winter Meeting shifts locations each year and in 2017 will be hosted by **LSUMNS** in Baton Rouge.

UPCOMING OUTREACH EVENTS

May 14: Master Naturalist Workshop

June 5: USS Kidd First Free Sunday

For more information on outreach events and museum tours, contact **Valerie Derouen** vderou1@lsu.edu. More photos on our Facebook page.

COMING SOON

Fall 2016



Museum Special Saturdays



"Special Saturdays" at the LSU Museum of Natural Science is a STEM program that focuses on introducing children and their parents to the world of natural science. One Saturday a month we focus on a specific topic and invite experts from within the LSU research community to give short engaging talks accompanied by hands-on activities.

MNS NEWS & UPDATES

2016 Ornithology T-shirts!

This year the 2016 LSUMNS Ornithology T-shirt design features a Hooded Merganser drawn by LSUMNS alum Curt Burney. If you would like to purchase a t-shirt and support graduate student research, email **Glaucia Del Rio** (glaucia.ornito@gmail.com) with the amount of shirts and size(s) you want.

SIZES: XS - 3XL

Mail Payment to: LSU Museum of Natural Science 119 Foster Hall Baton Rouge, LA 70803

COST: \$20 per shirt (includes cost of shipping). **Checks ONLY**, cash will not be accepted.

Make checks out to the LSU Foundation with "Ornithology Student Support Fund" in the memo line.



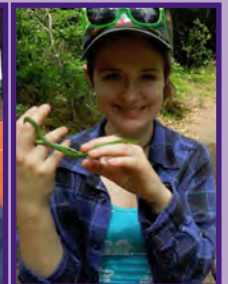
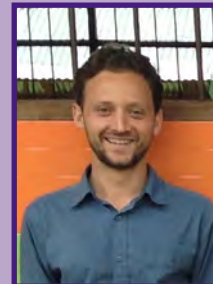
Dr. Prosanta Chakrabarty receives Rainmaker Award

Congratulations to **Dr. Prosanta Chakrabarty** who received the Mid-Career Scholar Rainmaker Award for Science, Technology, Engineering, and Mathematics. This award, given by the LSU Office of Research & Economic Development (ORED), recognizes outstanding faculty who are leaders in their fields!



Johnson & Mount receive NSF Honors

Congratulations to ornithology Ph.D. student **Oscar Johnson** who is a recipient of the National Science Foundation's Graduate Research Fellowship. Each recipient receives a \$34,000 stipend (per year) and a \$12,000 cost-of-education allowance for up to three years. Congratulations also to herpetology Ph.D. student **Genevieve Mount** who received honorable mention!



William Ludt receives Sigma Xi Research Grant

Congratulations to ichthyology Ph.D. student, **William Ludt**, who received a \$720 Sigma Xi Grant in Aid of Research!



Mike Harvey receives Outstanding Dissertation Award

Congratulations to former LSUMNS grad student, **Dr. Michael Harvey**, on receiving the Outstanding Dissertation Award from the LSU College of Science!



Ryan Burner receives T. Vinton Holmes Award

Congratulations to ornithology Ph.D. student, **Ryan Burner**, who was awarded the T. Vinton Holmes Award from the LSU Department of Biological sciences. This award is given annually to support student research in the field of ornithology.



Glauca Del Rio receives AAUW Fellowship

Congratulations to ornithology Ph.D. student, **Glauca Del Rio**, on receiving the American Association of University Women (AAUW) fellowship valued at \$20,000!



Cathy Newman receives McDaniel Travel Award

Congratulations to herpetology Ph.D. student, **Catherine Newman**, who was awarded the McDaniel Travel Award from the LSU Department of Biological Sciences. The award aims to recognize outstanding effort and achievement of graduate students and augment their abilities to travel to and present scientific findings at national and international scientific conferences.



Ludt & Chua Awarded PUF Grants

Congratulations to ichthyology Ph.D. student, **William Ludt**, and ornithology Ph.D. student, **Vivien Chua** on receiving PUF (Professorships used as Fellowships) Grants! These fellowships support a student for one semester.



Swanson & Nations Awarded Grants-In-Aid

Congratulations to mammalogy Ph.D. students **Mark Swanson** and **Jonathan Nations** on receiving Grants-in-Aid of Research from the American Association of Mammalogists.



Tammie Jackson 10 Years of Service!

Congratulations to LSUMNS Business Manager, **Tammie Jackson**, on her 10 year anniversary of working at LSU and the Museum!



Headed to the National Science Foundation



Dear Museum friends: As many of you already know I am headed to Washington, D.C., (or technically Arlington, Virginia) in August to begin a rotation as a National Science Foundation (NSF) program officer. My family and I will be moving for the year and hope to have many wonderful new experiences in D.C. I am going in order to give back to the NSF, which has been very good to me -and the museum, and to learn a bit about how the system works.

You may recall our Museum Director **Robb Brumfield** did the same rotation a few years ago. I will miss my lab, and the museum community, but I will stay involved with my work at LSU even while pushing papers in my new government cubicle. I've had a lot of support from the museum, the Department of Biological Sciences and the College of Science – so I won't forget to come back with lots of useful information to share. My twin girls, Chaya and Anjali will be starting kindergarten while we are in D.C., and my wife Annemarie is excited to plan lots of local trips for us in the region. Despite the temporary change of address I will still be a part of LSU: *Geaux Tigers!*

Prosanta Chakrabarty

Associate Professor/Curator of Fishes

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If you would like to include items in the next issue of *Museum Quarterly*, please send information, articles and photographs to the Museum Education Office. Articles about research, study or any other items of interest are encouraged. Information may be submitted as completed articles with jpeg pictures in attachments, or in list form to be put into article.

Email your material to vderou1@lsu.edu or mail to:

The LSU Museum of Natural Science
Education Office
119 Foster Hall
Baton Rouge, LA 70803

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