Museum Quarterly

LSU

Museum of Natural Science

February 2017
Volume 35 Issue 1

Lesser Short-Nosed Fruit Bat (*Cynopterus brachyotis*) | Borneo
Photo by LSUMNS graduate student Vivien Chua

Museum of Natural Science Director and Curators

Robb T. Brumfield
Director, Roy Paul Daniels Professor and Curator of Genetic Resources

Frederick H. Sheldon
George H. Lowery, Jr., Professor and Curator of Genetic Resources

Christopher C. Austin
Curator of Amphibians & Reptiles

Prosanta Chakrabarty
Curator of Fishes

Jacob A. Esselstyn
Curator of Mammals

J. V. Remsen
John Stauffer McIlhenny Professor and Curator of Birds

Rebecca Saunders
Curator of Anthropology

Sophie Warny
AASP Associate Professor Curator of Palynology & Director of Education

Letter from the Director...

The **LSUMNS** bird collection here has many treasures, but two of my favorites are the Whiskered Owlet and the Marvelous Spatuletail. The plumage of the male Spatuletail is absurd, and the discovery of the Whiskered Owlet by LSU ornithologists in 1976 is a continuous source of inspiration.

With the backing of John S. McIlhenny, Museum ornithologist **John O'Neill** led an expedition to the Andes of northern Peru in August 1976, making camp (05° 46'S,77° 41'W) and setting up a few mist nets in a cold, misery-inducing rain that did not stop. Just as they had decided to abandon the drenched camp, a dark brown owl, in miniature, showed up in one of their nets. It was a chimera as O'Neill described it, a three-way mix between a screech owl, a pygmy owl, and a crested owl. Where it fits in the owl tree of life remains unknown, but **Gary Graves** and John O'Neill named the obscure owl *Xenoglaux*, from the Greek *Xenos* for strange, and *glaux*, for owl, and honored Museum Director **George Lowery** with the specific epithet. Forty years later, *Xenoglaux loweryi* remains a very poorly known species, with only a handful of localities known from the vicinity of O'Neill's camp.

Through a generous invitation to give a plenary lecture at the 10th Ornithological Congress of Peru in Chachapoyas, I visited the hallowed forests that the Whiskered Owlet and Marvelous Spatuletail call home. The birding was incredible, but I was most impressed by seeing firsthand some of the byproducts of LSU's long field program in Peru. For example, near O'Neill's old camp there are now nature preserves and ecolodges where birders from around the world travel to see the owlet. And a second LSU camp in October 1976 that also found the owlet lies within what is now the 245 square-mile Cordillera de Colán National Park. LSU's ornithological discoveries were key in providing the biological rationale for establishing that park.

At the Congress, a legion of young Peruvian ornithologists attended, presenting exciting research projects on the conservation, ecology, evolutionary biology, and natural history of birds. I saw a beautiful molecular lab for biodiversity research – complete with next-gen DNA sequencer – under construction at the University of Amazonas. Ornithology is burgeoning in Peru.

Museum alumni **José "Pepe" Alvarez, Santiago Claramunt, Gary Graham, Kevin McCracken, Tom Schulenberg**, and **Thomas Valqui** were in attendance, as well as current grad student **Andre Moncrieff**. In the evenings, we'd gather to hear wild stories of the early LSU trips to Peru, when there were no field guides, the bird songs and calls were known by few, and the binoculars prone to fogging. We marveled about how far things had come.

How easy it is to take all of this knowledge for granted.

And I fulfilled a dream when I saw Marvelous Spatuletails, two days in a row.

Link to photos and video of the Long-whiskered Owlet
Link to photos of the Marvelous Spauletail

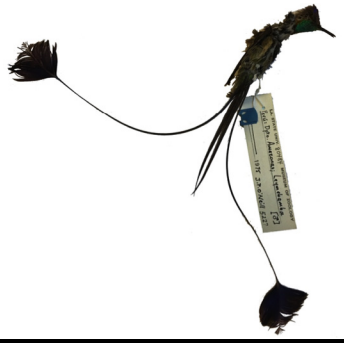
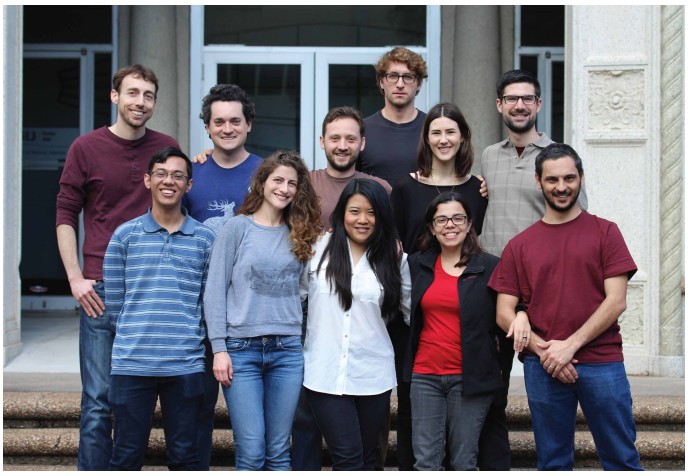


Fig. 1. This mummified specimen of the Marvelous Spatuletail was purchased by O'Neill in 1976 from a kid at a gas station in Leymebamba, Peru.

ornithology

LOUISIANA STATE UNIVERSITY
MUSEUM OF NATURAL SCIENCE

Dear Friends and Colleagues,



Back (L-R): Ryan Burner, Matt Brady, Oscar Johnson, Glenn Seeholzer, Jessie Salter, Andre Moncrieff. Front (L-R): Subir Shakya, Clare Brown, Vivien Chua, Glaucia Del-Rio, Marco Rego. Not pictured: Caroline Duffie, Anna Hiller, Rafael Marcondes, Cesar Sanchez, Ryan Terrill.

Spring is an exciting time at the LSU Museum of Natural Science. There are currently sixteen graduate students continuing the legacy of ornithological excellence at the LSUMNS – several of the older cohort are preparing to defend their dissertations, others are eagerly planning summer expeditions in Indonesia, Bolivia, and Brazil, and many of us are preparing to share our work at scientific meetings across the country. In our spare time, you can find us behind binoculars keeping tabs on the local bird life – especially now that early spring migrants are arriving in Louisiana.

Spring migration is a special time for us ornithology graduate students – in part because of our Annual Louisiana Big Day Fundraiser. On the Big Day, after weeks of scouting and planning, a team of LSUMNS graduate students will scour the state for 24 hours to see as many bird species as possible under American Birding Association Big Day rules. We target the end of April, when bird diversity is highest due to the large number of migratory bird species passing through on their way to northerly breeding grounds. We'll be closely monitoring the weather forecasts to pick the best day possible. On April 21 of last year our Big Day team recorded 219 species, just two species shy of the state record set by LSU students in 2010. With the right combination of effort, weather, and luck, we hope to approach or even surpass that record number this year!

The funds we raise on the Big Day directly support the field and lab work conducted by ornithology graduate students at the Museum. This money helps us launch newly conceived research projects, fills in funding holes when our grants run low, and sends us to international scientific conferences to share our latest research.

In the past year, LSUMNS ornithology graduate students have used Big Day funds to:

- Purchase a field recording unit, which was recently used on a trip to Puno, Peru to document geographic variation in vocalizations of 82 species of Neotropical birds
- Sequence genomic data from 150 Southeast Asian birds to determine population structure across Indo-Malaya
- Hire field assistants to collect vocalization recordings throughout the year to study seasonal differences in singing and breeding activity in Bornean birds
- Attend the 2016 North American Ornithological Conference in Washington, D.C. to present research on the phylogenetics of river island bird species in the Amazon Basin and patterns of morphological variation in Blue-crowned Manakins

The past generosity of donors like you has made the Big Day a success, and made these projects and many more possible. We hope you will support our efforts this year by making a donation online or using the form below. You can pledge a dollar amount for each species we find during the Big Day, or simply donate what you wish. All donations are tax deductible.

The graduate program at the LSUMNS is widely regarded as one of the premier programs for bird study, and your donations directly contribute to our success. We hope we can count on your donation for the Big Day fundraiser this year. As always, we are grateful for and inspired by your support.

Ornithology!

The LSUMNS Ornithology Graduate Students

Please cut on the dotted line and reurn this pledge form in the enclosed self-addressed envelope.

___ Yes, I will support LSU Ornithology with a one-time donation. $_____ **Name**_____

___ Yes, I will support LSU Ornithology with a per-species pledge to help motivate the Big Day team.

Per-species pledge $ _____

Checks should be made out to **LSU Foundation** with **"Ornithology Student Support Fund"** on the memo line

The closest guess to the actual number of species recorded gets a free t-shirt. **MY GUESS**_____

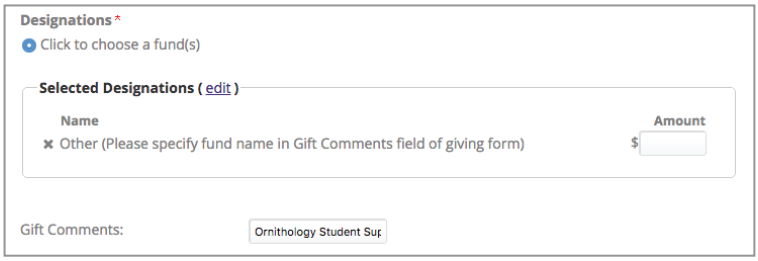
Online donation information on the back

Donate Online

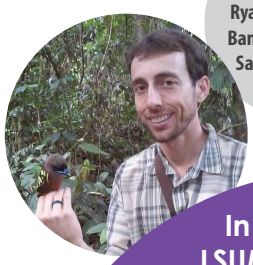
You can donate online through the LSU Foundation website:

www.lsufoundation.org/givetoscience

Please fill out the form from the link. Under **Designations**, select **Other**, and type **"Ornithology Student Support Fund"** in the **Gift Comments**.



News



LSUMNS student Ryan Burner with a Banded Broadbill in Sarawak, Borneo.

LSUMNS students Andre Moncrieff (far left) and Glenn Seeholzer (far right) with friends of the Museum Emil Bautista, Barry Walker, and Mayori Soto on a December 2016 trip to Puno, Peru.

In the past year, LSUMNS ornithology graduate students:

Led **5 international expeditions** in 4 countries (Borneo, Brazil, Indonesia, and Peru)

Sequenced **DNA from 1,207** individual **birds**

Presented their research in **12 talks and 3 posters** at **4 international conferences**, where they won **2 presentation awards**

Published **8 papers** in 6 peer-reviewed journals

A Black-headed Bulbul, one of the focal species of the Indonesia trip. Photo by Subir Shakya.

LSUMNS student Glaucia Del-Rio holding a White-breasted Antbird in the Madeira-Tapajós interfluvium in the Southern Amazon, Brazil

In November 2016, Ryan Burner, Lindsay Burner and Subir Bahadur Shakya flew to Jakarta, Indonesia where they met up with our Indonesian collaborators from LIPI to start a multi-year research project focusing on the birds on peripheral islands in Sundaland (Borneo, Java and Sumatra). During this trip, one of the first LSU expeditions to Indonesia, they visited three sites, Maratua Island, Bawean Island and Berau (in East Kalimantan, Borneo) and collected many new specimens for LSU including some of the first modern avian specimens from these places in 60 years.

In the past year, LSUMNS ornithology graduate students published articles in *Evolution, Ibis, Malimbus, Ornitologia Neotropical, Raffles Journal of Zoology,* and *Wilson Journal of Ornithology*.

We congratulate Rafael Marcondes on winning the American Society of Naturalists Ruth Patrick Award for best student poster at the 2016 Evolution Meeting in Austin, TX and Glenn Seeholzer for winning the Association of Field Ornithologists Student Presentation Award at the 2016 North American Ornithology Conference in Washington, DC. We also congratulate Glaucia Del-Rio, who is the first student in the LSU College of Science to receive the prestigious American Association of University Women doctoral fellowship.

T-shirt Order Form

Please cut on the dotted line and reurn this pledge form in the enclosed self-addressed envelope.

This year the annual LSUMNS Ornithology T-shirt will feature a design by LSUMNS alumn Curt Burney. If you would like to purchase a t-shirt, please include $20 per shirt (includes shipping) in the enclosed self addressed envelope and make the check out to the **LSU Foundation** with **"Ornithology Student Support Fund"** on the memo line. You may also place an order by emailing glaucia.ornito@gmail.com.

Size: Small____ Medium____ Large____ Extra Large____

Helping build a new fish collection for the Middle East

by William Ludt

For the past three years members of the **LSUMNS** ichthyology lab have traveled to the Middle East in search of unique fishes of the Persian Gulf (also called the Arabian Gulf in many of the countries of that region). Our trips to Kuwait and the United Arab Emirates (UAE) have brought back specimens that expanded and diversified our collections here at LSU for researchers to use worldwide, and have helped us gain a better understanding on the factors that drive biodiversity in the world's oceans. In fact, many of the fishes that LSU houses from these trips are poorly known and not present in many of the collections within the United States. Unfortunately, collections of these species are also uncommon in the Middle East where they are found, making it difficult for scientists in that region to figure out exactly which species occur there. Luckily, this is changing.

This year the LSUMNS ichthyology lab was graciously presented with the opportunity to assist the UAE Environmental Agency and establish a small reference collection in Abu Dhabi. A 10-day trip was organized by Dr. Rima Jabado at the UAE Environmental Agency for mid-December, 2016 to curate fishes that they had collected throughout the previous year. These collections had been made by trawling – the same method of dragging a net along the bottom that we use to get shrimp in the Gulf of Mexico. Trawling, however, is illegal in most countries that surround the Persian Gulf (except for Kuwait and Iran). The permits that the UAE Environmental Agency had to trawl made this a unique opportunity to discover even more rare fishes of the Persian Gulf, and the trawls did not disappoint.

The majority of the trip was spent in the UAE Environmental Agency fish lab, which is located conve-

Above: Fin markings of a male Persian Dragonet (*Callionymus persicus*).
Title Photo: UAE Collaborator Rima Jabado with the newly formed collection.

Top Left: Clown Fish (*Amphiprion clarkii*)
Middle Left: Large Thornback Trunkfish (*Tetrosomus gibbosus*)
Bottom: The beginnings of a new fish collection.

niently near the harbor and the main fish market. When I arrived there were two large freezers full of samples. These ranged from extremely small juvenile fishes, to large behemoths of some species that I didn't know could even get that big. Over the course of 10 busy days we managed to sort, identify, and preserve nearly 600 specimens. Slowly but surely jars of fishes started to accumulate on the shelves in the fish lab, and by the time I left I was able to see the beginnings of a collection form.

Identifying and curating specimens was not the only goal of the trip. The LSUMNS is committed not only to its own scientific projects, but we're also committed to passing on our knowledge and training others. During the trip I trained scientists and staff at the lab in proper preservation, storage, and curatorial techniques for a fish collection, and also held a half-day course for UAE researchers on fish identification for the region. Together, the course and the reference collection that we started will be an excellent resource, not only for scientific research, but also to engage the public and exhibit the strikingly diverse shapes and forms that fishes can take.

The Persian Gulf is a unique environment. Its shallow nature and overall position on the planet leads to harsh environmental conditions that not many species can tolerate. Properly documenting these species has been a major goal for us at LSU, and we have been more than happy to help others do so as well. Local reference collections, such as the one we helped establish in the UAE, are important resources for the UAE and surrounding countries in that region. The collections that we've done in this region are hopefully only the beginning. In the future we hope that LSU can work alongside local researchers and help collect in different habitats of the Persian Gulf, such as mangroves and coral reefs, to gain a holistic understanding of the fish biodiversity in this unique body of water.

Indonesia - The New Frontier

by Subir Shakya

In the preceding issue of the Museum of Natural Science newsletter (vol. 34, issue 3), **Ryan Burner** gave a vivid account of the research of **LSUMNS** Curator of Genetic Resources, **Dr. Frederick Sheldon**, and his students in Malaysian Borneo. As regular readers of this newsletter are already aware, Dr. Sheldon has been working in the Indo-Malayan region for the past 40 years and has contributed a lot to the advancement of our understandings of biogeography, ecology, and evolution of the birds in this region. Dr. Sheldon and his students visit some of the most remote and pristine sites in Indo-Malaya, particularly in Malaysian Borneo to collect research specimens to enhance the impressive collection at LSUMNS, and to facilitate the dissertations of Dr. Sheldon's graduate students. This article in the preceding issue, described the escapades of Ryan Burner and myself, two of Dr. Sheldon's Ph.D. students, on two Bornean mountains, Mt. Mulu and Mt. Pueh. Like most fieldwork in Borneo, the trip took place on the Malaysian side (26%) of the island. The Indonesian side, aka Kalimantan comprises the remaining 74% of the island and modern avian specimens from this part of Borneo are relatively underrepresented in collections worldwide due to the difficulty of obtaining collecting and export permits. However, in November/December of 2016, that changed with the LSUMNS's first expedition to Indonesian Borneo. Below I highlight the challenges we faced in obtaining permits for work in Kalimantan and detail some of the adventures we had in this next frontier.

First let me introduce myself, my research interest and how it culminated into an expedition to Indonesia. My name is **Subir Bahadur Shakya** and I hail from the Himalayan nation of Nepal. I joined Dr. Sheldon's lab in the fall of 2014. I am interested in avian evolution especially the evolution of coloration in birds. While looking for a niche to work on for my dissertation that

Top Left: Yellow morph of Black-naped Bulbul (*Brachypodius atriceps atriceps*)
Bottom Left: Oriental Pied Hornbill (*Anthracoceros albirostris*)
Top Right: Gray morph of Black-naped Bulbul (*Brachypodius atriceps hodiernus*)

would encapsulate my research interests as well as further the scope of biogeographic work in Indo-Malaya, I was directed to an interesting system involving two color morphs of the Black-headed Bulbul (*Brachypodius atriceps*). This species ranges from the Himalayan foothills to the Greater Sunda Islands. In most of its range, this species is yellow with a black head. However, on two islands, Maratua (NE of Borneo) and Bawean (between Borneo and Java) the yellow color is completely absent, and the birds are gray instead. Here was a perfect system to examine the evolution of coloration in a bird species, which could also shed light to an interesting biogeographic mystery: why these gray birds occur on these islands that are 800 miles apart. A few caveats to this perfect system are that these two islands are part of Indonesian Borneo, and specimens of the gray-morphs of this species are rare in museum collections. I knew I had to push to work in Indonesian Borneo if I wanted to work on this system.

In January of 2016, I started the lengthy process of applying for permits to work in Indonesia. Getting permits to work in Indonesia is challenging and some people even considered my endeavor a lost cause. But perseverance paid off, and in July 2016 we were notified that Ryan Burner and I would be allowed to work in Indonesia (Dr. Sheldon too, but he couldn't go). So in November 2016, Ryan Burner, Lindsay Burner and I flew to Jakarta, Indonesia. We met up with our Indonesian collaborators from LIPI. The first ten days we went to different offices, filled out forms, and waited to hear back from the various agencies in Indonesia. After all that waiting, we finally got our permits and immediately started for the first island, Maratua.

Maratua Island is a 9 sq. mile oceanic island 35 miles east of Borneo in the Celebes Sea. To get to Maratua, first we took a flight from Jakarta to Balikpapan (in East Kalimantan), then a 2 hour car ride to Samarinda to check in with the forestry dept. office and police stations. Then the next day, we drove back to Balikpapan, and flew to Berau, crossing the Equator on our way. From Berau, we took a car for 3 hours to reach the coast at Tanjung Batu. The final leg consisted of a 3 hour boat ride in a 5-seater boat to Maratua Island. Once we reached Maratua, we thought we were in paradise, there were sea turtles everywhere, the beaches were pristine and we were ready to start our fieldwork. We set up camp at the Maratua Guest House, and the owners of the establishment were kind enough to let us collect in the forest around their property. The island is an old coral-reef that was uplifted above the surface by tectonic

activity. Its rocky limestone surface is full of holes, some 10 ft deep. We set up our mist-nets and on the very first day we got our target species, the gray morph of the Black-headed Bulbul. Subsequently we were able to collect specimens of 13 other species including the Mangrove Whistler (*Pachycephala cinerea*), Black-naped Monarch (*Hypothymis azurea aeria*; the island's subspecies lacks a black nape), Gray-headed Fruit-Dove (*Ptilinopus melanospilus*), and Narcissus Flycatcher (*Ficedula narcissina*). This was the first ornithological expedition to visit this unique island in nearly 50 years, and we noted the apparent absence of the White-Crowned Shama (*Kittacincla stricklandii barbouri*) but were encouraged to hear the calls of a Phillipine Megapode (*Megapodius cumingii*).

After our success in Maratua, we returned to Berau and set up camp just south of the city in an abandoned camp-ground. A giant Saltwater Crocodile (*Crocodylus porosus*) that was being kept in a failing enclosure was the main attraction of this site. Here too we set up mist-nets to collect LSU's first birds from the mainland of Indonesian Borneo. The site, although very close to the city, was rich in birds including three kinds of hornbills, mammals such as langurs and giant squirrels, as well as a host of other creatures such as flying lizards. Babblers, sunbirds, and bulbuls were common in this forest patch. We collected specimens of about 25 species, including one of the yellow morphs of the Black-headed Bulbul.

At this point Ryan and Lindsay Burner left for Danum Valley in Malaysian Borneo to collect fecal samples from insectivorous forest birds. Ryan will sequence the prey DNA in these samples to examine the diets of these bird species in more detail. Along with having great success in collecting poop-samples from 300 individual birds, Ryan and Lindsay also experienced the wrath of pachyderms. Bornean Pygmy Elephants (*Elephas maximus borneensis*) wreaked havoc on mist-net lines, bending net poles, and dragging nets off into the jungle. Some of the lost nets weren't recovered for a week. Ryan and Lindsay were fine though, and were able to enjoy sights of orangutans, civets, mouse-deer, and pigs, along with the many species of birds.

While Ryan battled with the beasts, I flew to Surabaya in eastern Java, and then took a 9 hour boat ride to the second island, Bawean. As soon as I arrived

Top: Bawean Hog Deer (*Axis Kuhlii*a)
Middle: Monitor Lizard (*Varanus salvator*)
Bottom: Saltwater Crocodile (*Crocodylus porosus*)

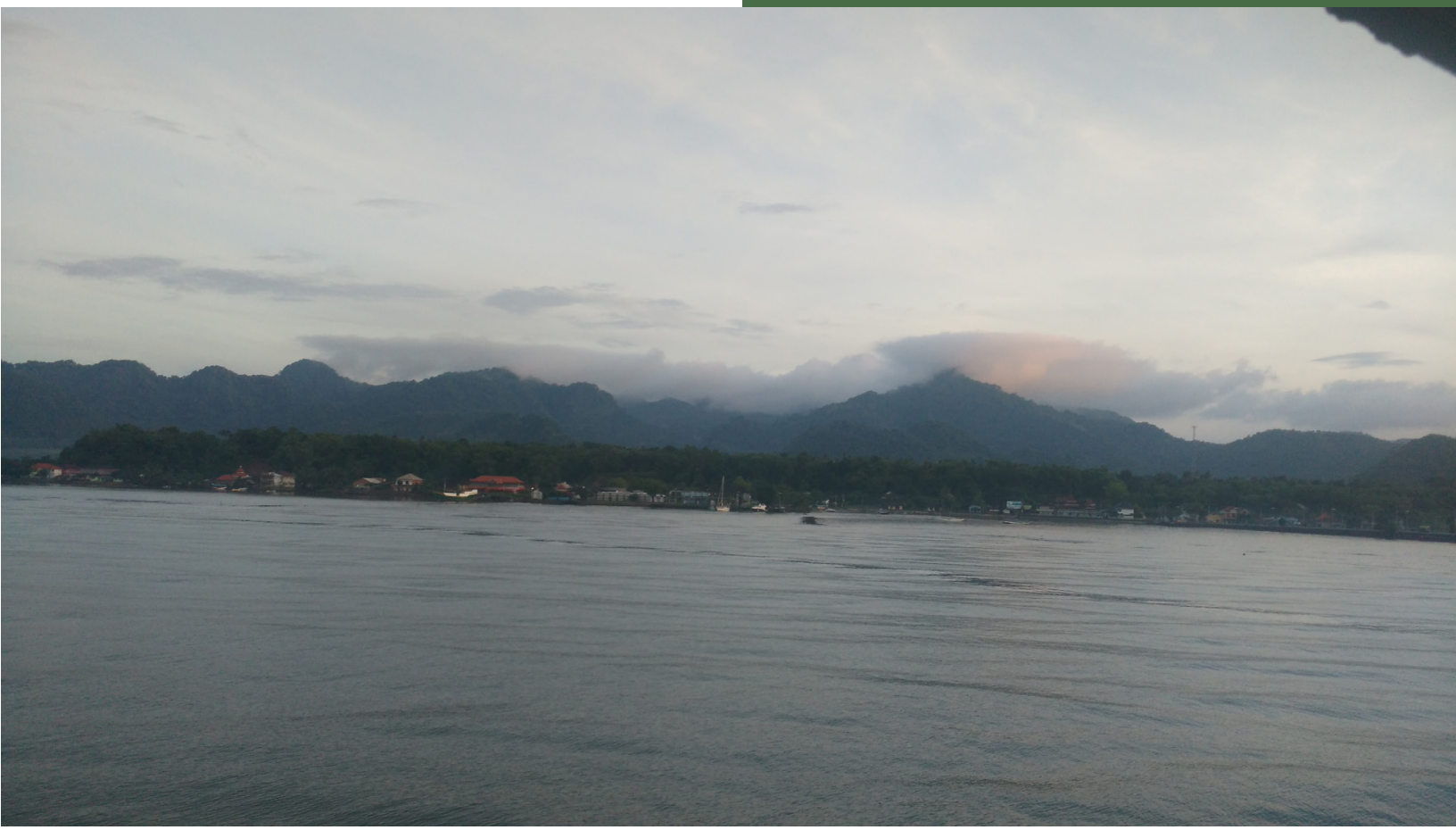
in Bawean, one thing was very apparent, the island was eerily quiet with respect to bird songs. We walked up to a Bawean Hog-deer (*Axis kuhlii*) enclosure, where this endemic, endangered species is being protected

Above: The group (From L to R) - Tri Haryoko, Lindsay Burner, Ryan Burner, Subir B. Shakya

and the story was the same. Even though the island was well-forested, there were no birds anywhere. A few Oriental Honey-buzzards (*Pernis ptilorhynchus*) and Bawean Serpent-eagles (*Spilornis cheela baweanus*) were flying about with the hundreds of giant flying foxes, but no songbirds. We set up our mist-nets along a ridge and waited to see if we would catch any birds. Here is where the reality became clear to us, the reason we were not hearing birds was that there were hardly any birds in the forest. The forestry officer described how the Black-headed Bulbul, up until 5 years ago, was the most abundant bird on the island. Now, due to the Indonesia's rampant pet trade, trappers have decimated the island's bird population. We did, however, manage to obtain one gray morph of the Black-headed Bulbul by buying it from a local who had it in a cage, a common practice in Indonesia.

Overall, the trip was a great success. We managed to collect LSU's first specimens from Indonesian Borneo (along with tissues for DNA analysis), established a collaboration with Indonesian colleagues, and obtained the target birds of the trip, gray and yellow morphs of the Black-headed Bulbul for my dissertation project. We also secured a 5-year collection permit to collect on the various islands in Sundaland (Java, Borneo and Sumatra and their satellite islands). I would like to thank everyone, especially Dr. Sheldon, who made this trip possible and look forward to writing about adventures on subsequent trips to Indonesia.

Below: Bawean Island
Title Photo: Maratua Island



Eighth Annual Yellow Rails and Rice Festival

by Donna L. Dittmann & Steven W. Cardiff

The Eighth Annual festival was held 2-6 November and was once again based in Jennings, LA, in the heart of our SW rice-growing region. The sold-out festival drew participants to in search of Yellow Rails from 26 US states, two Canadian provinces, and Australia in search of Yellow Rails. Field harvest sites were located near the small community of Thornwell, in 2014 designated by the LA Legislature as The Yellow Rail Capital of the World.

LSUMNS is a festival co-sponsor and each year LSUMNS staff and graduate students assist the event in many ways from being volunteer field trip leaders and/or rail field "facilitators," manning an information booth, or by providing logistical support. LSUMNS 2016 YRARF volunteers included (alphabetical order): **Clare Brown, Steve Cardiff, Valerie Derouen, Donna Dittmann, Anna Hiller, Tammie Jackson, Dan Lane, Andre Moncrieff, Van Remsen**, and **Jessie Salter.** LSUMNS personnel were able to share with festival participants their enthusiasm and knowledge of Louisiana's birds, as well as information about their research activities farther afield.

The festival's prime objective is to show visitors the festival's namesake, the Yellow Rail (*Coturnicops noveboracensis*). But, also, the event showcases the area's abundance of birds in its "working wetlands" (rice and crayfish) and provides a unique combination of "agritourism" and "ecotourism" experiences. Weather cooperated this year with no days lost to inclement weather. In fact the region was exceptionally dry with drought conditions, which seemed ironic following the State's historic August deluges. This year, Yellow Rail numbers were similar to 2015: 30 were estimated during the pre-festival Beat-the-Crowds event on Wednesday 11/2, 30 on Thursday field harvest day (a partial day delayed by a combine failure), 20-25 on Friday, and only four on Saturday. For some sample eBird lists, go to: http://ebird.org/ebird/view/checklist/S32448741 or http://ebird.org/ebird/view/checklist/S32449135. An additional 20 Yellows were found during pre-festival scouting on 10/25, with another 14 during a pre-festival tour on 10/28, 20 during a post-festival tour on 11/14, and a whopping 54 during another post-festival visit on 11/21. The latter visitor, Christian Hagenlocher, was attempting a record North American "big year" and was

Left: Dry conditions made for relatively easy walking in the fields, and a number of Yellow Rails were relocated in the stubble after they flushed.

Above: A Yellow Rail poses in the open briefly for participants before scurrying back out of sight.

able to add Yellow Rail to his list thanks to YRARF- see his eBird list at: http://ebird.org/ebird/view/checklist/S32671908 and his blog at: http://www.thebirdingproject.com/blog/2016/11/22/the-day-i-saw-too-many-rails for his recounting of that exciting day. Dry conditions made accessing the normally sloppy fields easier, but also created exceptionally dusty conditions and resulted in many fewer individuals of other rail species than normal. In fact, Yellow Rails outnumbered all other rails combined by a considerable margin. Although not the bumper crop of Yellows

Above: A Yellow Rail flies past an ATV full of excited participants.
Title Photo: YRARF 2016 had excellent weather and no harvest days were lost to rain.

Due to the combination of wind and dry field conditions, dust was exceptional on Wednesday. The combine and the Thornwell water tower behind the participant is barely visible.

found during the high-count years (2010, 2011, 2014), participants had unlimited opportunities to see rails flushing from the fields, including some up-close individuals spotted on the ground or being handled during banding activities. The Banding Workshop crew, led by Erik I. Johnson (Audubon Louisiana, Louisiana Bird Observatory), were able to catch 12 Yellows this year, of which eight were fitted with nano-tags. We hope MOTUS towers will pick up some of our bird's radio signals (http://motus.org/data/receiversMap.jsp). LDWF installed a temporary tower in the Thornwell area to monitor local movements of the Yellow Rails that were tagged during the festival. See more information here: http://www.birdscanada.org/research/motus/

As in previous years, participants were able to observe Louisiana's spectacular abundance and diversity of birds during field trips through rice country, to the coast of Cameron Parish, and to the longleaf pineywoods of the Kisatchie National Forest in Vernon Parish. By covering a diversity of habitats, participants had a chance to see over 200 bird species as well as to enjoy the area's culture, cuisine, and hospitality.

YRARF 2017 is scheduled for 1-5 November 2017 – if you would like to be on the festival email list, then contact: yellowrailsandrice@gmail.com. Keep an eye on the website for information updates about this year's event: http://www.snowyegretenterprises.com/Snowy_Egret_Enterprises/Yellow_Rails_%26_Rice_Festival.html

Registration will open on 1 August 2017 and spaces do fill quickly!

January Standalone Meeting of the Society of Systematic Biologists

by Genevieve Mount and Rafael Marcondes

Over 150 systematists and evolutionary biologists from across the world convened at the second Society of Systematic Biologists (SSB) standalone meeting held January 7-10 in downtown Baton Rouge. The organizing committee for the event was chaired by Biological Sciences Assistant Professor and MNS Associate **Jeremy Brown** and included Biological Sciences Professors Mike Hellberg and **Brant Faircloth** (also an MNS Associate), MNS Curators **Robb Brumfield** and **Prosanta Chakrabarty**, and MNS students **Genevieve Mount** and **Rafael Marcondes**. The meeting included workshops on cutting-edge software, community-wide discussion, as well as 60 lightning talks highlighting recent research from those in attendance. The smaller size was very successful in encouraging conversations and discussions during social events.

The Meeting started off on the weekend of January 7-8 with a series of workshops at the Hilton Hotel in downtown Baton Rouge. Three of these workshops were run by LSU students and faculty. Prosanta Chakrabarty, who is currently serving as a program director at the National Science Foundation, presented his view on the future of systematics and provided advice to those planning to apply for NSF funding. LSU postdoc Lyndon Coghill ran a workshop about using the software RevBayes to assess the reliability of phylogenetic estimates. Current LSU Master's student David Morris, and former LSU research associate Jeremy Ash, ran another workshop about the software TreeScaper, which can be used to compare and visualize large numbers of phylogenetic trees.

The next two days of the meeting (January 9-10)

Left: Workshop swag
Title Photo: SSB Group Photo

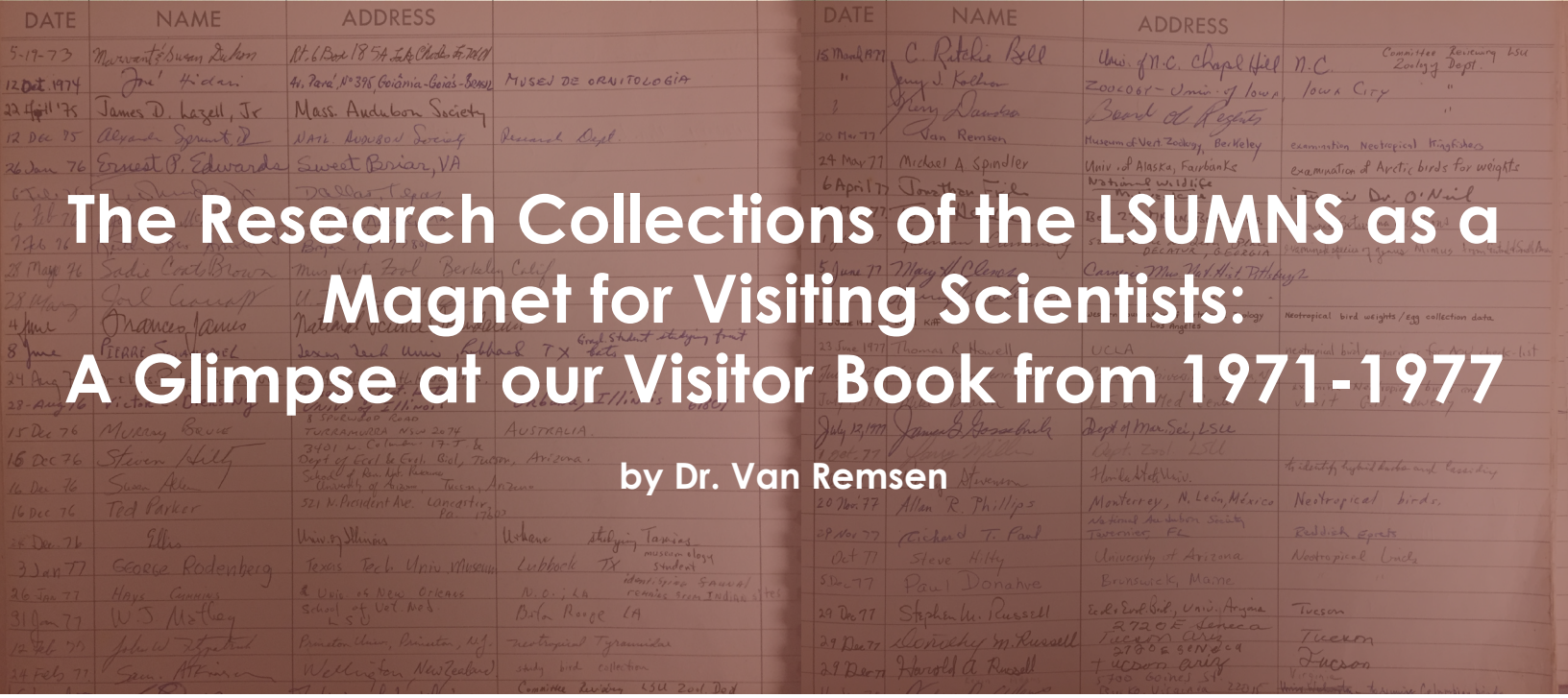
were dedicated to debates and lightning talks held at the beautiful Manship Theatre in the Shaw Center for the Arts, just steps away from the Mississippi River and the Old State Capitol. The debates focused on how we as researchers relate current large molecular datasets to traditional theory and concepts in systematics, and were led by some of the country's most prominent researchers in the field. A particularly thought-provoking debate was led by our very own Robb Brumfield and MNS alumnus Frank Burbrink, now curator of herpetology at the American Museum of Natural History. They shared their views on the ongoing issue of how to delimit species, and fostered a society-wide discussion about the current changes and complexities brought on by genome-wide datasets. Another debate, about "Missing data in phylogenomics", was organized by and for students. Student members of SSB and the student meeting organizers chose the topic and the discussion leaders. Genevieve Mount, a student council representative for SSB, served as moderator, and the audience participated by sharing their own experiences and questions on the subject. We all paid very close attention, as the issues raised have profound implications for research projects currently being pursued by many of us at the museum.

In addition to workshops and debates, the meeting featured 5 minute lightning talks. The talks highlighted much of the current museum research. Representing the Herpetology division, Cathy Newman presented the evolution of genome size in woodland salamanders. Mammalogy curator Jake Esselstyn and his student Mark Swanson gave to back-to-back talks on recent findings they have made in mammal phylogenetics. From the Ornithology division, Clare Brown talked about the evolution of migratory behavior in swallows, Glenn Seeholzer about morphological variation in an Andean passerine, Jessie Salter about the phylogeny of owls, Robb Brumfield about the definition of a bird species, and Carl Oliveros about the biogeographic history of Passerines. Finally, recent MNS graduates Mike Harvey and Gustavo Bravo also gave talks on work that they have been doing as post-docs at the University of Michigan and Harvard University, respectively.

An evening reception was held at the MNS after the first day of talks. Abundant and delicious Creole cuisine was served by local Baton Rouge icon Juban's, Les Freres Michot provided wonderful Cajun music, and we took a break from science while connecting with new and old friends. Many thanks to Robb Brumfield for organizing the reception and helping showcase the Museum.

The meeting was very well received by participants from LSU as well as other universities, and a great time was had by all. For this success we are all very grateful to the members of the organizing committee, especially Jeremy Brown, who impressed everyone with his outstanding job leading the efforts. The meeting's success would also not have been possible without the help of the student volunteers that included Matt Brady, Clare Brown, Mirela Cavuzic, Diego Elias, Joanna Griffiths, Anna Hiller, Teisha King, Rafael Marcondes, Genevieve Mount, David Morris, Jon Nations, Amie Settlecowski, Mark Swanson, AJ Turner and Yiming Wang. Finally, in addition to the MNS, the meeting was generously supported by LSU's Department of Biological Sciences, College of Science, and Office of Research and Economic Development, as well as NSF. Thank you to Dean Cynthia Peterson, Professor and Biological Sciences Chair Joe Siebenaller, and Associate Vice President Stephen Beck for making this meeting possible.

We feel reinvigorated and full of ideas for yet another year of great science at the museum.



The Research Collections of the LSUMNS as a Magnet for Visiting Scientists: A Glimpse at our Visitor Book from 1971-1977

by Dr. Van Remsen

As many readers know, a major curatorial activity at the LSU Museum of Natural Science involves loaning specimens to scientists at other institutions for use in their research projects. But sometimes the number of specimens they need shipping them infeasible, and researchers come to the LSUMMS to study the collections on site. This also gives us an opportunity to spend time with visiting colleagues, and graduate students get to meet some of the luminaries in their field. This also works in reverse – as a graduate student at UC Berkeley in 1977, I visited the LSUMNS to study kingfisher morphology but also on the agenda was to meet luminaries such as George Lowery and John O'Neill as well as discuss field research with the graduate students here.

I don't know the history of the LSUMNS Visitor Book, but I suspect that once the Museum's collections accumulated sufficient significance that they drew a steady stream of visitors, Dr. Lowery decided to document this starting in 1971 with a ledger book that had places for signatures, affiliations, dates, and reason for the visit.

I was looking at the Visitor Book the other day and saw that many "famous" people had visited the collections, just from 1971 to 1977, and the following names stood out, more or less in the order of their visits:

Ben & Lula Coffey, from Memphis, were pioneers in recording bird vocalizations and producing commercially available cassette tapes that were of great use to those of us trying to learn Neotropical bird voices. It doesn't get much better than listening to Ben Coffey narrate one of his tapes with his heavily accented pronunciations of bird names.

James L. Patton is a legend in mammalogy. Professor and curator of mammals at the Museum of Vertebrate Zoology at UC Berkeley, Jim has been a leader in specimen-based research on mammals for decades and has been the doctoral advisor for many notable mammalogists, our retired Mark Hafner among them. Jim is a major benefactor of the LSUMNS mammalogy program.

Paul S. Martin, a geoscientist at the University of Arizona, is famous for his "Pleistocene Overkill Hypothesis," which proposes that the extinction of most of the large mammals of North America that occurred in the last 10,000 years was due to overhunting by recently arrived humans. He was also a champion of the "rewilding" movement, which aimed to restore the Pleistocene megafauna by reintroducing ecological analogs from other continents (elephants, camels, lions, etc.)

Robert W. Storer is a legend in ornithology. Professor and curator of birds at the University of Michigan, Bob was exceptionally broad in his interests and unmatched in his knowledge of ornithology. He published important papers in morphology, paleontology, biogeography, ecology, and behavior, and was a member of the American Ornithologists' Union "Check-list" Committee.

Jose Hidasi was a professional collector of bird specimens from Brazil, I suspect he was visiting here to bring specimens to George Lowery.

Alexander Sprunt, IV, was Director of Research at the National Audubon Society for many years.

Ernest P. Edwards was the author of one of the first bird-finding guides for Neotropical birds, "Finding Birds in Mexico" (1968) as well as the book "A Field Guide to the Birds of Mexico" (1972). A prize named in his honor is given every year to the best paper published in the Wilson Journal of Ornithology.

Joel Cracraft got his M.S. here at the LSUMNS in 1966 with Dr. Lowery and when he visited, was a professor at the Univ. Illinois-Chicago. Joel, now at the American Museum of Natural History, is a leading figure in phylogenetic systematics and biogeography.

Frances C. James also got her M.S. here at the LSUMNS with Dr. Lowery, in 1955 and went on to be a leading role model for women ornithologists and ecologists. She was the first woman to be president of the American Ornithologists' Union, and has won prizes such as the Eminent Ecologist Award of the Ecological Society of America and the Margaret Morse Nice Medal of the Wilson Ornithological Society. Known for her incisive reasoning, pioneering use of statistical approaches, and innovative research, Fran was a professor at Florida State for many decades. When she visited, her affiliation was listed as "National Science Foundation" so she may have been an NSF program officer at the time.

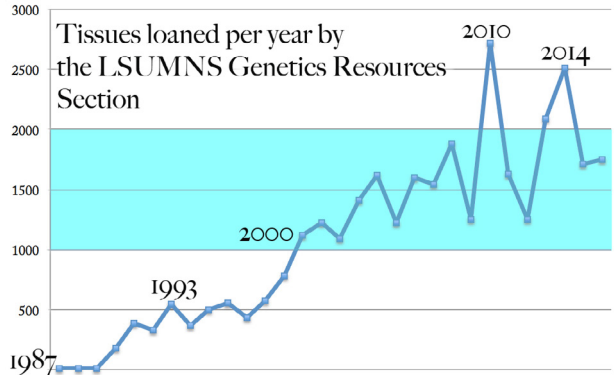
Ralph Schreiber was the curator of birds at the Los Angeles County Museum and an authority on the breeding biology of seabirds. Dr. Schreiber died when he was only 45 and is commemorated by the American Ornithologists' Union's "Ralph W. Schreiber Conservation Award", which is given annually to recognize exceptional contributions to conservation of birds.

Steve Hilty is the author of the field guides to the birds of Colombia and Venezuela, the richest and 5th-richest countries in the world in terms of number of bird species. Dr. Hilty also wrote "Birds of Tropical America", an outstanding book for introducing the layperson to the biology of tropical birds.

John W. Fitzpatrick visited as a graduate student at Princeton during his studies of flycatchers and his early interest in the birds of Peru. He and John O'Neill collaborated on discovering and describing a new species of flycatcher and a new species of owl. Dr. Fitzpatrick is the director of the Cornell Laboratory of Ornithology, the world's hub for linking the science of birds with the public.

Genetic Resources Collection: 2016

by Donna L. Dittmann



One of the interesting tasks at the beginning of each year is to compile the Collection of Genetic Resources' (CGR) loan ("tissue grant") activity for the previous year by project and researcher (in-house, domestic, and foreign), organized by vertebrate group (birds, reptiles and amphibians, and mammals). During 2016, CGR supported 75 research projects of which most were focused on some form of genetic relatedness, from broad scale ordinal or generic phylogenies to hybrid introgression to population genetics of a particular species on a local scale. Last year's projects also sought to identify bird hosts of mosquitoes, examine the effect of climate change on vertebrate extinctions, to resolve taxonomic problems obscured by convergent morphology/mimicry, develop primers for an Endangered Species, and confirm the identity of what was thought to be an extinct rodent.

Typically, each year CGR processes more than one loan per week and our collection is one of the most utilized of all of the World's genetic resource collections. A tissue loan may consist of one or many samples. Non-in-house loans are mainly supplemental in nature, providing samples that fill taxonomic or geographic gaps in support of a specific project by a researcher at another institution. Each project is reviewed and approved by CGR based on feasibility, design, and merit. A subsample is carefully cut from the original archived tissue sample, invoiced, and sent to a receiving institution.
In 2016, GR staff (myself, but also graduate curatorial assistants and other students working on personal projects) supervised/processed all tissue loans, but a group of dedicated undergraduate assistants were responsible for most of the painstaking and tedious physical work involved in locating samples in the collection, subsampling them, returning them to the collection, and organizing the subsamples in preparation for invoicing and shipping: Jacob Stover and (Spring Semester) and Nellie Yelvington (who, in addition to assisting during the spring, single-handedly processed most of the requests during Fall Semester). A total of 63 loans (951 tissues) were sent to non-LSUMNS researchers. Forty-nine loans (764 tissues) went to researchers in 18 states plus DC; predictably these went predominantly to laboratories at several of the more active research institutions, including the Smithsonian Institution, the American Museum of Natural History, the Field Museum, and Harvard, Rice, Texas A & M, and Cornell universities. Researchers in other countries (Mexico, Brazil, France, Germany, Denmark, and China) accounted for another 14 loans and 204 tissues. Exports add an additional time investment needed to acquire and maintain permits and process documents required for US Customs clearance. Not surprisingly, loan requests generally reflect the size and diversity of the tissue collection, with relatively more requests for birds (37 loans of 599 tissues), followed by reptiles and amphibians (21 loans, 325 tissues), and mammals (5 loans, 27 tissues).

As would be expected, LSUMNS-based researchers are heavy users of the GR collection and 2016 was no exception. About 800 tissues (45% of loaned samples) were subsampled for faculty and graduate student projects as well as LSU undergraduate mentoring projects. The total number of tissues subsampled during 2016 was 1,745, which is close to our annual average (see graph).

The GR collection celebrates its 38th birthday this year – young compared to the museum's "voucher" collections. At the conclusion of 2016, the total number of tissues invoiced to researchers was 31,697.

The GR collection began loaning tissues to outside researchers beginning in 1987. For the first few years only a few tissues were loaned per year. The collection was formally publicized as available to the research community in 1992 and its use has increased since. Since 2000, tissues loaned per year, has consistently exceeded 1000 samples. During the first years of the collection, in-house projects were not reflected in use totals, so the total number of LSUMNS tissues used for research projects is probably well over 32,000.

Museum Science and the Unanticipated Uses of Voucher Specimens

by Jacob Esselstyn & Mark Swanson

Graduate student Mark Swanson removes a small piece of skin from a rabbit specimen

Voucher specimens are the foundation of nearly all work conducted by museum scientists and the aggregation of these specimens into collections distinguishes museums from other institutions of research and education. These specimens might have been collected 20 or even 200 years ago and, as such, we stand on the shoulders of past researchers. If we used only the specimens we collect ourselves, our science would be feeble. This community-wide reliance on the past collection of specimens fosters an intergenerational connection and is part of what excites us about growing our collections. Many of us draw motivation from knowing that while we are collecting specimens for our own research, we are also contributing to something in the future that we can't fully anticipate.

Over the last couple years, a lot of our research effort in the mammal lab has been devoted to improving estimates of the relationships among all 5911 species of mammals. It may surprise some readers that there are still a lot of basic things we don't know about the evolutionary history of mammals. For instance, the origin of bats remains shrouded in mystery and even the question of what group represents the closest living relatives of primates is still debated. Perhaps more importantly, roughly 1 in 5 species of mammals has never been included in any explicit study of evolutionary relationships. With funding from the National Science Foundation, we are working toward improving this situation, such that many more species will be included in forthcoming estimates of relationships. Solving this problem, and generating an evolutionary tree of all mammals will, in addition to clarifying understanding of mammalian relationships, provide a wealth of scientific resources for testing innumerable hypotheses in macroevolution, biogeography, conservation biology, and comparative genomics.

Inferring evolutionary relationships among species is most effective when using traits from DNA sequences. For the last 30 years, DNA sequencing has revolutionized our ability to infer the evolutionary relationships among organisms. However, until the last few years, we could only generate DNA sequences from high quality tissues preserved specifically for genetic research. In other words, only the most recently collected voucher specimens were suitable for obtaining these data. More recently, however, techniques have improved such that we can now sequence 1000s of genes from degraded genetic samples, including small samples of the skin from a traditional museum voucher. This new capacity allows us to obtain DNA sequences from species that haven't been collected in the last 50 years or more. In fact, we are now routinely obtaining genetic data from specimens collected by people who couldn't have known that DNA is the molecule encoding the blue print of life. This development highlights the unforeseen future uses of museum specimens and underscores the importance of continuing to collect specimens even from areas with well-characterized faunas. While we can anticipate the values of specimens that lie in the immediate future, predicting what voucher specimens will be used for in 50 or 100 years is impossible. However, if history is any guide, we can be certain that future scientists will be using the specimens we collect to answer important questions that haven't yet occurred to us.

Phylogenomics using formalin-fixed and 100+ year old intractable natural history specimens

by Christopher Austin

Natural history museums around the world are packed with jars of alcohol filled with snakes, lizards, frogs, fish and other animals. These natural history specimens provide a wealth of information to biologists, including information on diet, morphology, species diversity, speciation, shifts in distributions, and extinction. Although highly valuable for these and myriad other reasons, scientists have been unable to effectively sequence DNA from them in the genomics age- until now that is. In a paper soon to be published in the international scientific journal Molecular Ecology Resources a method for DNA sequencing thousands of genes from these intractable specimens is described by former LSUMNS Postdoctoral Scholar **Dr. Sara Ruane**, now Assistant Professor at Rutgers-Newark, and LSUMNS Curator of amphibians and reptiles **Dr. Chris Austin**.

The problem with these specimens floating in jars of alcohol is twofold. First, most fluid-preserved museum specimens are prepared using formalin, which gives the specimen its rigidity and durability allowing specimens to be used by scientists for hundreds of years. Unfortunately, formalin while good for preserving the specimen, makes it very difficult to extract and sequence DNA. Field biologists now commonly take tissue samples prior to formalinization of specimens for future genetic work, but this was not standard practice until ~20 years ago, meaning millions of formalin-preserved specimens have been "lost" for modern genetic techniques. The second issue is simply age. DNA degrades and becomes split up into smaller and smaller fragments over time. For older DNA sequencing technology, this sheared DNA is difficult to amplify into long informative stretches of DNA that can be used to examine evolutionary relationships among species. Ruane and Austin used an approach that tackles both these issues. First, they combed the scientific literature for ways to get decent quantities of DNA from formalin-fixed tissues, which boiled down to using higher heat for longer amounts of time to extract the DNA while still using simple and standard protocols. Second, they took advantage of the pre-sheared DNA by using a newer high-throughput DNA sequencing method that actually requires smaller fragments to generate thousands of genetic markers called ultraconserved elements. This work resulted in thousands of genetic markers for previously intractable snake specimens collected as far back as the early 1900's.

Ruane and Austin were able to integrate these data with modern samples to create a snake phylogeny, which is essentially a family tree for the evolutionary relationships of species, which includes many never-before included snakes using modern genetic methods. The protocol is also minimally invasive to the specimen, meaning it does not ruin the other information that can be collected, by using just a small piece of tissue from the liver. The authors expect that this work will majorly benefit scientists working with rare animals that are either hard to collect or extinct but are represented in fluid-preserved historical collections and underscores the continued importance of museum collections in modern science.

The Warrego burrowing snake, *Antaioserpens warro*, an Australian snake specimen collected in 1968 and preserved in formalin from the California Academy of Sciences Herpetology Collection that yielded 2000+ genetic markers in the study.

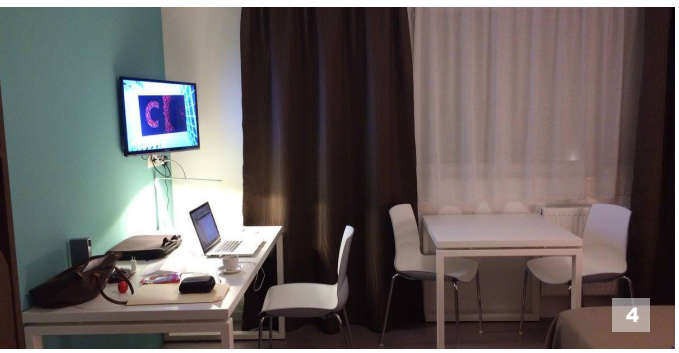
Guest Lecturing in Lille, France

By Sophie Warny, Ph.D., AASP Chair, Associate Professor and Curator, Louisiana State University

1

2

3



4

This past November, I was invited to teach an advanced palynology class at the Universite de Lille 1, in northern France. My host, Professor Taniel Danelian, helped organize the exchange to promote and re-enforce the partnerships between LSU and Lille 1.

Lille 1 organized my travel and lodging, and I arrived on campus (library[1]) after two plane flights, a TGV train[2] and a subway ride. The Lille 1 campus has a brand new facility, REEFLEX[3], that has as a mission to host international visitors (post-doc, faculty, etc.). Each studio[4] is well equipped so that the faculty can arrive and immediately focus on teaching duties.

While I was there teaching, I had the chance to visit their natural history collection. One of the items they had on temporary display that week made my day. They had the original sculptures and molds made by Alcide Charles Victor Marie Dessalines d'Orbigny[5,6] (9/6/1802 – 6/30/1857) to help promote the field of micropaleontology, and in this case, the foraminifera, the group of microfossils he named. Seeing the teaching collections created by this famous French naturalist was one of the highlights of the trip for me.

The following day, I got to meet the sixteen students[7] who were going to be taking my intensive lecture series... 12 hours of lectures in one week. These students are part of two advanced international degree programs offered by the Universite de Lille 1 in Micropaleontology and in Biogeochronology. All the classes are given in English by a series of home and guest professors. The students were from France, the United States, Russia, Ireland, the United Kingdom, Guadeloupe, Tunisia, and Sweden. They were a pleasure to teach.

5

wikimedia commons

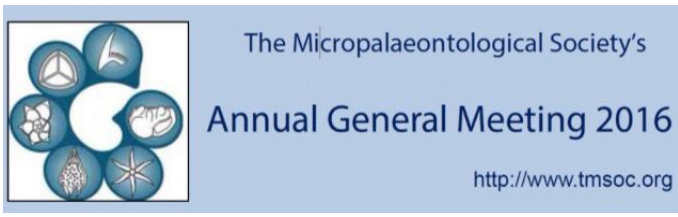
6

The lectures[8] were complemented by a series of laboratories[7]. For the labs, I focussed on teaching how to recognize various species of pollen. I was grateful my pollen slides were not confiscated at the border. For the lectures, we reviewed pollen, spores, dinoflagellate cysts, phytoliths, and how these microfossils are used in ongoing projects we have at CENEX, dealing with paleo-environmental reconstructions, forensics, and biostratigraphy.

As I had the Wednesday afternoon off, I had the chance to take a short subway ride to downtown Lille and enjoy the beautiful architecture of the old town[9, 10].

The end of my lecture series coincided with the Annual General Meeting of the Micropalaeontological Society. That gave me the chance to meet up with some AASP-The Palynological Society colleagues such as Pr. Fabienne Marret, and fellow naturalists from the London Natural History Museum (NHM). Below is a picture[11] of Dr. John Gregory (PetroStrat and Scientific Associate at the NHM), myself, Dr. Stephen Stukins and Dr. Tom Hill, both in charge of the palynological collections at the NHM in London.

The visit ended with a presentation on forensic development at CENEX at LSU[12]. This was definitely a fantastic experience that I recommend to all fellow faculty members.



OUTREACH ROUNDUP

USFWS WILD THINGS

On October 15, the LSUMNS participated in the 8th Annual USFWS Wild Things Event in Lacombe, LA. Hundreds of people came out to learn more about Louisiana wildlife. We brought along specimens from our mammal, fish, and amphibian & reptile collections. Thanks to **Seth Parker** for helping out!

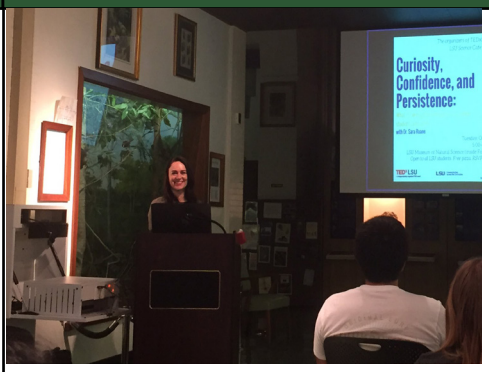
LATM LSTA JOINT CONFERENCE

From October 24-26, the LSUMNS took part in the Joint LATM LSTA conference for Louisiana math and science teachers. Our goal was to show local teachers what the museum has to offer in regards to museum education, field trips, and school visits. In addition to self-guided field trips, we offer hands on activities for all ages including behind the scenes tours, education programs featuring specimens, and scavenger hunts. Thanks to **Vivien Chua** and **Cathy Newman** for helping out.

MASTER NATURALIST WORKSHOP

On December 3rd, The LSUMNS once again hosted a workshop for the Louisiana Master Naturalists of Greater Baton Rouge. They learned about who we are and what we do, as well as went on tours of the bird, mammal, amphibian & reptile, fish, and genetic resources collections. We ended the day with a specimen prep demonstration. Thanks to **Robb Brumfield, Donna Dittmann, Steve Cardiff, Mark Swanson, Bill Ludt**, and **Cathy Newman** for helping out.

TEDXLSU - ORED



On October 18th, TEDxLSU and LSU ORED partnered together to present: "Curiosity, Confidence, and Persistence: What it takes to be successful as a college student...and in Life" with former LSUMNS post-doc **Dr. Sara Ruane**. The event was held at the museum and around 20 undergraduate students came to learn how Sara became a herpetologist and her tips on being successful. Sara now works at Rutgers University as an assistant professor.

OCEAN COMMOTION

On October 27th the LSUMNS participated in Ocean Commotion and had a table filled with strange marine fish, Basilosaurus fossils, and for the first time, sea birds! Over 2,100 elementary students attended the event. Thanks to **Bill Ludt, Link Morgan, AJ Turner,** and **Matt Brady** for helping out.

6TH GRADE DAY

On January 17th, 24th, and 31st, the LSUMNS took part in "6th Grade Day" at LSU. 6th Grade Day is an initiative from the LSU President's office aimed to aid in college readiness for Louisiana students. Over 2,000 6th graders participated in the event and visited various areas on campus. The LSUMNS had a table at the "Education, Humanities, and Sciences Experience" in the PMAC filled with specimens from our collections. Thanks to **Andre Moncrieff, Cathy Newman, Clare Brown, Anna Hiller, Glaucia Del Rio, Oscar Johnson**, and **Zach Rodriguez** for helping out with these events.

UPCOMING OUTREACH EVENTS

March 4 - Special Saturdays - Herps at Risk in LA
10am-12pm; Museum of Natural Science (Foster Hall)

March 16-18 - 12th Annual Eagle Expo
Morgan City, LA

April 1 - Special Saturdays - Mike's Native Habitat
10am-12pm; Museum of Natural Science (Foster Hall)

April 6 - Night at the Museum - Amphibians & Reptiles
6pm-8pm; Museum of Natural Science (Foster Hall)

April 21-23 - Grand Isle Migratory Bird Festival
Grand Isle, LA

May 6 - LDWF Step Outside Day
Sherburne Wildlife Management Area

May 13 - Special Saturdays - Risky Rodents
10am-12pm; Museum of Natural Science (Foster Hall)

May 20 - Workshop: Master Naturalists of Greater Baton Rouge
8am-2pm; Museum of Natural Science (Foster Hall)

NIGHT AT THE MUSEUM

Birds

Our new Night at the Museum series kicked off with the Bird Collection on September 29th with 50 people in attendance. LSUMNS Curator of Birds **Dr. Van Remsen** spoke about his top 10 favorite birds in the collection. Some of the highlights included the Lady Amherst's Pheasant, shoebill, kiwi, harpy eagle, and bird of paradise. Graduate students **Jessie Salter** and **Rafael Marcondes** had tables featuring specimens from their research on owls and bird coloration (respectively). Dr. Remsen later gave behind the scenes tours to guests. The Advocate did an article covering the night that can be viewed on their website.

Fish

Next up was the Fish Collection. This event took place on November 17th and had >60 people in attendance! LSUMNS Ichthyology graduate student **Bill Ludt** spoke about the fish lab's top 10 favorite fish in the collection. Highlights included the candiru, chimaera, and the blobfish. Graduate students **Pamela Hart** and **AJ Turner**, and undergraduate **Ashleigh Dyess** had a table featuring shark and cavefish specimens, while undergraduate researcher **Link Morgan** showed guests different ways we study the internal anatomy of a fish. There was even a "Guess how many fish are in the jar" contest! Ichthyology post-doc **Fernando Alda** later gave behind the scenes tours of the fish collection where guests got to view some of the larger "Top 10" fish up close.

SPECIAL SATURDAYS




Museum Special Saturdays are finally back up and running and during the fall semester we put on four Special Saturdays programs. Attendance ranged from 10-20 kids aged 5-12. Below is an overview of each event.

Adventures in Antarctica - September 24th
Kid's learned about the ecology and climate of Antarctica with geology graduate students Jade Lawrence and Krista Myers. Participants did a dexterity relay race where they had to perform tasks wearing gloves to simulate the work scientists do while in Antarctica wearing layers of warm clothes. Participants also created hanger mobiles comparing the Arctic to the Antarctic. Thanks to **Cathy Newman** and **Patrick Baudoin** for helping out.

Skeletal Mysteries - October 8th
Emily Wiegers from the LSU FACES lab spoke to the kids about skeletons and the characteristics used to identify human remains. Participants got to work with facial reconstruction clay, practice identifying major bones, and create "x-rays" of their hands. Thanks to **Vivien Chua** for helping out.

Creepy Crawlers - October 29th
To go along with Halloween, we did a creepy bug themed Special Saturday with graduate students from the Entomology Department at LSU. Participants learned about the insect life cycle; viewed (and touched!) live arthropods like hissing cockroaches, a scorpion, and paper wasps; and crafted mosquitoes to learn about body segments. Thanks to **Genevieve Mount** for helping out.

Birds & Beaks - December 10th
Our last Special Saturdays of the semester was presented by LSUMNS graduate student Glaucia Del Rio and centered around how a bird's beak is adapted to the type of food it eats. Participants did an activity where they got to try out different "beaks" (using everyday items like tweezers, strainers, etc) on different types of "food." They then viewed actual specimens representing the beaks they were imitating. Thanks to **Marco Rego, Oscar Johnson, Matt Brady,** and **Carl Oliveros** for helping out.

To reserve your spot for a behind the scenes tour during **Night at the Museum** visit: http://www.lsu.edu/mns/education/night-at-the-museum.php

To register for a **Special Saturday** visit: *http://www.lsu.edu/mns/education/special-saturdays.php*

For more information on outreach events and museum tours, contact **Valerie Derouen** vderou1@lsu.edu.

More photos from all of our outreach events can be found on our Facebook page.

LSU Museum of Natural Science

Spring 2017

Museum Seminar Schedule

Seminars begin at 3:30 in the main gallery of the 1st floor of Foster Hall

FOLLOW THE LSUMNS!

@LSU Museum of Natural Science

@LSU_MNS | #MuseumSeminar

@LSU_MNS

January 13	-	**Museum Expedition Travelogues** Ryan Burner & Glenn Seeholzer - Ornithological expeditions to Indonesia and Peru
January 20	-	**Dr. Kevin Rowe**, Museum Victoria (Melbourne, Australia) Title*: "Museums and global change from speciation to the Anthropocene"*
January 27	-	**Dr. Sean Doody,** Southeastern Louisiana University Title: *"Paradise Poisoned: Impacts of a Toxic Invasive Toad on an Australian Animal Community"*
February 3	-	**Dr. Catherine Linnen**, University of Kentucky Title*: "From mutations to species: Causes and consequences of host use variation in pine sawflies"*
February 10	-	**Dr. Lainy Day**, University of Mississippi Title: *"Complex Adaptations for Acrobatic Display in Manakins (Pipridae)"*
February 17	-	**Dr. Jennifer Lamb**, University of Southern Mississippi Title: *"Dusky salamanders in the Gulf Coastal Plain: diversity and gene flow across and within drainages"*
February 24	-	**No Seminar – Mardi Gras**
March 3	-	**Dr. Vinson Doyle**, LSU Department of Plant Pathology and Crop Physiology Title: *"Revisiting known knowns in plant-associated fungal diversity"*
March 10	-	**Dr. Brian Crother**, Southeastern Louisiana University Title: *"Re-Thinking the Fundamental Unit of Biogeography: Area of Endemism"*
March 17	-	**Chaz Hyseni**, University of Mississippi Title: *"Phylogeography of the eastern subterranean termite Reticulitermes flavipes: demographic history and niche evolution in the Appalachian Mountains"*
March 24	-	**Lisa Elizondo**, LSU School of Renewable Natural Resources Title: *"Felis catus: An Ecological Cat-astrophe"*
March 31	-	**Tim Colston**, University of Mississippi Title: *"The Evolution of Squamate Reptile Gut Microbiomes"*
April 7	-	**Dr. Julia Clarke**, University of Texas at Austin Title: TBD. Research interests: bird paleontology
April 14	-	**No Seminar – Spring Break**
April 21	-	**Dr. Amanda Glaze**, Georgia Southern University Title: *"Unspeakable, Forbidden, Taboo: Conversations about evolution in the American Southeast"*
April 28	-	**Dr. Thomas Lacher,** Texas A&M University and IUCN Title: *"The IUCN Global Assessments and Their Use in Biodiversity and Conservation Research"*

For further information, please contact Rafael Marcondes - rmarco3@lsu.edu

MNS NEWS & UPDATES

Jillian Banks earns Ph.D

Congratulations to palynology graduate student Dr. Jillian Banks who received her doctorate degree over the winter break. She was advised by Dr. Sophie Warny and Dr. Sam Bentley. Her thesis was on "Examining the Holocene Paleoenvironment of Okak Bay, Labrador, Canada using Microfossils and Sedimentary Indicators"

Dr. Warny selected as AASP Chair

Congratulations to Dr. Sophie Warny who was selected as the first AASP Endowed Chair in Geology and Geophysics by the Board of Regents!

Welcome Vann Smith

Vann is a new palynology Ph.D student joining Dr. Sophie Warny's lab in the Department of Geology & Geophysics. He did his Master's at Tulane University.

2016 LSUMNS Publications

Akyuz, I., **Warny, S.**, Oyebode, F., and Bhattacharya, J. 2016. Palynology of the Turonian Ferron-Notom Sandstone, Utah: identification of marine flooding surfaces and Milankovitch cycles in subtropical, ever-wet, paralic to non-marine paleoenvironments. *Palynology*. http://dx.doi.org/10.1080/01916122.2015.1014525

Bart, P.J., Coquereau, L., **Warny, S.**, and Majewski, W. 2016. In situ foraminifera in grounding zone diamict: a working hypothesis. *Antarctic Science*. doi:10.1017/S0954102016000055

Bryson, RW, **BC Faircloth**, WLE Tsai, **JE McCormack**, John Klicka. 2016. Target enrichment of thousands of ultraconserved elements sheds new light on early relationships within New World sparrows (Aves: Passerellidae). *The Auk: Ornithological Advances* 133:451-458.

Burner, R. C., Chua, V. L., Brady, M. L., Van Els, P., Steinhoff, P. O., Rahman, M. A., & **Sheldon, F. H.** 2016. An ornithological survey of Gunung Mulu National Park, Sarawak, Malaysian Borneo. *The Wilson Journal of Ornithology*, 128(2), 242-254.

Cadena, C. D., C. A. Pedraza, and **R. T. Brumfield**. 2016. Climate, habitat associations and the potential distributions of Neotropical birds: implications for diversification across the Andes. Revista de la Academia Colombiana de Ciencias Exactas, *Físicas y Naturales*. 40. doi: 10.18257/raccefyn.280.

Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, **J. V. Remsen, JR.**, J. A. Rising, D. F. Stotz, & K. Winker. 2016. Fifty-seventh supplement to the American Ornithologists' Union Check-list of North American Birds. *Auk* 133: 544–560.

Cibois, A., and **F.H. Sheldon**. Comment on Jukema et al. 2016. "Geographic variation in morphometrics, molt, and migration suggests ongoing subspeciation in Pacific Golden-Plovers (*Pluvialis fulva*)". T*he Auk: Advances in Ornithology* 133:129-130.

Cook, J. A., S. E. Greiman, S. J. Agosta, R. P. Anderson, B. S. Arbogast, R. J. Baker, W. Boeker, R. D. Bradley, D. R. Brooks, R. Cole, J. R. Demboski, A. P. Dobson, J. L. Dunnum, R. P. Eckerlin, **J. Esselstyn**, K. E. Galbreath, J. Hawdon, H. E. Hoekstra, S. J. Kutz, **J. E. Light,** L. E. Olson, B. D. Patterson, J. L. Patton, A. J. Phillips, E. Rickart, D. S. Rogers, M. E. Siddall, V. V. Tkach & E. P. Hoberg. 2016. Transformational principles for NEON sampling of mammalian parasites and pathogens: A response to Springer and colleagues. *BioScience*. 66:917–919.

Demos, T. C., A. S. Achmadi, H. Handika, K. C. Rowe & **J. A. Esselstyn**. 2016. A new species of shrew (Soricomorpha:Crocidura) from Java, Indonesia: possible character displacment despite intraspecific gene flow. *Journal of Mammalogy*. DOI: 10.1093/jmammal/gyw183.

Demos, T. C., A. S. Achmadi, **T. C. Giarla**, H. Handika, Maharadatunkamsi, K. C. Rowe & **J. A. Esselstyn**. 2016. Local endemism and within-island diversification of shrews illustrate the importance of speciation in building Sundaland mammal diversity. *Molecular Ecology*. DOI: 10.1111/mec.13820.

Del-Rio, G and Luís Fábio Silveira. 2016. Remarks on the Natural History of São Paulo Marsh Antwren (*Formicivora paludicola*). *The Wilson Journal of Ornithology* 128 (2): 445-448.

Edwards, SV, Z Xi, A Janke, **BC Faircloth**, **JE McCormack**, TC Glenn, B Zhon, S Wu, EM Lemmon, AR Lemmon, AD Leache, L Liu, CC Davis. 2016. Implementing and testing the multispecies coalescent model: a valuable paradigm for phylogenomics. *Mol Phylogenet Evol* 94(Pt A): 447-62.

Eichler, Patrícia P.B., **Barun K. Sen Gupta**, **Lorene E. Smith**, Helenice Vital, Moab Praxedes Gomes. 2016. Biodiversity patterns of benthic foraminifera associated to geo-habitas as first insights in delimiting reefal marine parks. GeoHab 2016 (Marine Geological and Biological Habitat Mapping), 2-6 May 2016 Meeting in Winchester, United Kingdom, Abstracts, p. 51.

Esselstyn, J. A. 2016. Speciation in shrews (Crocidura) in the Philippine Archipelago. Pp. 64–65 in Heaney, L. R., D. S. Balete & E. A. Rickart, The Mammals of Luzon Island: Biogeography and Natural History of a Philippine Fauna. Johns Hopkins University Press, Baltimore.

Faircloth, B. C. 2016. PHYLUCE is a software package for the analysis of conserved genomic loci. *Bioinformatics* 32 (5): 786-788.

Glenn, TC, **BC Faircloth**. 2016. Capturing Darwin's Dream. *Mol Ecol Res* 16:1051–1058.

Hafner, M. S. 2016. Family Geomyidae (pocket gophers). In Handbook of mammals of the world. Volume 6, Lagomorphs and Rodents I. D. E. Wilson, T. E. Lacher, Jr., and R. A. Mittermeier, eds. Lynx Edicions, ISBN-13:

978-84-941892-3-4.

Harrington, RC, **BC Faircloth**, WL Smith, TJ Near, ME Alfaro, M Friedman. 2016. Phylogenomic analysis of carangimorph fishes reveals flatfish asymmetry arose in a blink of the evolutionary eye. *BMC Evolutionary Biology* 7:12709.

Harvey, MG, BT Smith, TC Glenn, **BC Faircloth, RT Brumfield**. 2016. Sequence Capture Versus Restriction Site Associated DNA Sequencing for Phylogeography. *Syst Biol Syst Biol* 65:910-924.

Herzog, S. K., **R. S. Terrill**, A. E. Jahn, **J. V. Remsen, Jr.**, O. Maillard Z., V. H. García-Solíz, R. MacLeod, A. Maccormick, & J. Q. Vidoz. 2016. *Birds of Bolivia Field Guide*. Asociación Armonía, Santa Cruz de la Sierra, Bolivia, 491 pp.

Hoffberg, S, TJ Kieran, JM Catchen, A Devault, **BC Faircloth**, R Mauricio, TC Glenn 2016. RADcap: Sequence Capture of Dual-digest RADseq Libraries with Identifiable Duplicates. *Mol Ecol Res* 16:1264-1278.

Hosner, PA, **BC Faircloth**, TC Glenn, EL Braun, RT Kimball. 2016. Phylogenomic inference of landfowl (Aves: Galliformes): effects of missing data in concatenated and coalescent inference and evidence for a bias in gene tree reconciliation approaches. *Mol Biol Evol* 33: 1110-1125.

Johnson, O. 2016. Pearly-breasted Conebill (Conirostrum margaritae), Neotropical Birds Online (T. S. Schulenberg, Editor). Ithaca: Cornell Lab of Ornithology.

Levy, R.H., Harwood, D.M., Florindo, F., DeConto, R., von Eynatten, H., Fielding, C., Field, B., Gasson, G., Golledge, N., Kuhn, G., McKay, R., Naish, T., Olney, M., Pollard, D., Sangiorgi, F., Schouten, S., **Warny, S.**, Willimott, V., and SMS Science Team. 2016. Antarctic ice sheet sensitivity to atmospheric CO2 variations in the early to mid-Miocene. *PNAS*, 113(13): 3453-3458.

McCormack, JE, WLE Tsai, **BC Faircloth.** 2016. Sequence capture of ultraconserved elements from bird museum specimens. *Mol Ecol Res* 16:1189–1203.

McGee, M, **BC Faircloth**, SR Borstein, J Zheng, CD Hulsey, PC Wainwright, ME Alfaro. 2016. Replicated divergence in cichlid radiations mirrors a major vertebrate innovation. *Proc Roy Soc B* 283 (1822) 20151413.

Meiklejohn, KA, **BC Faircloth,** TC Glenn, RT Kimball, EL Braun. 2016. Analysis of a rapid evolutionary radiation using ultraconserved elements (UCEs): Evidence for a bias in some multi-species coalescent methods. *Syst Biol* 65:612-627.

Moyle, RG, **CH Oliveros**, MJ Andersen, PA Hosner, BW Benz, JD Manthey, SL Travers, RM Brown, **BC Faircloth**. (2016) Tectonic collision and uplift of Wallacea triggered the global songbird radiation. *Nat Comm* 7:12709.

Newman CE, Austin CC (2016) Sequence capture and next-generation sequencing of ultraconserved elements in a large-genome salamander. *Molecular Ecology*, 25: 6162-6174.

Oswald, J. A., M. G. Harvey, R. C. Remsen, D. U. Foxworth, **S. W. Cardiff, D. L. Dittmann**, L. C. Megna, **M. D. Carling,** and **R. T. Brumfield**. 2016. Willet be one species or two? A genomic view of the evolutionary history of Tringa semipalmata. *Auk* 133:593-614. doi: 10.1642/auk-15-232.1

Parker, SE, and LD McBrayer. 2016. The effects of multiple obstacles on the locomotor behavior and performance of a terrestrial lizard (*Sceloporus woodi*). *Journal of Experimental Biology*. 219: 1004-1013.

Remsen, J. V., JR. 2016. A "rapid assessment program" for assigning species rank? *J. Field Ornitholog*y 87: 110-115.

Remsen, J. V., JR., A. F. L. A. Powell, R. Schodde, F. K. Barker & S. M. Lanyon. 2016. A revised classification of the Icteridae (Aves) based on DNA sequence data. *Zootaxa* 4093: 285–292.

Rowe, K. C., A. S. Achmadi & **J. A. Esselstyn**. 2016. Repeated evolution of carnivory among Indo-Australian rodents. *Evolution*. 70:653–665.

Rowe, K. C., A. S. Achmadi & **J. A. Esselstyn**. 2016. A new genus and species of omnivorous rodent (Muridae: Murinae) from Sulawesi, nested within a clade of endemic carnivores. *Journal of Mammalogy*. 97:978–991. DOI: 10.1093/jmammal/gyw029.

Schodde, R. & **J. V. Remsen, Jr**. 2016. Correction of Cassicinae Bonaparte, 1853 (Aves, Icteridae) to Cacicinae Bonaparte, 1853. *Zootaxa* 4162: 188.

Spradling, T. A., J. W. Demastes, D. J. Hafner, P. L. Milbach, F. A. Cervantes, and **M. S. Hafner.** 2016. Systematic revision of the pocket gopher genus Orthogeomys. *Journal of Mammalogy* 97:405-423.

Styring, A.R., R. Ragai, M. Zakaria, and **F.H. Sheldon**. 2016. Foraging ecology and occurrence of 7 sympatric babbler species (Aves: Timaliidae) in the lowland rainforest of Borneo and peninsular Malaysia. *Current Zoology* 62:345-355.

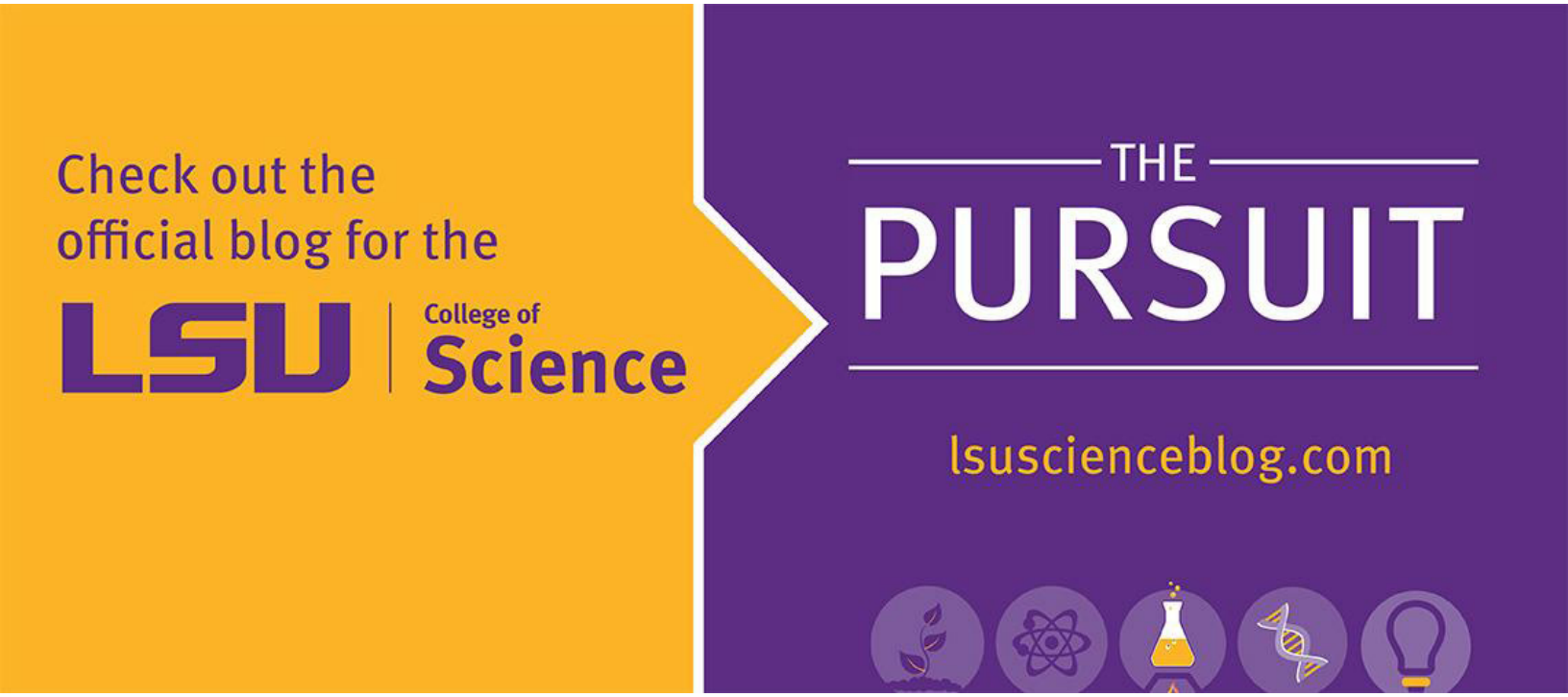
Thiago V. V. Costa, Vitor de q. Piacentini, Dalci M. M. Oliveira, Fábio Schunck, **Bret m. Whitney, Marco a. Rêgo,** Tatiana C. Rubio, Fabiano Oliveira, Benedito Freitas, **Glaucia Del-Rio**, **Glenn F. Seeholzer, Michael G. Harvey,** Ryan s. Terrill, Aandré g. Correa, Felipe Arantes, and Luís Fábio Silveira. New records of the enigmatic Clytoctantes atrogularis (Thamnophilidae) in Amazonian Brazil, with remarks on plumage, natural history and distribution. 2016. In press. *The Wilson Journal of Ornithology.*

van Els, P., Chua, V. L., Burner, R. C., Rahman, M. A., & **Sheldon, F. H.** 2016. Notes on the life history of Harpactes whiteheadi (Aves: Trogonidae), with a description of the juvenile plumage. *Raffles Bulletin of Zoology,* 64, 76-78.

Warny, S., Kymes, M., Askin, R., Krajewski, K. and Bart, P.J. 2016. Remnants of Antarctic vegetation on King George Island during the early Miocene Melville Glaciation. *Palynology*. http://dx.doi.org/10.1080/01916122.2014.999954

Zarza, E, **BC Faircloth**, W Tsai, R Bryson Jr., J Klicka, **JE McCormack**. 2016 Hidden histories of gene flow in highland birds revealed with genomic markers. *Mol Ecol* 25:5144-5157.

Zucker, M. R., **M. G. Harvey, J. A. Oswald, A.M. Cuervo, E. P. Derryberry,** and **R. T. Brumfield**. 2016. The Mouse-colored Tyrannulet (Phaeomyias murina) is a species complex that includes the Cocos Flycatcher (Nesotriccus ridgwayi), an island form that underwent a population bottleneck. *Molecular Phylogenetics and Evolution* 101:294-302. doi: 10.1016/j.ympev.2016.04.031.



Giving Form to Support the Museum of Natural Science

Name (s): _____
Address: _____
_____
City: _____
State: _____ Zip Code: _____
Telephone [Day]: _____
Telephone [Night]:_____

Enclosed is My Gift of:

___ $50 ___ $100 ___ $200 ___ $500 ___ Other

Make Checks payable to:
LSU Foundation

___ Mastercard ___ American Express
___ Visa ___ Other:
Please Indicate: _____

Account #: _____ - _____ - _____ - _____
Exp. Date: _____

Name as it Appears on Card (please print):

_____

Billing Address: _____
_____
City: _____
State: _____ Zip Code: _____

Signature:

_____

All Donations are Tax Deductible

Please Mail Your Donation, Along with this Form to:
LSU Museum of Natural Science
119 Foster Hall
Baton Rouge, Louisiana 70803

Matching Gift Company: _____
_____

Corporate Matching Gifts:
Many companies match donations by employees, their families or retirees. Please ask your human resources office for your company's matching gift form. Mail the form, with this pledge card to the address provided above.

Thank You For Your Support.

LSU
Museum of Natural Science

Museum of Natural Science
119 Foster Hall
Baton Rouge, LA 70803

Address Service Requested

Non-Profit Org.
U.S. Postage
PAID
Permit No. 733
Baton Rouge, LA

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

In This Issue...

Printing of this publication is sponsored by the Friends of the Museum of Natural Science.
Layout design and editing by Museum Education Office