Quarterly Newsletter

LSU

Museum of Natural Science

May 2019
Volume 37 Issue 2

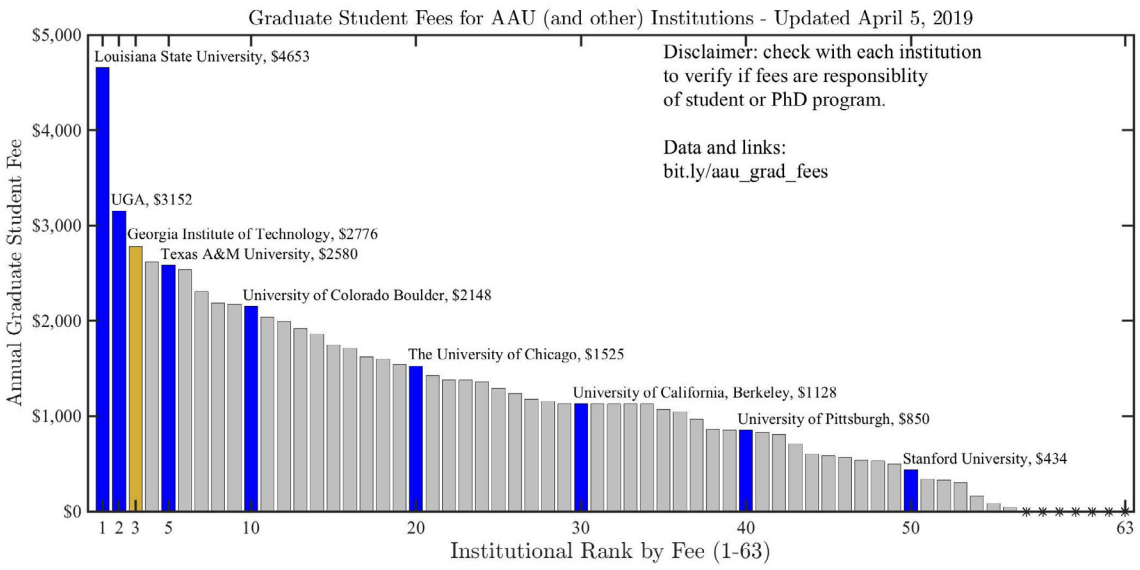
Timber Rattlesnake (*Crotalus horridus*) | Alabama
Photo by LSUMNS graduate student Jackson Roberts

Museum of Natural Science Director and Curators

Letter from the Director...

With the end of my final term as Director soon approaching, I thought it an opportune time to provide you with a few musings on the state of the Museum and its future. **Dr. Chris Austin** will officially assume the role of Museum Director on July 1, 2019, but because he and his graduate students will be on a collecting expedition to Papua New Guinea over the summer, I'll continue on as Acting Director until September.

I hate to start with a negative, but something worrying me about the Museum's future, and about the quality of research on LSU's campus in general, are the exorbitant fees graduate students are now required to pay as part of their registration. Fee increases, necessitated by paltry state funding, propelled LSU to be the nation's fee leader (see figure, courtesy of Dr. Joshua Weitz at Georgia Tech). Had graduate assistantships increased proportionally with fees over the years it wouldn't have been such a big deal, but they didn't. None of the Museum's graduate students came here to get rich, but none of them envisioned living below the poverty line. Hopefully the university will take steps to address this. Graduate students are the lifeblood of the Museum, and these fees are an obstacle to their wellbeing and to continued recruitment of outstanding graduate students. If you're on Twitter, you can read more about the situation using the hashtag #fiercefees.



Graduate student funding notwithstanding, I am sanguine about the future of the Museum. As it has been from its founding, the Museum remains a positive, family-like atmosphere filled with curious people who share an enthusiastic passion for natural history, fieldwork, research collections, and teaching. Museum scientists also continue to be extremely productive,

landing extramural grants to support research and collections and publishing research in top peer-reviewed journals.

The Museum is fortunate to have a community of friends and alumni, whose generous support provides much-needed resources that help fund collecting expeditions and support cutting edge graduate student research. The Museum is fortunate in being part of a College that greatly values the Museum. The Fish and the Reptile & Amphibian collections are, as I write this, moving into newly renovated space in the basement of Foster Hall, and the Collection of Genetic Resources will follow them later this year. Half of the Archaeology Collection moved recently into renovated space on the first floor of Foster Hall, with the hope that the rest of the collection will eventually move to Foster from the Gym Armory.

In coordination with the College, the Museum's science education efforts have grown prodigiously during the last few years under the leadership of Museum Outreach Coordinator **Valerie Derouen**. Louisiana's citizens have a thirst for natural history, and the Museum is helping quench it.

The Museum is currently down two Curators because of recent retirements, but I am happy to report that we ran a successful search for a new Curator of Birds earlier this Spring (**Dr. Nicholas Mason** will start in Fall 2020). We are hopeful that we will be able to run a search this Fall for a new Curator of Vertebrate Paleontology.

Have a great summer!

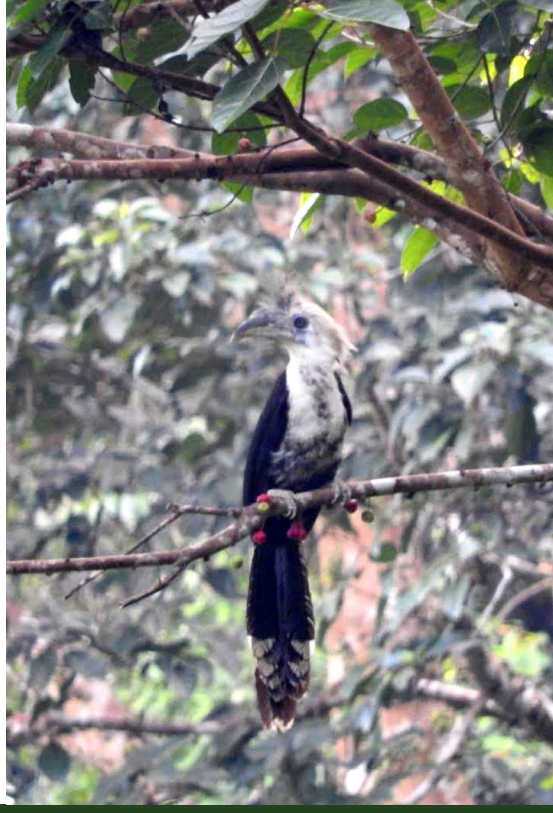
Looking for Birds in the Sumatran Lowlands

by Subir B. Shakya

Having surveyed and collected specimens and tissues of birds extensively in Malaysian Borneo, LSUMNS scientists have started looking across the shallow southern extension of the South China Sea to the island of Sumatra. **Dr. Fred Sheldon**, LSUMNS curator of the Collection of Genetic Resources, has been instrumental in field-based ornithology and research of birds in the Sundaic Islands. Thanks in large part to his efforts, between February and April 2018, a group of ornithologists and mammalogists climbed Gunung Talakmau in West Sumatra to collect birds and mammals. A great description of this trip, written by mammalogy graduate student **Jon Nations**, appeared in the October 2018 issue of the LSUMNS newsletter. This collecting trip was a historical first for LSU, and yielded specimens and tissues of many species new to the collection and to the international research community. Following in the footsteps of that historical trip, fellow Sheldon Lab graduate student **Matt Brady** and I returned to Sumatra in January and February 2019 for a second expedition. Unlike the first trip, which was focused on montane species, this second expedition targeted lowland species.

The forests in Indonesia are under tremendous pressure from human activities such as conversion to palm oil plantations, logging, and mining, so trying to find a relatively undisturbed lowland site that was not in a National Park (for permitting reasons) was difficult. Thanks to the recommendations of mammalogy graduate student **Heru Handika**, who hails from Sumatra, we were able to pin down a small protected area that still had intact primary forest. The site, Rimbo Panti Nature Reserve, is located approximately 165 km NW of Padang in West Sumatra. This approximately 3 thousand hectare protected reserve consisted largely of swamp and hill forest, with the Trans-Sumatra Highway cutting through its middle, dividing these two distinct habitats. Several hot springs, a reminder of the volcanic nature of the





Left: Black-and-yellow Broadbill, *Eurylaimus ochromalus;* **Middle:** Square-tailed Drongo-Cuckoo, *Surniculus lugubris;* **Right:** White-crowned Hornbill, *Berenicornis comatus*

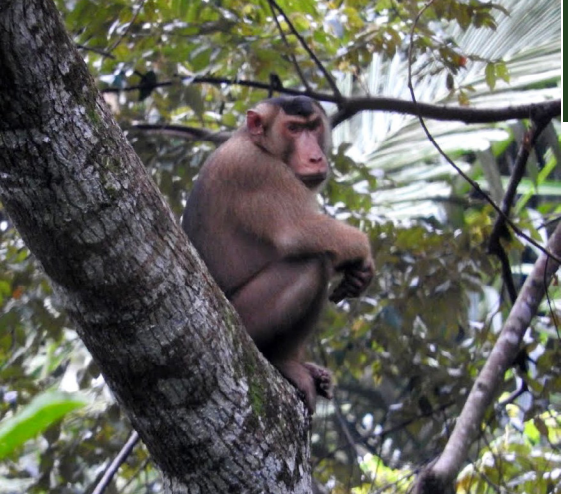
Title Photo: Hot springs at Rimbo Panti Nature Preserve

region, were interspersed among the swamps.

In mid-January, Matt and I flew to Indonesia, making our way to Padang, the administrative capital of West Sumatra, where we worked on permitting. We were joined by our Indonesian collaborators – Tri Haryoko, Suparno, and Yohanna – along with students from the University of Andalas – Rysky, Purnama, and Johanna. After a week of permitting, assembling a pile of supplies, and working out other trip logistics, we rented two cars to take us to the city of Panti in West Sumatra, on the outskirts of Rimbo Panti Nature Reserve. We travelled across vast stretches of logged forests and oil-palm plantations until we abruptly entered the beautiful rainforest characterizing our field site. Though you could drive across it in 10 minutes, we were indeed lucky to visit this pristine dot on a map. As we stepped out of our car for the first time, we encountered a Black-and-yellow Broadbill (*Eurylaimus ochromalus*) along with several other beautiful birds. We knew that we had come to the right place.

At the city of Panti we met with the local forestry officials who helped situate us in the Nature Reserve. We were able to set up camp in a small house that served as a post for the local forestry office, where we worked for the next 15 days. Our strategy was to cover as many kinds of habitat as possible, so we set up mist-nets between 200 and 400 m in elevation in both the swampy forest and hill forest, as well as along a rushing stream. We immediately started catching birds, many of which we had not encountered the previous spring on Gunung Talakmau. Every morning we would open nets, set up or move nets that were unproductive, conduct bird surveys of the area, and then watch birds visiting an immense fig tree from the front porch of our house. In the afternoon we would prepare study skins and collect tissues and meta-data from the birds we captured. In the evening, we returned to the forest to close the nets before eating a delicious meal at the local *warung*, a small roadside cafe. Finally, the day ended with a soothing dip in the hot springs that were across the highway from our house. It was a more relaxed trip than any we've had in the past.

Some of the highlights of the trip included the Crow-billed Drongo (*Dicrurus annectans*), Black-and-red Broadbill (*Cymbirhynchus macrorhynchus*), and Pin-striped Tit-babbler (*Mixornis gularis*). We also collected the first modern specimens of the Suma-

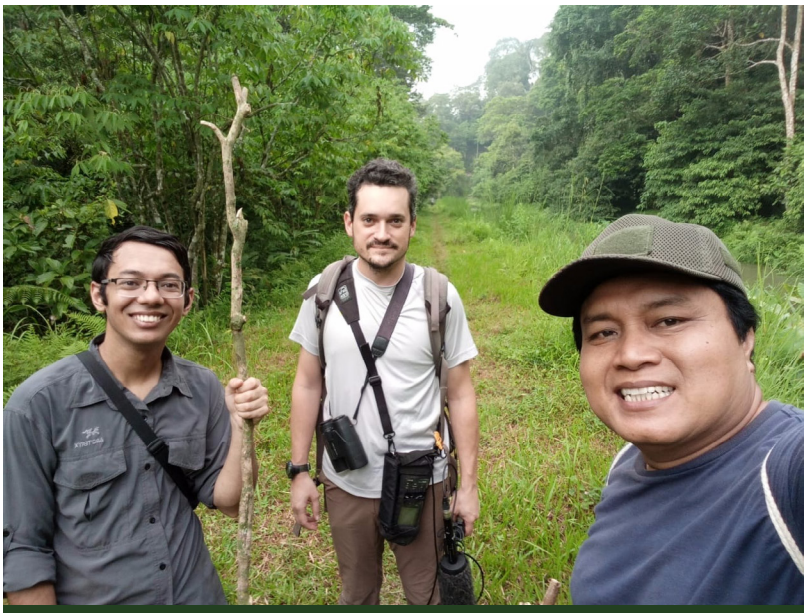


Top: Southern Pig-tailed Macaque, *Macaca nemestrina;* **Middle:** Silvered Leaf Monkey, *Trachy pithecus cristatus* with baby; **Bottom Left:** Malabar Giant Squirrel, *Ratufa indica*

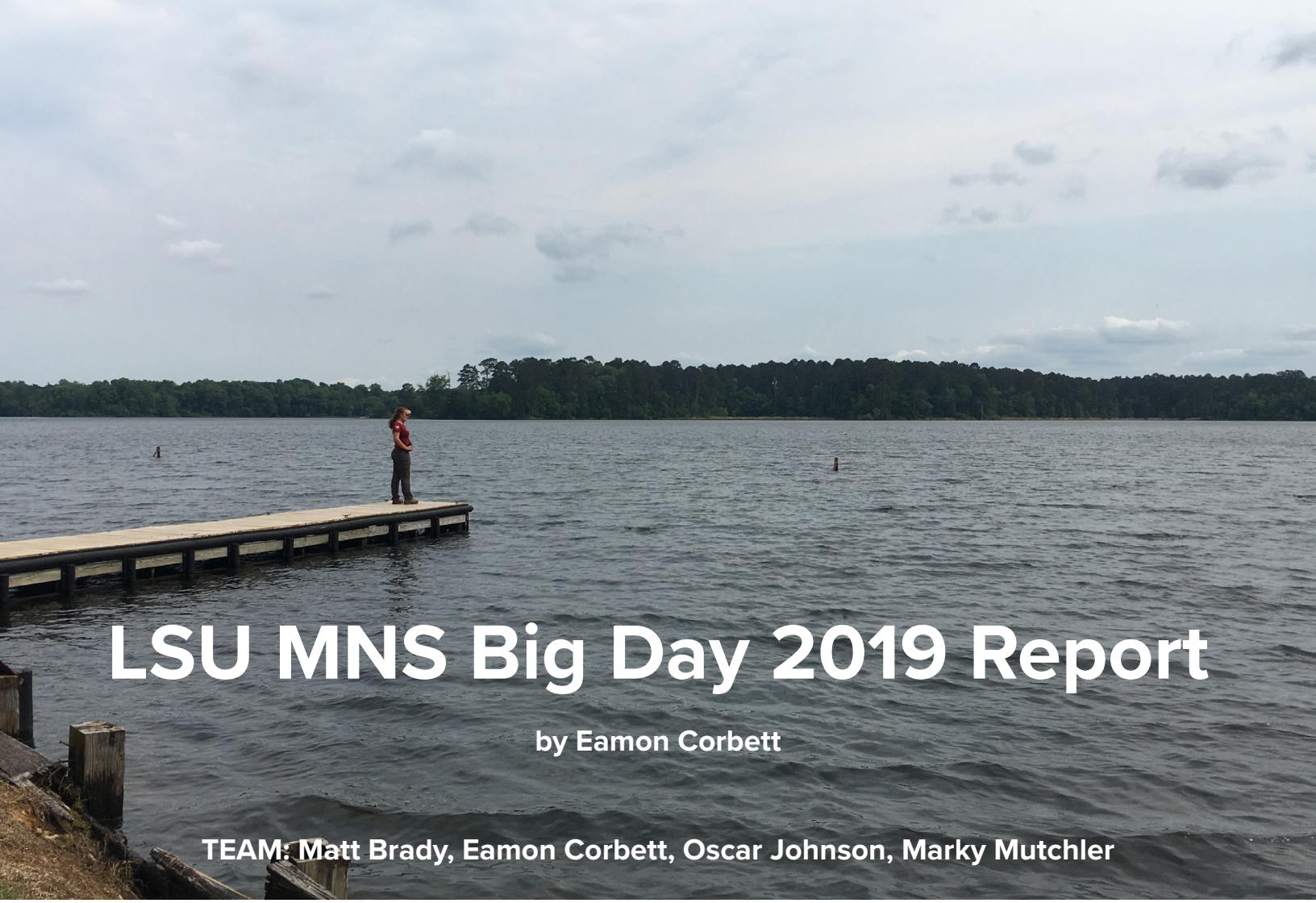
tran Babbler (*Pellorneum buettikoferi*), a species last collected in the 1930s, and several specimens of species that were new to LSUMNS, including the Crimson-breasted Flowerpecker, *Prionochilus percussus*. All of these specimens and tissues will be essential material for comparison with birds from Borneo and mainland Southeast Asia. These comparisons will allow us to refine our understanding of the biogeography and evolutionary history of birds across the region. In addition to our collection, we also observed many birds that we did not collect and made notes on their plumage, habits, and habitats. We were fortunate to encounter five species of Hornbills, including a nest of the Wreathed Hornbill (*Rhyticeros undulatus*), a Malaysian honeyguide (*Indicator archipelagicus*), and a migratory Blue-winged Pitta (*Pitta moluccensis*). These natural history observations are an important aspect of our field expeditions.

Birds were not the only species common at Rimbo Panti. We encountered many species of mammals, including five species of primates – Crab-eating Macaque (*Macaca fascicularis*), Southern Pig-tailed Macaque (*Macaca nemestrina*), Silvered Leaf Monkey (*Trachypithecus cristatus*), Sumatran Surili (*Presbytis melalophus*), and Siamang (*Symphalangus syndactylus*). Matt even came across a Golden Cat (*Catopuma temminckii*) along one of our net trails. Squirrels, treeshrews, flying dragons, and monitor lizards were also common. There were a myriad of insects, arachnids, centipedes and millipedes as well, though we did not observe as many reptiles and amphibians as we had hoped. On our last night we found a scorpion inside our house! This region indeed contains an impressive diversity of flora and fauna.

At the end of the trip, we made it back to Padang and then on to Jakarta. We were able to secure our export permits for our specimens from this trip as well as birds and mammals from our 2018 trip to Gunung Talakmau. All in all, this was a very successful trip, and we plan to continue working in Sumatra, which still has a lot to offer.



Subir B. Shakya, Matthew L. Brady, and Suparno in the field



LSU MNS Big Day 2019 Report

by Eamon Corbett

TEAM: Matt Brady, Eamon Corbett, Oscar Johnson, Marky Mutchler

The LSU Museum of Natural Science ornithology graduate students are a rather bird-focused bunch, and so for our traditional annual fundraiser we play to our strengths and try to find as many of the feathered inhabitants of Louisiana as we can. The Big Day event (formerly known as the "Birdathon") traces its origins back to the late 80s, and over the years has raised tens of thousands of dollars to support our world-class ornithology student-research program.

I followed the exploits of past MNS big day teams prior to coming to LSU, and now as a first-year PhD student I was excited to have the opportunity to join in the fun myself. This year I was the only rookie joining a birding dream team consisting of Big Day veterans Oscar Johnson and Matt Brady, and ace undergraduate Marky Mutchler. With a late April date — Friday the 26th — timed to maximize the potential number of species, and a promising weather forecast for migration, we figured we had a solid shot at besting the Louisiana Big Day record of 221, set by LSU grad students in 2010.

There's a necessary degree of madness involved in birding for 24 hours straight, but we were well-rationed for the attempt, with two dozen cans of Red Bull, a 64-pack of granola bars, three Costco Pizzas, and an array of snack foods stuffed alongside a battery of scopes, cameras, and binoculars into our hulking rented Chevy Tahoe. So, with all preparations made, bird calls studied, late-evening naps taken, and museum Twitter feed at the ready, the team assembled on campus just before midnight in a state of high anticipation and waited for the clock to strike 12.

The basic outlines of a Louisiana Big Day have been hashed out and optimized over the years by a series of ornithology graduate students. The main portion of the day can be divided into roughly three segments: early morning in and around Kisatchie National Forest for breeding forest birds, late morning to mid-day in the fields of rice country for shorebirds and other open-country species, and afternoon on the coast of Cameron

Eamon Corbett and Anna Hiller scouting a few days before Big Day. Pho to by Oscar Johnson.

Parish, for beach, marsh, and ocean birds as well as for migratory songbirds drawn to woodlots after crossing the Gulf of Mexico overnight. Within that framework, however, there's some flexibility, which is why scouting out exact locations for certain birds in the days before the Big Day can be crucial in determining what species can be expected and where. This year we had the benefit of two full-day scouting expeditions and many other tips from museum students; it's not only the birders on the team who contribute to the final tally!

Armed with that scouting knowledge, we decided to spend midnight on LSU's campus, where we tallied **Canada Goose** and **Great Blue Heron** in the first seconds of the day, and soon added the staked-out and much-needed **American Robin** and **Hooded Merganser**, as well as hearing the calls of migrating **Swainson's** and **Gray-cheeked thrushes** and **Indigo Buntings** as they flew unseen far overhead. On a Big Day, a heard bird counts just as much as a seen one, and when time is of the essence the former is often much quicker. After a couple more stops around the University Lakes for roosting cormorants and a Rock Pigeon, and an unsuccessful attempt at finding Wood Duck and Cooper's Hawk, we set off west with 14 species in hand.

The pre-dawn portion of the Big Day has a "calm-before-the-storm" feeling, with relatively few key nocturnal species to target before the pandemonium of daybreak. We were quite successful in this, tallying **Virginia Rail**, **Chuck-will's-widow**, and the four hoped-for owls (**Eastern Screech**, **Barred**, **Great Horned**, and **Barn**), at each of our stakeout spots, with a no-show American Bittern the only blemish. We even arrived at Kisatchie long enough before dawn to photograph some of the local frog diversity and get a telescope on the moons of Jupiter; it would be the only point at which the phrase "plenty of time" would be uttered all day.






Top to Bottom: Kildeer Family, Glossy Ibis, Black-necked Stilt, Swainson's Warbler, Pied-billed Grebe, Northern Mockingbird. Photos by Oscar Johnson.

As the sun rose, silhouettes of the surrounding trees solidified and we found ourselves in a quintessentially Southeastern ecosystem: the longleaf pine savanna. And sure enough, soon its most famous denizens were awake and calling: endangered **Red-cockaded Woodpeckers**. We added two more pine specialists, **Bachman's Sparrow** and **Brown-headed Nuthatch**, as well as localized breeding birds like **Yellow-breasted Chat**, **Prairie Warbler** and **Chipping Sparrow**, plus a bonus wintering **Red-breasted Nuthatch**, all identified by sound alone, and were off!

From then, it was a race to track down as many of our target species as possible. Somewhat surprisingly, the best morning strategy is not necessarily to find the most species—it's to find all the species that we wouldn't have a chance at later in the day. The pinewoods specialists were one such group of must-get birds, as were bottomlands breeders like **Prothonotary Warbler**, **Louisiana Waterthrush**, **Red-shouldered Hawk**, and **Acadian Flycatcher**; freshwater species like **Bald Eagle**, **Wood Duck**, **Belted Kingfisher**, and **Anhinga**; and other forest-restricted birds such as **Pileated Woodpecker**, **Red-headed Woodpecker**, **Yellow-throated Warbler**, and **Swainson's Warbler**. Our scouting generally served us well—warblers sang where they were supposed to sing, and the one new spot that we added to the route paid dividends with kingfisher and Anhinga. We even had a few surprises, like a trio of **Pine Siskins**, and **Cave Swallows** at an unexpected site. We passed 100 species with a drive-by **Loggerhead Shrike** on a wire at 8:43am, and were well above that as we turned our sights south towards rice country and (we hoped) its migratory shorebird bonanza.

But first, there was one more bird to track down up north: **House Finch**. Non-native and not the most exciting species for birders, but its preference for towns and cities – places we tend to avoid on the Big Day – make finding it hit-or-miss. And it counts to the total just as much as any other species. Our scouting efforts on that front had been futile, but sure enough, as we drove slowly through the town of Oberlin, scanning all possible perches, a bright red male flew in and landed on a wire right beside us. Check!

Shorebird-searching in rice country is all about finding the right fields, and we got off to a good start with a flashy orange-washed pair of **Hudsonian Godwits** at our first site, alongside a big flock of breeding plumage **Stilt Sandpipers**, with their sharp rusty cheeks, a surprise **American Golden-Plover**, the expected **Long-billed Dowitchers** and both **yellowlegs**, and the requisite small "peeps": **Semipalmated, Least**, **White-rumped**, and **Pectoral sandpipers**.

We had permission to stop at a private pond that was filled with ducks, which added a handful of species to the tally, including lingering **Northern Shoveler**, **Gadwall**, and **Lesser Scaup**, along with **Bobolink** and **Crested Caracara**, two striking black-and-white open country species. After a flyby **Whimbrel** (#150!), distant **Upland Sandpipers**, and a roadside **Solitary Sandpiper**, we reached our last

Top to Bottom: Cope's Gray Tree Frog, Southern Leopard Frog, American Alligator. Photos by Oscar Johnson.

rice field missing only a handful of needed shorebirds. We lucked into a **Buff-breasted Sandpiper** (which we unsuccessfully tried to turn into a Ruff) and a flyover **Wilson's Phalarope**, but couldn't pick out Dunlin or Western Sandpiper in the distant flocks. The latter we would find on the coast later in the day, but we wouldn't see Dunlin until the next day, looking back through photos of these flocks to find that there had been two hidden right in front of us at the last field! Sadly, not something we could retroactively count.

Our last stop before hitting the coast was Cameron Prairie NWR, an excellent marshy wetland site with a driving loop that gave us great looks at **Purple Gallinule**, **King Rail**, **Glossy Ibis**, and multiple **Least Bitterns**, normally an elusive swamp-dweller but here common and conspicuous. As we crossed over the intracoastal waterway our species tally stood at an impressive 170.

Unfortunately, our first stop on the coast—Oak Grove Sanctuary—made it clear that despite the forecast, migrant traps were going to be birdy but not mind-blowing. Still, we notched **Magnolia Warbler**, **Northern Waterthrush**, **Ovenbird**, and **American Redstart** along with an out-of-season **Chipping Sparrow** and an astonishing number of **Common Nighthawks**, whose nasal calls filled the skies all afternoon. At Rutherford Beach we really hit our stride, with new birds coming one after the other: **Surf** and **Black scoters** on the water, **Wilson's Plover**, **Ruddy Turnstone**, and more on the sand, on the horizon **Brown Pelicans** and a variety of terns, including **Royal**, **Sandwich**, and **Least**, a vivid **Yellow-headed Blackbird** on a nearby lawn, and surprising sightings of **Vesper** and **Lark sparrows** beside the beach road. At Willow Island we added **Bay-breasted Warbler**, **Blackpoll Warbler**, and **Bronzed Cowbird**, and after crossing the Cameron ferry we drew near #200 with **American Avocets** and **American White Pelicans**, scoped from across the channel over the closed-off East Jetty Beach.

We hit 200 on Holly Beach with **Common Tern**, and soon added last year's bird #200, **Piping Plover**, though its Snowy relative avoided detection. Peveto Woods was relatively slow, picking up only **Blue-headed Vireo** and **Bank Swallow**, though we did have great looks at a gaudy rainbow of common migrants including **Painted** and **Indigo buntings**, **Baltimore Oriole**, **Summer** and **Scarlet**

Dickcissel. Photo by Oscar Johnson.

tanagers, **Rose-breasted Grosbeak**, and **Magnolia**, **Hooded**, and **Chestnut-sided warblers**. Still, this late in the day we needed to be spotting new species, so we set off for Sabine Pass, where the less colorful but more novel highlights included our first **Osprey**, **American Oystercatcher**, and **Black Skimmer**, bringing us to 207.

Our final stop of the day was scheduled to be Lighthouse Woods, a fantastic birding spot located within a large industrial complex, to which we had arranged access. Last year an accident at the facility had prevented the team from entering, so we were dismayed to be once again stopped at the gate due to an apparent email miscommunication. After about a half hour of polite negotiation and a series of frantic phone calls, we turned away dejected. Still, we made the best of it, returning to Sabine Pass and nabbing a string of new marsh birds: **Sedge Wren**, **Clapper Rail**, **Sora**, **Seaside Sparrow**, to bring our total to 211. A flyover **Black-crowned Night-Heron** made 212, and seemed like perhaps the final bird of the day.

Then, just as the sun slipped below the horizon, Oscar got the email from his Lighthouse Woods contact: we were in! The light was fading fast but we had the opportunity to try for some final birds. In the gathering dusk we were unable to pull out a Short-billed Dowitcher or Dunlin from the shorebird ponds, though we did have great views at some beautifully-patterned female **Wilson's Phalaropes**, which are brighter than the males. Nor could we coax a sleepy White-throated Sparrow or House Wren out of the coastal chenier woods. Still, we had one last possibility.

At our staked-out location, we stood listening in the now-dark marsh. At first, nothing. Then: *ki-ki-krrrr*, and a quiet growling. A **Black Rail**! One of the most secretive and mythical species in North America, and a perfect way to end the day. Not even the hordes of mosquitos, or the unpleasant realization that I had been standing on a fire ant nest, could dampen the excitement as we headed off to a well-deserved rest.

The rail brought us to a very respectable total of 213 species: certainly the most birds I've ever found in a day! And most importantly, we've raised thousands of dollars and counting to support the LSU Museum of Natural Science ornithology graduate students and our cutting-edge research.

14th Annual Eagle Expo

by Donna L. Dittmann & Steven W. Cardiff

The 14th Annual Eagle Expo was held Friday-Saturday 22-23 February 2019 in Morgan City, Louisiana. Organized by the Cajun Coast Visitors and Convention Bureau and co-sponsored by LSUMNS and numerous other entities, this annual event features a talk, a social, and several field trips as well as other raptor-related activities.

Eagle Expo is situated in the heart of Louisiana's prime Bald Eagle breeding habitat. It is hard to venture into this area and not see numbers of Bald Eagles. Eagle Expo provides a great opportunity for participants to explore area waterways to see and photograph Bald Eagles in an area with the state's highest densities of nesting pairs. These trips also offer the opportunity to see a wide variety of other birds, wildlife, and beautiful scenery.

LSUMNS collection managers **Donna Dittmann** and **Steve Cardiff** again assisted as guides on boat tours. Donna and Steve assisted with the Saturday morning LUMCON trip departing out of Bayou Black Marina and exploring the nearby Intracoastal Waterway and Turtle Bayou. Two boats stay in close contact as they loop through the Avoca Canal complex. Participants get to visit freshwater marsh, lakes, edges of cypress swamp, and manmade canals lined with willow/tallow. During this trip we tallied a minimum of 60 Bald Eagles, about 44 adults, 12 immatures, 2 recently fledged juveniles. We could see several active nests, most far in the distance, but also one up-close along a channel that had two large chicks. The trip also encountered eleven Great Horned Owls – another favorite of the participants and a specialty of this tour route.

Our EBird list is here:
https://ebird.org/view/checklist/S53064655

Top : Boat trips during the Eagle Expo provide excellent opportunities to photograph eagles. Photo by DLD of an adult taking off from a tree along a channel during a Turtle Bayou trip.

Middle: A Great Horned Owl on its nest. This species uses the abandoned nests of other species – in this case a Bald Eagle nest. Photo by DLD.

Bottom: An Osprey with a fish flew right over the boats to the delight of participants. Photo: DLD.

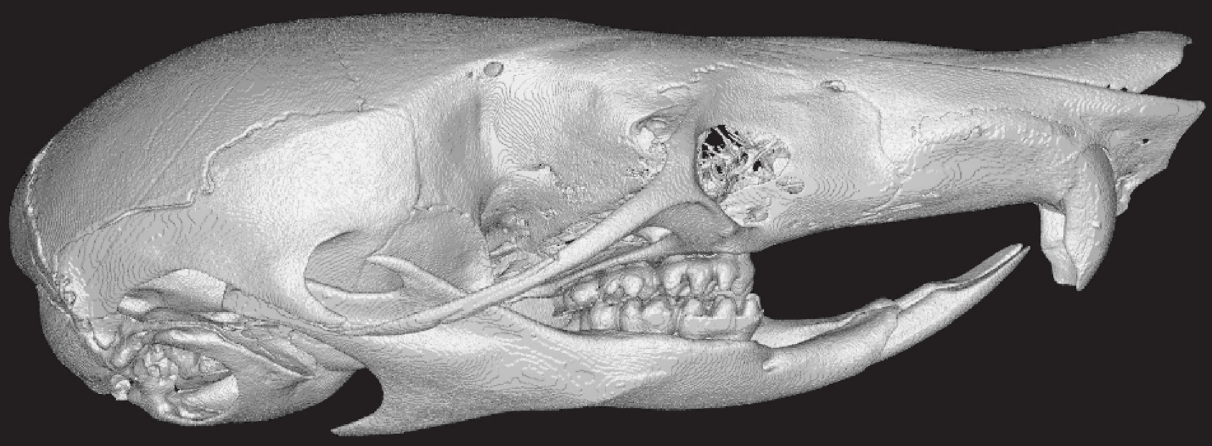
Title Photo: One of the two LUMCON boats cruising the Intracoastal Water way during the Turtle Bayou Trip. Photo by SWC.

Matt Brady and **Genevieve Mount** led the Captain Caviar-lower Atchafalaya Basin boat tour on Friday AM (unfortunately their afternoon Turtle Bayou Trip was canceled due to the approach of inclement weather).

eBird checklist: https://ebird.org/view/checklist/S53064554

In addition to helping lead tours, Steve assisted the Cajun Coast Visitors & Convention Bureau by recruiting and coordinating with other field trip leaders.

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@cajuncoast.com.



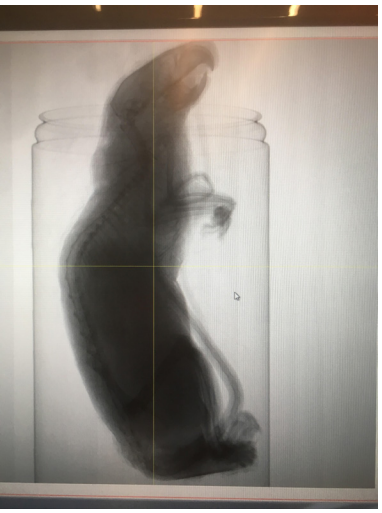
Micro CT Scanning of Sulawesi Mammals at Duke University

by Jon Nations

LSU Museum of Natural Science students are often bouncing around the planet in an effort to catalog global biodiversity. However, our data collection efforts continue long after the specimens are collected. For instance, for my dissertation research I need high-resolution, 3-dimensional images of the internal anatomy of many specimens, so in February of 2019, I traveled to Duke University to use the micro computed tomography ("micro-CT") equipment in their Shared Materials Instrumentation Facility (SMIF).

The reason for my visit highlights the complicated logistics of specimen-based research. For a portion of my dissertation I am estimating the ecological "volume" of 6 different murine rodent communities (i.e. mountains) on the island of Sulawesi, Indonesia. One of these mountains contains at least 24 murine rodent species, making it the richest community of closely related small mammals on Earth. To accomplish my goals, I am using 3-D skeletal morphology to estimate morphological disparity and function in each community. The 3-D morphological data are generated from micro-CT scans. To get complete species level sampling I needed to scan specimens housed at the American Museum of Natural History in New York. As we don't have adequate CT-scan facilities at LSU, and the machine at AMNH is booked for months in advance, my loan from AMNH had to go elsewhere. We decided on Duke. So, over 40 fluid-preserved specimens were shipped from New York to Durham, and I shipped myself to North Carolina to scan them. This work was funded through a Jim Patton Award from the American Society of Mammalogists.

The trip was a complete success. In three weeks I scanned all of the specimens at very high resolution (between 20-50 nanometers, depending on the size of the specimen). While I was there the helpful staff at SMIF trained me in the technical as-



Above: micro-CT facilities at the Shared Materials Instrumentation Facility at Duke University

Left: X-ray image of a fluid preserved specimen inside the micro-CT scanner. 2500 x-ray images are taken as the specimen rotates in a circle. These are reconstructed into a 3-dimensional object

Title Photo: Surface image of a *Melasotrix naso* skull. This species of invertebrate-eating Sulawesi shrew-rat has a elongate face with unique upturned nasal bones at the nose.

pects of processing and analyzing 3-dimensional morphological data. I was hosted by Dr. Doug Boyer, a paleoanthropologist who studies morphological adaptations in early primates. He and his lab were very helpful and supportive, and provided thoughtful perspectives on morphological data analyses. I look forward to helping other LSU researchers develop their skills in these areas. Once I complete the data processing, these scans will be publicly accessible online at the MorphoSource.org portal. This amazing repository, run largely by the Boyer lab, allows any user to download both 3-D images and raw scan data. Simply browsing MorphoSource yields an amazing visual tour of the anatomical diversity of life. Though this trip may have been less adventurous than our field expeditions, the training and data collection will help me explain how ecological variation arises in small mammal communities.

Collection of Genetic Resources

by Donna L. Dittmann

Time flies. The last summary in the LSUMNS Newsletter for the Collection of Genetic Resources' (CGR) loan ("tissue grant") activity appeared in the February 2017 issue. **Nellie Yelvington**, our undergraduate student worker had just come on board Spring 2016; she is now in her final semester at LSU. Nellie has processed a large portion of the loans since Fall Semester 2016, with some assistance from myself, Graduate Curatorial Assistants, and graduate students who processed their own tissue requests. We will be sad to see Nellie leave and wish her well in her future endeavors. Other changes are coming soon. The GR Section is poised to move its six liquid nitrogen archival tanks to newly renovated space previously inhabited by the Art Department's Print Shop, as well as purchase an additional four LN2 archival units with the help of NSF and LA Board of Regents grants.

The CGR averages one or more loans per week making it one of the most utilized of all of the World's genetic resource collections. A tissue loan may consist of one or many samples: in 2018, the average number of tissues per loan was twelve, during 2017 it was eighteen. Graphing the GR's loan activity for just the last twenty years (1999-2018), the collection has subsampled over 32,500 individual tissues! See graph below.

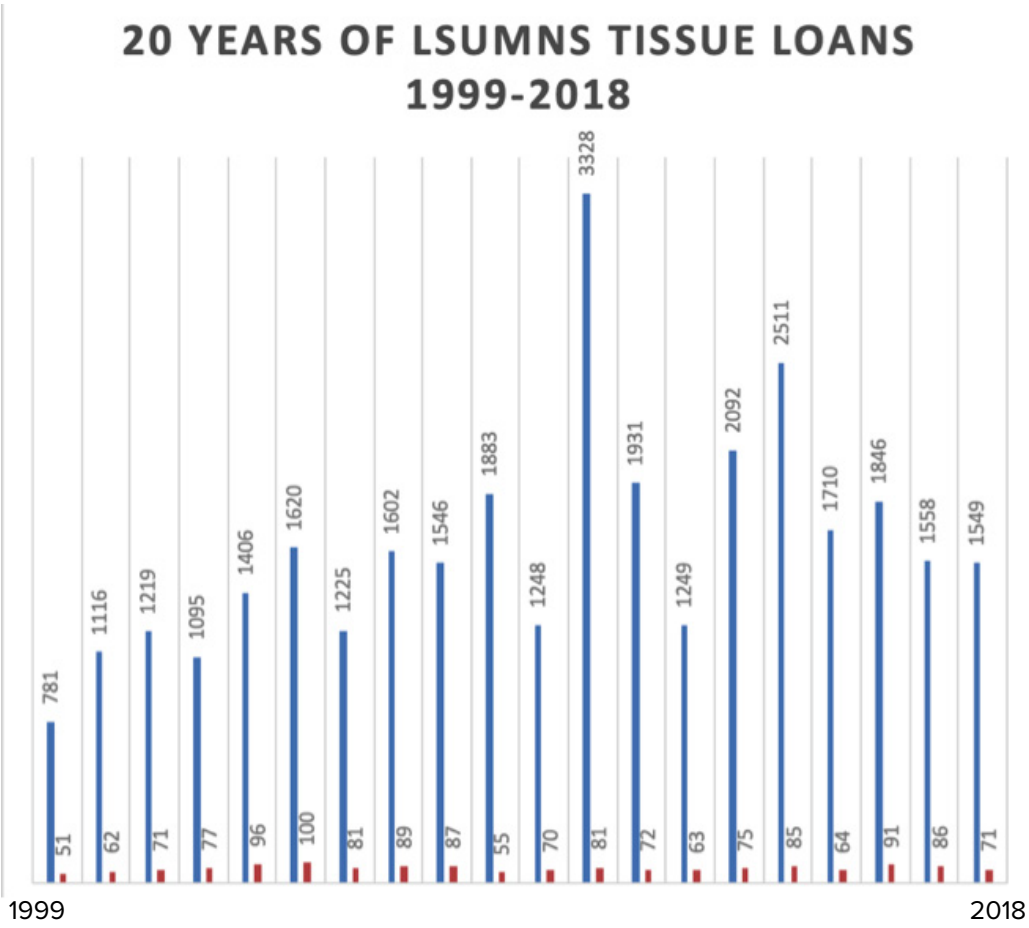
The work required to prepare these loans is extensive, and exports to researchers in other countries add an additional time investment needed to process documents required for US Customs clearance. Non-in-house loans are typically supplemental in nature, providing samples that fill taxonomic or geographic gaps to support of a specific project by a researcher at another institution. The number of taxa requested generally reflects the size and diversity of the representative tissue collection's holdings, with relatively more requests for birds (23 loans of 1296 tissues), followed by reptiles and amphibians (11 loans, 213 tissues), and mammals (6 loans, 40 tissues).

During 2018, the CGR processed 71 requests for a total of 1549 tissues that supported 70 research projects. Most projects were focused on some form of genetic relatedness, from population genetics of a particular species on a local scale to broad scale ordinal or generic phylogenies. Project titles were varied, a sampling includes: "Phylogeography of the Nectarivore Bat, *Glossophaga soricina*"; "A Phylogenomic Approach to Unraveling the Origin of the Birds Endemic to the Pernambuco Centre of Endemism"; Comparative Biogeography of the Birds of Madagascar"; Cophlogenomic History between Tinamous and their Hyperdiverse Louse Community"; Genetic Basis of Autoresistance in Poison Frogs"; "Exploring the Diversity and Macroevolutionary Dynamics of Sperm Evolution among Passerine Birds"; "Parallel Evolution of a Gene Family in Two Vertebrate Radiations"; and Study of Toxin Resistance Evolution in Snakes"; and Testing if Climatic Oscillations of the Pleistocene Affected Historic Demography of Amazonian birds".

Forty-six loans were sent to non-LSUMNS researchers based at 30 institutions distributed among 14 states plus DC. Not surprisingly, large research institutions such as Smithsonian Institution, the American Museum of Natural History, the Field Museum, Harvard, and Cornell universities received multiple loans. Researchers in eleven other countries accounted for another 18 loans (213 tissues).

During the previous year (2017), overall numbers were similar: 86 loans totaling 1558 tissues. A few of 2017's project titles: "Uncovering the Genomic Architecture of Reproductive Isolation among Cardinalidae"; "Exploring Mechanisms Underlying Seasonal Physiological Flexibility in Juncos; "Timing of Diversification and Evolutionary Genetics of Rails (Aves: Rallidae)"; "Population Genetics of the Redbacked Shrike *Lanius collurio*"; "Worldwide Phylogenetics and Biogeography of the Family Tytonidae"; "Evolution of Sensory Systems with a Focus on the Taste and Digestive System in Birds"; "Comparative Phylogenomics and Adaptation of Widespread South American Herpetofauna"; "Identify the Potential Selective Force of a Novel Disease in Little Brown Bats (*Myotis lucifugus*) by Comparing Allele Frequencies between Pre-WNS Populations and Post-WNS Mortalities"; and "Comparative Genomics of jSugar-eating Bats: Implications for the Genetics of Glucose Metabolism and Diabetes".

The Collection is heavily utilized by LSUMNS researchers including faculty, staff, graduate, and undergraduate students. A project recently published by Jessica Oswald (a recent LSUMNS postdoctoral researcher) is largely based on LSUMNS tissues. This study investigated *Plegadis ibis* relationships. Jessica's coauthors included undergraduate students Rosalind Remsen and DePaul Foxworth, who assisted with lab work and were mentored by Jessica. Results are published in *Molecular Ecology* 2019;1–17, entitled "Evolutionary Dynamics of Hybridization and Introgression following the Recent Colonization of Glossy Ibis (Aves: *Plegadis falcinellus*) into the New World". Additional authors include **Michael G. Harvey**, **Steven W. Cardiff**, and **Robb T. Brumfield**, and me.



Red: total number of loans processed
Blue: total number of tissues sampled

OUTREACH ROUNDUP

STEAM NIGHTS

On January 28, February 11th, and March 12th, we participated in Dunham School, Oak Grove Primary, and McKinley Middle Magnet's STEAM/STEM Nights, respectively. We brought along museum specimens to teach the kids about global biodiversity. It was really great to connect with students around the Greater Baton Rouge area. Thanks to **Katie Davis**, **Rebekah Vernon**, and **Jessica Eberhard** for helping out.

BREC BIOBLITZ

On April 5, we took part in BREC's BioBlitz in Hooper Road Park. Our specimen table was part of the biodiversity fair where students from Park Forest Elementary got to learn all about Louisiana vertebrates, insects, and plants. The students also went on nature hikes to experience Baton Rouge's natural environment.

BIG BASS RODEO & FISHTIVAL

On March 30, we had a fun-filled beautiful day at the Big Bass Rodeo & Fishtival in New Orleans City Park. We brought fish specimens from Louisiana and around the world. Thanks to **Link Morgan** for helping out!

GIRLS DAY AT THE MUSEUM

On February 23, in collaboration with the LSU College of Science (CoS), we hosted Girls' Day at the Museum for the third time! Around 30 4th-6th grade girls were invited to meet women scientists in the CoS and Pennington, see the collections at the museum, and participate in science activity stations themed around physics, chemistry, entomology, biology, math, geology, visualizing yourself as a scientist, and museum specimens. Over 50 volunteers and staff helped make this event possible.

FÊTE DE LA NATURE

On April 13, we participated in the Fête de la Nature in Arnauldville, LA. Although the weather cut our stay short, we still enjoyed teaching people about Louisiana's biodiversity and some cool animals from around the world.

LSU DAY AT THE CAPITOL

On April 16, we attended LSU Day at the Capitol. We were able to speak to legislators and guests about the work we do and show them some specimens from our collections. Amongst the specimens were two species discovered by LSUMNS scientists, the Louisiana Pancake Batfish (*Halieutichthys intermedius*) and the world's smallest vertebrate - *Paedophryne amauensis* from Papua New Guinea.

LOS 2019 WINTER MEETING

This year's meeting was held at McNeese State University in Lake Charles on 27-29 January and was hosted by the Gulf Coast Bird Club. LSUMNS's and LOS President **Steven W. Cardiff** presided. Steve and **Donna L. Dittmann** (also LOS News Editor) led one of the Saturday field trips, destination the Jefferson Davis Parish landfill and vicinity near Welsh. The trip was well-attended with 18 participants and also visited the Lacassine NWR Pool Unit. It was a fun day in the field, with a very rare wintering Hudsonian Godwit (present since early January) by far the highlight of the trip (eBird: https://ebird.org/view/checklist/S52135678). Also popular was a rest stop at the Bayou Rum Distillery! The meeting also had a photography workshop by Chuck Cantrell and talks on Friday evening by Dr. Eddie K. Lyons of McNeese State University, and Saturday evening by Dr. Erik I. Johnson of Audubon Louisiana. A print of Donna's 70th Anniversary mug design was included in the event's silent auction. For more information about LOS visit: www.losbird.org.

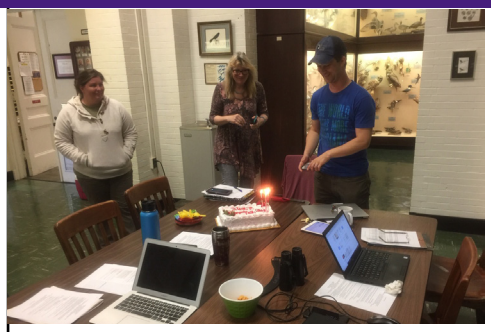
GRAND ISLE MIGRATORY BIRD CELEBRATION

The 21st GIMBC was held Friday-Sunday 12-14 April 2019 at Grand Isle, Louisiana. LSUMNS is an event co-sponsor, and **Donna L. Dittmann** and **Steven W. Cardiff** again assisted in various ways. The festival was held a week earlier this year due to Easter. The festival is organized by the Grand Isle Tourism Office and The Nature Conservancy. Donna and Steve were assigned to lead two Saturday trips- a Queen Bess Island boat tour in the AM (canceled due to strong winds) and to Grand Isle State Park in the late afternoon. The state park trip was well-attended with 30 participants. Although there were strong south winds, the group enjoyed a close-up tutorial of the bird species in a huge roosting flock on the beach. The remainder of the time, Donna and Steve assisted participants with identifying birds along the trails of the TNC properties, as well as roamed around helping to find unusual birds to report. Donna again donated the festival's artwork, this year reproduced as a poster, t-shirt, and travel mug for sale to help support the festival.

LOS JANUARY FIELD TRIP SERIES

As one of the LOS Field Trip Series trips, **Donna L. Dittmann** and **Steven W. Cardiff** hosted a group of ten LOS members to their St. Gabriel yard on 20 January (Donna and Steve coordinate the LOS's Field Trip Series, which is now in its second year). Ostensibly, the focus was wintering hummingbirds, but the star of the show turned out to be a stakeout wintering male Eastern Whip-poor-will located at its day roost in the top of a tall live oak. The group did actually see a few hummers (including a wintering female Rufous seen taking a bath), learn about winter hummingbirds, and hummingbird plants. EBird list: https://ebird.org/view/checklist/S51892986.

LOS BIRD RECORDS COMMITTEE MEETING



LSUMNS hosted the annual meeting of the LBRC on 16 March 2019. The meeting was held in the Museum exhibits area and the LBRC members (attending: **Donna L. Dittmann**, **Steven W. Cardiff**, Paul E. Conover, John Dillon, Robert C. Dobbs, Erik I. Johnson, Larry Raymond, and Casey Wright) also worked in the bird collection examining specimens to provide insights for their record reviews. This year celebrated the committee's 40th Anniversary. The LBRC was founded in 1979; Dr. J. V. Remsen, retired Ornithology Curator was on the first committee (LBRC Member 1980-1989). LSUMNS Alum Dr. Thomas S. Schulenberg was on the committee as Secretary from 1983-1988 before moving away from Louisiana. Donna L. Dittmann joined the committee in 1987, then replaced Tom as Secretary in 1990 and has served on the LBRC in that capacity since. Steven W. Cardiff joined the LBRC in 1988, was elected Chair in 1997, and has served in that capacity since. LSUMNS research associate **Daniel F. Lane** is also currently on the LBRC, serving as a Member since 2016. For more information about the LBRC, visit www.losbird.org.

NIGHT AT THE MUSEUM

LSU Herbarium

On February 21st, we hosted our first Night at the Museum of the semester in collaboration with the LSU Herbarium. We had record attendance with over 100 guests! Herbarium director, **Dr. Laura Lagomarsino**, spoke to guests about some peculiar plant adaptations. We had tables themed around fungi, Louisiana and tropical plant connections, Margaret Stones watercolor folio of native Louisiana plants, and a specimen mounting demonstration manned by **Spenser Babb-Biernacki**, **Dr. Laura Frost**, **Jennie Kluse**, and two herbarium undergrads, respectively. Later, collections manager Jennie Kluse gave behind the scenes tours of the herbarium's collections. Thanks to everyone who came out and special thanks to **Jazmyn Bernard** for taking photos.

Fish

On March 14th, we collaborated with **Dr. Karen Maruska's** lab for our fish themed Night at the Museum. Over 50 people came to the event. PhD student, **Julie Butler**, spoke to guests about sensory adaptations and communication in fish. We had tables themed around cichlids, fish brains, cool fish sensory systems, morphology of sensory systems, and fish communication manned by **Diego Elias**, **Julie Butler** and **Saachi Chugh**, **Pam Hart**, **Chase Anselmo**, and **Teisha King**, respectively. **Mark E. Martin** from LSU Special Collections brought some neat books on fish from their collections. We even had a door prize for the guest that guessed closest to the amount of cichlids in a jar. Later, #LSUMNS undergraduate, **Link Morgan**, gave behind the scenes tours of the fish lab. Thanks to everyone who came out and special thanks to Valencia Henderson for taking photos.

Amphibians & Reptiles

On April 11, we hosted our last Night at the Museum of the school year with over 60 guests in attendance. LSUMNS PhD student, **Jackson Roberts**, spoke to guests about water snakes - what they are, unique adaptations, and why they are important. We had tables themed around venomous snakes, Louisiana herps, and live water snakes and their prey manned by students **Zach Rodriguez**, **Emilie Broussard**, and Jackson Roberts respectively. We also had a table from LSU Libraries Special Collections featuring old books about amphibians and reptiles. Thanks to **Mark E. Martin** for bringing them. Later, LSUMNS Curator, **Dr. Chris Austin** gave behind the scenes tours of the amphibian & reptile collection including a peak into the new collection space. Thanks to everyone who came out!

SPECIAL SATURDAYS

Floating Marshes
We partnered with the LSU Environmentors (EM) program to teach participants about floating marshes. EM coordinator Brian Matherne answered questions in his talk such as, “what is a floating marsh?” and “where you can find floating marshes?”. There were various activities for participants to learn how to take water quality measurements such as dissolved oxygen, pH, and salinity led by EM student Michael, lead teacher Pam Francis, and EM mentor Leslie. EM student, Briana, helped participants make their own “floating marshes” to take home. They also got to see some of the field equipment scientists use in marsh environments. Thanks to the Environmentors program and thanks also to **Diego Elias** and **Jaimie Gallagher** for helping out.

Surviving Extreme Darkness
LSUMNS PhD student **Pam Hart** introduced participants to the adaptations of fish that live in very dark environments. She brought out examples of deep sea and cave fish from the museum’s collections so the kids could see some of them in person. Later, the participants crafted fish inspired by Pam’s talk such as anglerfish and tripod fish complete with glow in the dark elements. Thanks to **Diego Elias**, **Valencia Henderson**, **Rebekah Vernon**, and **Katie Davis** for helping out.

Extraordinary Chickens
LSUMNS PhD student **Jessie Salter** led this Special Saturday all about chickens. She covered humans’ relationship to chickens, the history of their domestication, and artificial selection. She also showed participants specimens of the four extant species of jungle fowl (wild chickens), pheasants, and other members of the family Phasianidae. Later, the participants crafted chicken flip books where they were able to design three different chicken heads, bodies, and feet to mix and match. Thanks to **Rafael Marcondes**, **Jazmyn Bernard**, **Diego Elias**, **Jaimie Gallagher**, and **Spenser Babb-Biernacki** for helping out.

Life in the Mountains
LSUMNS PhD student **Anna Hiller** led our last Special Saturdays of the semester. Anna studies montane birds so she wanted to teach participants about the different life zones on mountains and how animals and plants adapt to the change in elevation. She brought out specimens of montane species including the flower piercers, a bird she is working on for her dissertation. Later, the participants crafted 3D mountains with the different life zones (Alpine, Sub-alpine, Montane, and Foothills) including elevation, temperature gradient, plants, and animals. Thanks to **Jessie Salter** and **Jon Nations** for helping out.

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.

MNS NEWS & UPDATES

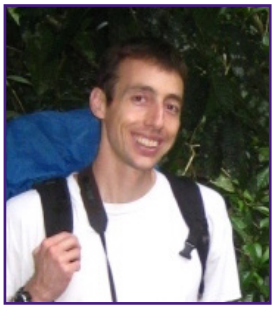
Jim Bishop inducted into Hall of Distinction

Congratulations to LSUMNS research associate, **Dr. James "Jim" Bishop**, who was inducted into the College of Science Hall of Distinction on Friday, April 12. Most of the LSUMNS Curators were able attend the ceremony. Read more about the honorees at http://bit.ly/BishopHOD.

Esselstyn receives Faculty Research Award & Bass Fellowship

Congratulations to LSUMNS Curator of Mammals, **Dr. Jake Esselstyn**, who received the Rising Faculty Research Award from the LSU Alumni Association and a Bass Senior Fellowship from the Field Museum.

Burner hired as post-doc



Ryan Burner defended his dissertation in January and already has a job lined up. He was hired as a post-doc at the the Norwegian University of Life Sciences (NMBU) in Norway. His research will focus on modeling the effects of forest management practices and climate change on insect diversity.

Brown defends dissertation

Congratulations to LSUMNS ornithology graduate student, **Dr. Clare Brown**, who successfully defended her dissertation in February. Clare worked under Dr. Fred Sheldon on the evolution of swallows and their migration. She will receive her PhD in May. You can view a video of her dissertation defense at http://bit.ly/BrownDefense.

Nations receives Enhancement Award

Congratulations to LSUMNS mammalogy graduate student **Jon Nations** who received the Prestigious Fellowship Enhancement Research Support Award from the LSU Graduate School - $5,000.

Hiller receives three awards

Congratulations to LSUMNS ornithology graduate student **Anna Hiller** who received three awards to support her research.

- Chapman Memorial Grant, American Museum of Natural History - $2,000

- Prestigious Fellowship Enhancement Research Support Award, Louisiana State University - $15,000 (2019-2022)

- Student Travel Award, American Ornithological Society - $510

Ludt hired as Assistant Curator of Ichthyology

Congratulations to recent LSUMNS alum, **Dr. Bill Ludt**, who was hired at the Assistant Curator of Ichthyology at the Natural History Museum of Los Angeles County.

Morgan named Student Employee of the Year

Congratulations to LSUMNS undergraduate researcher, **Link Morgan**, who was named the LSU Student Employee of the Year out of about 20 nominated student workers. Link works with Dr. Chakrabarty in the fish lab and is very active in museum outreach.

Del-Rio receives T. Vinton Holmes Award

Congratulations to LSUMNS ornithology grad student, **Glaucia Del-Rio**, who was awarded the T. Vinton Holmes Award from the LSU Department of Biological Sciences worth $1000.

Shakya receives Mary Applewhite Scholarship

Congratulations to LSUMNS ornithology grad student, **Subir Shakya**, who was awarded the Mary Applewhite Superior Graduate Student Scholarship from the LSU Department of Biological Sciences. This scholarship facilitates travel up to $1500.

Swanson receives Ron and Mary Neal Scholarship

Congratulations to LSUMNS mammalogy grad student, **Mark Swanson**, who was awarded the Ron and Mary Neal Superior Graduate Student Scholarship from the LSU Department of Biological Sciences. This is a 1 semester fellowship worth $12,720.

Moncrieff receives two awards

Congratulations to LSUMNS ornithology graduate student, **Andre Moncrieff,** who received two awards to support his research.

- AOS Alexander Wetmore Memorial Research Award - $2,500

- American Society of Naturalists Student Research Award - $2,000

Salter receives T. Vinton Holmes Award

Congratulations to LSUMNS ornithology grad student, **Jessie Salter**, who received the T. Vinton Holmes Award from the LSU Department of Biological Sciences worth $1,000.

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Email your material to vderou1@lsu.edu

In This Issue...

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