

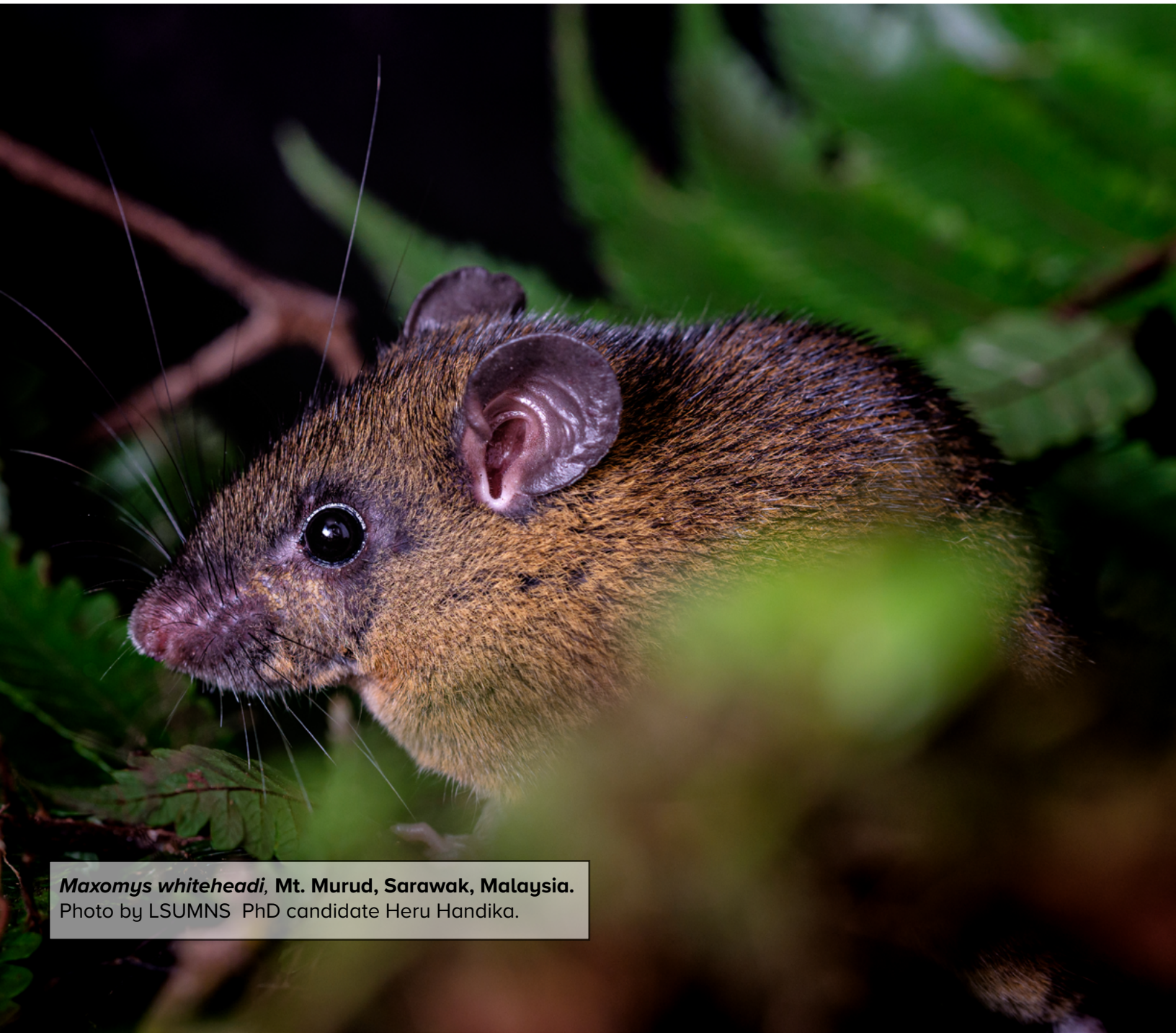
LSU

Museum of
Natural Science

NEWSLETTER

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Maxomys whiteheadi, Mt. Murud, Sarawak, Malaysia.
Photo by LSUMNS PhD candidate Heru Handika.

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Letter from the Director...

Dear Museum Friends and Family,



It is always nice to draft this letter with good news to write about. First, if you remember from my last Director's letter, Fred Sheldon, former MNS Director, and our curator of genetic resources is retiring in May 2022. Fred gave an outstanding exit seminar this semester and then was hit with a surprise party afterwards where former colleagues and students attended in-person or zoomed in to offer congratulations, as well as comical field stories. Although Fred is irreplaceable, I'm pleased to announce that Dr. Greg Thom will be joining us in August of this year to fill this position. Greg is an outstanding and accomplished scientist and we are excited to have him join us as our new assistant curator of genetic resources. Greg comes from Brazil, where he received his B.S. from the Regional University of Blumenau, Blumenau-SC, Brazil, M.S. from Federal University of Para, Belem-PA, Brazil, and his Ph.D. from the prestigious University of São Paulo, São Paulo-SP, Brazil. He has 25 publications on the ornithology of neotropical birds, and is a dedicated field collector.



Fig. 2 Above: Greg Thom, new assistant curator of genetic resources.

He is currently completing a Chapman Postdoctoral Fellowship at the American Museum of Natural History with LSU alum Dr. Brian Smith, curator of birds at the AMNH. The MNS has done an amazing job of training South American PhD students over the last several decades and it is nice to see this educational effort come full circle by hiring a Brazilian. The search for this position was headed by curator Jake Esselstyn, and he put a herculean effort into managing this important search. Thanks Jake!

In addition to these great developments, I'm pleased to announce that Mark Hafner, former MNS Director and emeritus curator of mammals, was inducted into the LSU College of Science Hall of Distinction on April 8th. This is a very prominent honor as only the most outstanding CoS faculty get inducted. Mark made massive contributions to the Museum of Natural Science, the Department of Biological Sciences, the College of Science, LSU, and the scientific community over a career that spanned five decades. Dr. Hafner's arrival at LSU in 1979 brought a level of scientific rigor to the MNS that had been previously lacking. He was the first curator to advocate for the importance of obtaining Federal grants to support research, and he set an outstanding example by obtaining significant and continuous funding from the National Science Foundation. In the early 1980s, Dr. Hafner and his colleague, Professor Herbert Dessauer of the LSU Medical Center, New Orleans, established the Collection of Genetic Resources at the LSU Museum of Natural Sciences. This collection of wild animal tissues, proteins, and DNA has now grown to be the largest and most important of its kind in the world. This collection model has been copied since then by the Smithsonian, the American Museum of Natural History, and virtually every other major private and university museum. As a result, LSU has been recognized for 40 years as a leading institution in the molecular genetics of vertebrate biodiversity, and Dr. Hafner deserves serious accolades for his founding efforts. You can watch the CoS video introducing Mark Hafner's accomplishments to the black-tie gala on YouTube: <https://www.youtube.com/watch?v=Xmxh-hxhah8>.

As always, I am so proud of the many accomplishments of the MNS faculty, staff, and students. Thank you all and let's continue this amazing standard of excellence.



Fig. 1 Left: Fred Sheldon was presented with a commissioned original Dan Lane (LSU alum) painting of a Bornean bristlehead, one of Fred's favorite birds, after his exit seminar, 18 February, 2022.



Fig. 3 Right: Mark Hafner accepting the College of Science Hall of Distinction award from Dean Cynthia Peterson, 8 April, 2022.

Fourteen new species of shrews discovered in Indonesia

by Jake Esselstyn

Back in 2010, three years before I would move to LSU to become the Curator of Mammals, I started a collaborative field program in Indonesia. I figured there was probably some undocumented diversity amongst the country's mammals, but I was primarily excited to test some evolutionary hypotheses that might explain how closely related species coexist on the large Indonesian islands. I was fortunate to meet a new potential collaborator, Anang Achmadi, who had just started working as a researcher at the national museum. We started surveying mammals together on Sulawesi that year. Our efforts were almost immediately rewarded. During our second collecting trip in early 2011, we discovered a most remarkable rat: *Paucidentomys vermidax*. Of the more than 2400 rodent species, this is the only one that lacks molars: it's an earthworm specialist that doesn't need much in the way of teeth. This discovery would motivate us to continue collecting mammal specimens on Sulawesi for the next decade, and the discoveries kept coming. We found, for example, the first amphibious rat known from Asia (*Waiomys mamasae*), and the amusingly goofy-looking hog-nosed rat (*Hyorhinomys stuempkei*).

While reporting these discoveries of strange new species of rodents, we were also collecting specimens of shrews belonging to the genus *Crocidura*. Shrews are small, nocturnal, insectivorous inhabitants of leaf litter. They are nearly impossible to observe in the wild, and so what little we know of their natural history is inferred from their anatomy and specimen records. Identifying species of shrews can be challenging because many species look alike, at least superficially. As we accumulated specimens, we knew we were looking at some undescribed species, but we had little idea how to differentiate and identify them. That made it difficult to figure out which of the species we were looking at had already been named. Nevertheless, we kept collecting specimens in new areas and sequencing DNA from most of these individuals. DNA sequences are a big help with identifications in groups where the morphology doesn't provide clear answers regarding species diversity.



Fig. 1 Above: Close-up image of a shrew in the genus *Crocidura*. Photo credit: Rafe Brown

Eventually, we had collected, examined, and sequenced specimens from a dozen mountains on Sulawesi, and a clearer picture of the shrew diversity began to emerge. Combining these sources of data, which rested on the foundation of our decade-long effort to inventory Sulawesi's mammals, we published a paper describing 14 new species of shrews, all of them members of a radiation endemic to Sulawesi. This represents the most new species of mammals described in a single publication in nearly a century, and it documents one of Earth's richest shrew faunas (21 species in total). These discoveries are fun and exciting, but they're also important. When we don't know how many species there are or where they live, our capacity to understand and preserve life is severely limited. I'm excited to build on our findings by revisiting those evolutionary hypotheses that motivated my first trip to Indonesia many years ago.

You can read the full account of all these new shrews in the Bulletin of the American Museum of Natural History, available at: <https://digitallibrary.amnh.org/handle/2246/7289>

Mammalogy trip to the Davis Mountains of Texas

by Spenser Babb-Biernacki

With the COVID pandemic came the disappointment that our dreams of tropical fieldwork would be on hold. While members of our lab typically venture to Southeast Asia, travel restrictions inspired us to turn our attention closer to home. Two members of our lab, **Dr. Giovani Hernández-Canchola** and PhD student **Spenser Babb-Biernacki** study rodents in the subfamily Neotominae, a group of over 100 species found only in the Americas. So, we took this opportunity to plan a field trip to collect specimens to support their work. After applying for permits and making our preparations, on May 2nd our lab began the drive to the Davis Mountains in West Texas.

For the first time, everyone in our lab came along: curator **Dr. Jake Esselstyn**, post-docs **Dr. Janet**

Buckner and **Dr. Giovani Hernández-Canchola**, and PhD students **Mark Swanson** (now Dr. Swanson, congratulations Mark!), **Spenser Babb-Biernacki**, **Heru Handika**, and **Austin Chipps**. We camped in the Davis Mountains State Park and collected specimens there and at the Davis Mountains Preserve, a diverse locality that encompasses a broad range of elevations including a magnificent cloudy sky island.

After setting up camp, we soon observed many mammal species, including mule deer, jackrabbits, skunks, and a roving troop of javelinas who visited our camp on several nights and spirited some of our food away. We also encountered impressive non-mammalian diversity, some highlights of which were several species of rattlesnakes, a tarantula, and an elf owl, the world's smallest species of owl.

Fig. 1 Right: A deer mouse (genus *Peromyscus*) the group encountered on this trip. Photo credit: Heru Handika.



Over the course of two weeks, we sweated in the hot sun, shivered in a chilly gloom, fought to prepare specimens in intense winds, and even took shelter as a dust devil blew through our camp. This varied weather was matched by many beautiful habitats ranging from scrubby mountain valleys speckled with cacti and yucca, and high elevation ponderosa pine forest. In all these conditions and locales, we set out every day to collect mammal specimens. In total, we collected 192 specimens, primarily deer mice (genus *Peromyscus*) but also woodrats (genus *Neotoma*), squirrels (genus *Otospermophilus*), a yellow-nosed cotton rat (*Sigmondon ochrognathus*), and even a porcupine (*Erethizon dorsatum*).

We continue to dedicate ourselves to making the most of each specimen we collect. This includes preserving a range of tissues not usually collected from specimens such as digestive tracts and lungs. By doing so, we empower scientists to study not only the mammals themselves, but also their associated microbial communities. For researchers like Mark

Swanson and Spenser Babb-Biernacki, who study the gut microbiome and pathogenic lung fungi, respectively, these resources are invaluable.

Although our first lab trip to Texas was inspired by COVID restrictions, this will not be our last. We'll probably target more lowland desert biomes next, so look out for stories from that habitat in future newsletters. Thank you to the donors who have contributed to the Al Gardner and Mark Hafner Mammalogy Fund for supporting this and our other fieldwork. If you'd like to support future expeditions, consider making a contribution at: <https://securelb.imodules.com/s/1585/17/interior.aspx?sid=1585&qid=1&pgid=2214&cid=3784>

Fig. 2 Below: Post-docs and PhD students (from left to right: Austin Chipps, Spenser Babb-Biernacki, Dr. Giovanni Hernández-Canchola, Dr. Janet Buckner, Dr. Mark Swanson, and Heru Handika) in the Davis Mountains preserve. Photo credit: Heru Handika.



Antarctic Birds Import 2021

by Donna L. Dittmann & Steven W. Cardiff

The import arrived in two impressive shipping containers, very well insulated, lots of dry ice (hard to open!); (Fig. 1), and with a temperature logger (to be returned to the shipper) to see internal temperature range throughout the shipment.



Fig. 1 Above: Each box of the shipment came well-packaged.

The shipment's journey started at Palmer Station and was anticipated to leave on 27 May, shipped via commercial air carrier from Punta Arenas to Santiago, Chile, then to Los Angeles for its US port of entry, then to LSUMNS. However, during the journey the import was delayed, then rerouted eastward

via Houston, where it was cleared by USFWS on 28 June 2021. For those of you who have dealt with US imports and USFWS eDecs – this one had a 60-page document attached that detailed the contents of the shipment and necessary export and import permits. The shipment finally arrived at LSUMNS on 9 July 2021. Dry ice in the packages obviously had to be replenished during various delays (Fig. 2). Ultimately, the packages arrived AOK thanks in large part to the very attentive shipping team with reps based in Antarctica, Chile, and California!



Fig. 2 Left: There was at least a bucketful of dry ice in each box when shipment was received!

The two containers contained research specimens collected by Dr. Michael J. Polito (LSU Dept. of Oceanography and Coastal Sciences) and salvaged specimens from Palmer Station saved for LSUMNS. LSUMNS received 12 specimens: three adult South Polar Skuas (*Catharacta macormackii*), one adult Antarctic Skua (*C. antarcticus*), three juvenile Giant Petrels (*Macronectes giganteus*), one juvenile Snowy Sheathbill (*Chionus albus*), and four juvenile Gentoo Penguins (*Pygoscelis papua*). Donna got busy preparing the specimens (Fig. 3); all are prepped except for one penguin destined to be another study skin and saved for one of the grad students. Tissue samples were saved for all, syrinx for Antarctic Skua and Snowy Sheathbill, as well as stomach contents (when stomach hadn't already



Fig. 3 Above: A couple of the first birds prepped and in the dryer: a downy sheathbill (left) and a downy Gentoo Penguin. You'd never know that the entire contents of the body cavity of this bird had been emptied by a predator!



Fig. 4 Above: Some of the finished study skins include Antarctic (middle left) and South Polar skuas (bottom left), Giant Petrel (top left), Snowy Sheathbill (top right), and downy Gentoo Penguins (right).

been depredated). Preps include the following: nine study skins (some in Fig. 4), two skeletal preps, and one alcoholic prep. All specimens were salvaged, meaning the bird was dead on discovery. Interesting observations during prep included those showing emaciation (likely chicks abandoned by parents), trauma (arising from predation), or stomach contents containing other species (especially penguins). All baby penguins presented trauma associated with attacks (wounds on head and neck) and two had internal organs completely consumed (Fig. 3 and 6). The penguin chicks had trace or no subcutaneous fat



Fig. 5 Left: Donna with a Giant Petrel chick.

so perhaps had been abandoned by their parents prior to their demise. The Snowy Sheathbill chick found dead in the nest was severely emaciated; it is LSUMNS's second tissue of this family (Chionidae) and first with the voucher (Fig. 4) archived here. Donna was excited to prep her first sheathbill. One juvenile Giant Petrel had penguin quills in its stomach (Fig. 5); one South Polar Skua had also dined on a penguin. The skuas had head trauma and/or broken wing(s).

Thanks to Dr. Polito for making this import possible!

Fig. 6 Below: Two of the Gentoo Penguin chicks prepped (top) by Oscar Johnson and (bottom) by Donna Dittmann. The chick prepped by Donna was depredated upon with all of its organs removed.



Yellow Rails and Rice Festival (YRARF) 2021: Laissez les bon temps rouler!

by Donna L. Dittmann & Steven W. Cardiff

The Yellow Rails and Rice Festival (YRARF) is based in Jennings, LA, in the heart of our southwestern rice-growing region. For those not familiar with the event, the festival is a unique combination of “agritourism” and “ecotourism” experiences where the prime objective is to show participants the festival’s namesake, the Yellow Rail (*Coturnicops noveboracensis*), while at the same time showcasing the area’s general abundance and diversity of birds in its “working wetlands” (rice and crawfish).

The 2021 event was the 12th edition of the festival. YRARF 2020 was planned and ready to go, but like so many other events, was ultimately canceled due to the COVID-19 pandemic. With consideration of an ongoing pandemic but mitigated by vaccinations becoming available in early 2021, the organizers opted to try a “COVID-considered” event in case this festival also had to be canceled at the last minute. Changes in format included reductions in number of participants, shortening of the event to two field days, and elimination of most of the usual socials and add-on field trips. YRARF 2021 did include Audubon Louisiana’s nighttime rope drags in Cameron Parish in hopes of capturing/banding Black Rails, but with fewer participants than normal. The Welcome Reception was planned to be outdoors under a canopy outside the Gator Chateau on the Jefferson Davis Tourism Commission grounds, but stormy weather and very strong winds



Fig. 1 Left: Yellow Rail released after banding provides a close-up view of this otherwise elusive species.



Fig. 2 Left: A Typical view of a Yellow Rail during the festival after it is flushed by a combine.

associated with a cold front forced the reception inside their facility, which worked out well. That was the only indoor event. Considering its reduced offerings and late spring decision to have a YRARF 2021, the festival drew visitors to Thornwell, *The Yellow Rail Capital of the World*, from 18 US states, and one visitor came all the way from the UK.

LSUMNS is a festival co-sponsor and this year LSUMNS staff and graduate students assisted the event in many ways ranging from event coordinators to rail field “facilitators,” providing logistical support, and even driving UTVs at the harvest site. LSUMNS volunteers included (in alphabetical order): Steve Cardiff, Eamon Corbett, Donna Dittmann, Anna Hiller, Tammie Jackson, Dan Lane, Emma Reynolds, Samantha Ruthledge, and Section of Ornithology Curator Nick Mason (who was attending his first YRARF). 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. Eamon and Nick were also the featured speakers (via ZOOM) for the Louisiana Ornithological Society Fall Meeting on Friday and Saturday evenings, respectively, and some YRARF participants were able to tune in. Other LSU volunteers included grad students Aylett Lipford (Dept. of Renewable Natural Resources) and Esme Rosen (Dept. of Mathematics), and undergrads Jack Rogers and Nick Ramsey. Also volunteering their time and integral to the festival running smoothly were Matt Janson (all the



Fig. 3 Above:
A Yellow Rail being banded by the Audubon Louisiana crew.

way from South Carolina!), David Booth, Joelle Finley and Ken Harris (Louisiana Ornithological Society), Dave Patton (Baton Rouge Audubon), and Bill Vermillion (USFWS). Volunteers involved in banding activities and general “rail wrangling” included Dr. Erik Johnson, Katie Barnes, Jonathan Lueck, and Katie Percy with Audubon Louisiana, graduate students Leah Moran, Garrett Rhyne, and Joe Youtz with the LSU AgCenter, Warren James with the Louisiana Bird Observatory, Dr. Mark Woodrey, Rachel Anderson, Sofia Campuzano, Jared Feura, Peter Kappes, and Matt Sukiennik with Mississippi State University, and Amanda Anderson with USGS National Wetlands.

This year’s weather started off blustery as a front came through on Wednesday (and which would have washed-out the usually scheduled “Beat the Crowds” not offered in 2021). After the Welcome Reception on Thursday morning, rice harvesting was delayed because the rice was still wet from the previous day’s rain. The afternoon harvesting session started about 3 PM and included TWO combines – and was it ever windy! Field banding/netting rails and other birds at the field site coordinated by Dr. Erik I. Johnson (Audubon Louisiana, Louisiana Bird Observatory) was impossible due to high winds. Alternatively, hand-netting was very amusing to watch, but only yielded one Yellow Rail capture (photos at eBird list link below) even though about 25 were flushed by the combines. The Thursday Black Rail trip unfortunately yielded *no Black Rails* – but the coast had endured three major hurricanes since the last YRARF Black Rail surveys in 2019 and so these trips were definitely “exploratory.” Friday’s rice harvesting started early around 10 AM and, although still very windy, the banding crew deployed mist-nets. With one combine disabled, we were down to a single combine, but a longer day yielded another 21 Yellow Rails (several banded). Although not officially offered as



Fig. 4 Above:
Festival participants ride on the combine or ride alongside the combine on a UTV. Volunteer facilitators identified by orange or green vests.

part of YRARF 2021, we opted for a Saturday *lagniappe* session to make up for the shortened Thursday harvest and to accommodate those who just couldn’t get enough of the rice fields and rails. A noon start under much calmer conditions and still with one combine produced another 21 Yellow Rails (with several more banded). The grand finale of the festival- Saturday’s Coastal Night Rail Trip- did not disappoint with THREE Black Rails detected and two captured and banded! Total rails banded over the three days: Clapper 1, Sora 5, Virginia 6, Black 2, and Yellow 11.

Harvest site eBird checklists:

Thursday, 28 October 2021: <https://ebird.org/checklist/S97069000>

Friday, 29 October 2021: <https://ebird.org/checklist/S97069652>

Saturday, 30 October 2021: <https://ebird.org/checklist/S97070247>

YRARF celebrates its 13th event scheduled for 27-30 October 2022 – if you would like to be on the festival email list, then contact: yellowrailsandrice@gmail.com. Keep an eye on the website for information and updates about this year’s event: <https://www.yellowrailsandrice.com>

Registration will likely open on 1 August 2022 and spaces fill quickly!

Read summaries from past festivals: <https://www.yellowrailsandrice.com/yraf-history>

Photos: Donna L. Dittmann

Goodbye Swamp, Hello Bayou

by David Boyd

I started at LSU Museum of Natural Science as collections manager of fishes, amphibians, and reptiles in January 2021. More than a year later, it can be a struggle to recognize some coworkers without their masks on. Absent the usual seminars, lab meetings, and other gatherings that constitute typical social life at a museum, the smaller, subtler gestures of welcoming have taken on greater value. Getting to know graduate students over hash browns on the patio at Louie's or java from Highland Coffee; indoctrination into the museum-wide hummingbird obsession with a gifted cigar plant; much-needed invitations to a socially-distanced bonfire or an illicit boardgame "bubble" that quickly resulted in work-from-home quarantine; and countless pleasantries exchanged in hallways or before Zoom meetings are just a few of the reasons the museum has so quickly felt like home, despite pandemic restrictions.

Besides, there are more than 129,000 herpetological specimens and 21,000 jars of preserved fishes

keeping me company down here in the basement of Foster Hall. How does someone wind up surrounded by shelves of dead snakes and catfishes suspended against time in glass jars of amber-colored alcohol? What began as a hobby keeping live fish in aquariums led to an apprenticeship as collections assistant in the fish division of the Florida Museum of Natural History—where LSU expats toil in the bird and mammal collections unnourished by crawfish etouffee and boudin pizza. After a decade in Gainesville, Florida, there is a comforting familiarity to life in Louisiana and at LSUMNS: hot, humid summers and the fear that mosquitos might carry away my pitbull; the mazelike nature of a museum basement not intended to house biological collections (Foster Hall having been built originally as the campus mess, Dickinson Hall in Florida as public exhibit space); and a community of hard-working and passionate naturalists. But not all is the same. There are fewer alligators along creekbanks and more purple, green, and gold beads hanging from crepe myrtles, the river



Fig. 1 Left: Collections manager David Boyd and curatorial assistant Dan Sinopoli moving large turtle specimens into new storage.

Fig. 2 Right: Ichthyology doctoral student Sheila Rodriguez-Machado photographing pupfish in Texas in June 2021.



is of the continent-draining and not spring-fed variety, my mail is occasionally misdelivered to a building sharing my name, and the museum maintains the vanishing tradition of funding students to assist with and learn curation of specimen collections.

The most rewarding parts of managing the collections are training and learning from students. I arrived at LSU with only limited experience handling amphibian and reptile specimens, and although long-term storage is similar that of fishes I have learned a lot about herp preparation and taxonomy through patient instruction from graduate students—for example, I am currently fascinated by the dozens of lineages of legless lizards that have evolved in addition to snakes. Several keen undergraduate students have assisted in reorganizing our large specimen holdings into a new stainless steel tank rack system, and curatorial assistants are helping to accession new material—like brackish-water fish specimens collected during fieldwork in Texas last summer—and keeping up with loans of specimens and genetic material to and from other museums. We are librarians of life, and by practicing and teaching one another proper stewardship of the specimens in our care, the LSU “wet” collections will continue to benefit scientists and the study of evolution long after we’re gone.

Fig. 3 Below: Herpetology doctoral student Jackson Roberts with pygopodid (limbless gecko) specimens from Papua New Guinea.



Repairing Fossils

by Connor D. White and Mason J. Kirkland

Fossils are some of the most important and prized specimens that museums have in their collections. Workers in the Vertebrate Fossil Collection at LSU often have to make sure that the fossils in the collection are in good condition. Over time fossils can be damaged, either as a result of improper storage over the years or improper preparation methods when they were first recovered. It is the responsibility of the staff and student workers at the LSU Museum of Natural Science to maintain the collection and repair any damaged fossils. For the past few months, Connor White and Mason Kirkland, have been working to repair a damaged mastodon tusk from the LSU Vertebrate Paleontology Collection.

The tusk was found in West Feliciana Parish, Louisiana by LSU forestry student Darrel LeRoy Williamson in January 1959. It is estimated to be about 12,000 years old from the Pleistocene Epoch. The tusk belonged to an American Mastodon, *Mammuth americanum*, which were common in Pleistocene Louisiana. Mastodon tusks are notoriously fragile, and most do not survive the fossilization process. If the tusks are not well preserved and prepared when they are excavated, or if they are improperly stored or displayed it is highly likely that they will become damaged over time. Over time a crack developed in the tusk, and when workers tried to move the tusk, it cracked in two.

The process for repairing the tusk is not very complicated but it is time intensive. First, we collected the pieces of the tusks are collected, and both ends of the tusk are lined up. We tried to put back as many pieces of the tusk back to together as possible. These pieces are glued back together with a cement glue that is non-destructive to the fossils. Special attention

is paid to recovering and placing the surface pieces, as the interior pieces can be replaced with plaster. All of the pieces that could not be glued back together will be placed in a box and stored in the Vertebrate Fossil Collection, where the pieces can be used for destructive sampling in the future. After as many pieces are glued back to together as possible, the next step is to create a plaster jacket to cradle the fossil and hold the tusk together. The plaster jacket is created by placing tissue paper on the tusk, and lightly wetting the toilet paper with water. The purpose of the toilet paper layer is to prevent the plaster cast from touching the fossil directly. This allows the plaster jacket to still protect the fossil and allows workers to easily remove the cast once work on the fossil has been completed. Once a layer of wet toilet paper is on the tusk, strips of burlap are placed on the tusk and then covered in plaster. Shredded packing stuffing is added to the plaster to give more protection to the fossil. Sometimes aluminum foil is also used to wrap around the fossil before the plaster coated burlap is applied if the fossil is especially brittle and needs additional reinforcement. The cast is then left to dry for a few hours. Once the cast has been dried, the whole cast and the fossil inside are carefully flipped upside down. The cast is now resting on the table and the other side of the fossil is exposed and facing upwards for us to begin repairs.

Plaster is poured into the break, and we use stirring rods, ice picks, and dentist picks to remove any air bubbles in the plaster and make sure the plaster is pushed down into the crevices. The plaster dries very quickly, so we have to wipe any excess that spills down quickly. Once the plaster hardens a little, we try to contour and mold the plaster into the approximate

shape of the tusk. This is also the best time to chisel away any excess plaster as well, since it is best to have as much real fossil showing as possible. Once the plaster hardens, and we finishing filing/drilling down the excess plaster, we must then make a plaster cast for the side of the fossil we were just working on. Once this new cast hardens, we flipped the cast and the fossil onto the original side to continue working. We remove the original plaster cast and repeat the same process on the original side. After the plaster repair has been completed, the excess plaster is chiseled away and the remaining plaster is smoothed and contoured to replicate the original shape of the tusk.

Once the fossil is fully repaired it is brought back to the museum to be put back on display. The proper maintenance of the specimens in the collection will ensure that the LSU Museum specimens will be

available to future generations and future studies. The workers at the LSU Vertebrate Fossil Collection will continue to maintain the fossils in the collection, as well as prepare new fossils that are donated and excavated. While the work can be difficult and time consuming, the effort is well worth it, and the opportunity to work on fossils is something we have dreamed about since we were kids. As Mason said, "It was amazing to be able to work with fellow paleo nerds on this awesome specimen and live out my childhood dream." This important work will not only help the field of paleontology, but will allow us to better understand the complex and interesting prehistoric history of our state.

Fig. 1 Below: Mason Kirkland (left) and Connor White (right) working on repairing the tusk. Photo credit: Suyin Ting.



Fig. 2 Below: Connor White (left) and Mason Kirkland (right) smoothing out the excess plaster. Photos by Suyin Ting.



Repairing a Mastodon Tusk

All images by Connor White



Fig. 3 Left:
Broken
ends of the
Mastodon
tusk.



Fig. 4 Left:
Pieces of the
tusk taped
together to
determine
their
approximate
position.



Fig. 5 Left:
Connor
White (Hand)
and Mason
Kirkland
(top) create
a plaster
cast for the
tusk.



Fig. 6 Left:
Dr. Suyin
Ting adds
plaster and
shredded
packing
stuffing to
the plaster
cast.



Fig. 7 Left:
One side
of the tusk
has been
repaired
with plaster.



Fig. 8 Left:
The tusk is
flipped over
to repair the
other side.



Fig. 9 Left:
The tusk is
flipped over
to repair the
other side.

Geologic Field Work in Coos Bay Basin, Oregon; Assessing the Depositional Environments of World-Class Sedimentary Rock Outcrops and their Microfossils

By Allison Barbato

The Southwestern coast of Oregon is home to some of the most beautiful, world-class sedimentary rock formations in the world. In Coos Bay, Oregon, there are over 5 miles of easily accessible cliff-face outcrops, representing the sedimentation and subsequent deformation of a ~45 million year old delta, The Coaledo Delta. However, the nature of the Coaledos sedimentological development in response to autocyclic vs. allocyclic variables is not well understood. Understanding how ancient shelf margin systems responded to climatic changes over time is evident in the microfossils preserved within the finest grained rock units.

In February of 2022, Allison Barbato, a PhD student from the LSU Museum of Natural Science and the Department of Geology and Geophysics, and Jeff Duxbury, a PhD student from the department of LSU Geology and Geophysics, met with Dr. John Armentrout, a sequence stratigrapher and adjunct professor with the University of Oregon, and Dr. Les Magoon, a geochemist and professor at Stanford University, for field work. The goal of their field work was to collect additional field samples for Allison's PhD dissertation research, focused on studying the geochemical variations and microfossil assemblages of the Coos Bay rock formations. The rock formations are the Sacchi Beach, Lower Coaledo, Middle



Fig. 1 Above: World class, channelized cliff face outcrops in Cape Arago, Coos Bay.



Fig. 2 Above: The Coaledo field team for February 2022 (from left to right): Jeff Duxbury, Allison Barbato, John Armentrout and Les Magoon.

Coaledo, Upper Coaledo, Bastendorff, Tunnel Point, Tarheel and Empire. Allison and Dr. Armentrout, with the help of Allison's major advisor and palynomorph expert, Dr. Sophie Warny, previously collected samples from Coos Bay in August 2018. Preliminary results reveal excellent dinoflagellate, pollen and spore yield.

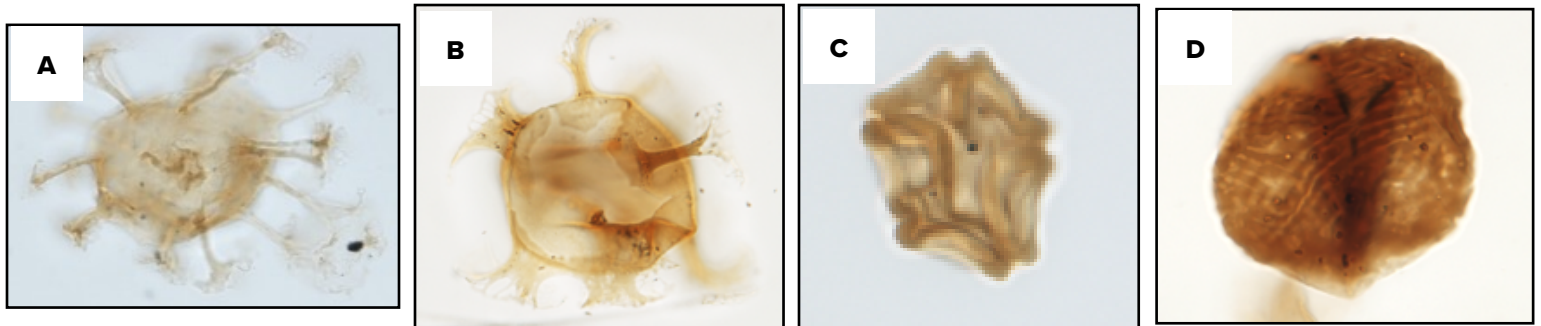


Fig. 3 Above: Marine dinoflagellates recovered from the Coaledo Formation. (A) *Aerosphaeridium diktyoplokum* (B) *Cordosphaeridium inodes*. Pollen such as (C) *Alnus sp.* and spore such as (D) *Cicatricosisporites sp.* (Figures not to scale)

The February 2022 field work was focused around four main geographical areas: Agate Beach, South Cove at Cape Arago, North Cove at Cape Arago, and Shore Acres. The entire 2,303 m section includes shoreface to slope gravity-flow sandstones encased in deep marine mudstones. For this field work, only eight new samples were collected: two from Cape Arago (Sacchi Beach Formation), four from North Cove (Sacchi Beach - Lower Coaledo Formation transition), and two from Shore Acres (Lower Coaledo Formation).

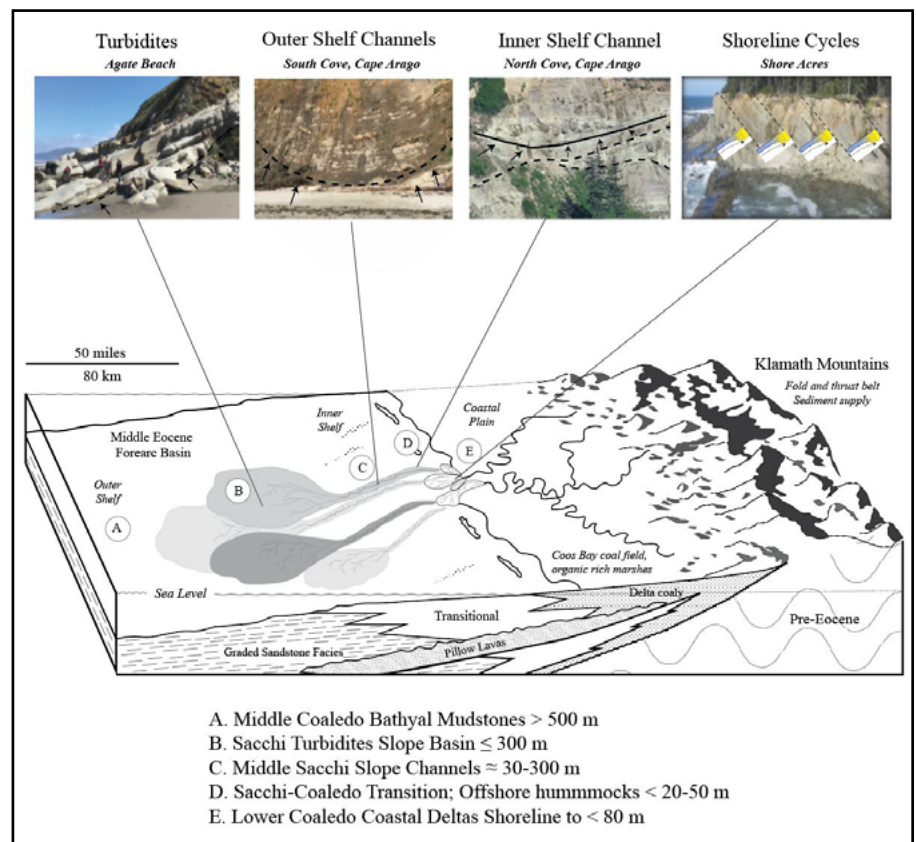


Fig. 4 Above: A paleodepositional model of the Coaledo Delta and its depositional facies, relative to the four geographical areas visited for field work.

Samples taken for this field work were all mudstone samples, to ensure that the rocks contained the highest microfossil yield possible. The Coos Bay Basin is not only famous for its spectacular record of marine forearc sedimentation, but also for the quality preservation of fossils and sedimentary structures.



Fig. 5 Above: Example of a sample taken at a muddy interval within the Lower Coaledo.



Fig. 6 Above: Pristinely preserved gastropod shell fossil identified in Middle Coaledo stratigraphy.



Fig. 7 Above: Beautiful example of cross bedding identified in the Upper Coaledo sandstone units.

Over the course of four days, Allison and the team collected the eight samples they set out to collect. Pollen and dinoflagellates from these six muddy intervals will document changes in paleowater-depth of the Coaledo, and any changes in the paleofloral evolution of the region. Once data from these final eight samples are combined with data from the previously acquired ninety samples, there will be sufficient palynomorph and geochemical evidence to provide ample interpretations of the large scale sedimentological variations observed within the Coos Bay Basin stratigraphy.

By comparing marine vs. terrestrially-derived microfossils from the ninety-eight sample suite, and integrating the microfossil assemblages within the previously interpreted sequence stratigraphic framework the Coaledo team will be able to elucidate how the Coaledo Delta developed throughout geologic time.



Fig. 8 Above: Allison standing next to a textbook example of convolute bedding.



Fig. 9 Above: Well-preserved coalified wood debris from the Upper Coaledo sandstone.

Extra Pictures with Captions:



Fig. 10 Left: Never a bad time to study geology! Pictured at a Burger King in Coos Bay.



Fig. 11 Left: A “roadside geology” moment, where Dr. Armentrout is covering the fundamental background geology of the region with the help of his car.



Fig. 12 Above: Allison and Dr. Armentrout on the last day of sampling in Sunset Bay.

2021 Peter R. Stettenheim Service Award

Winner: Fred Sheldon

by American Ornithological Society



Fig. 1 Left:
Dr. Fred Sheldon

In 2018, the American Ornithological Society (AOS) established the Peter R. Stettenheim Service Award, intended to carry on the tradition of the Cooper Ornithological Society's Cooper Honorary Member Award, one of the oldest awards in ornithology. The award consists of a framed certificate and honorarium, and recognizes a senior ornithologist who has performed outstanding and extensive service to AOS, celebrating members who may have served in elected or appointed positions, but also emphasizing volunteer contributions, mentoring, and committee participation. This AOS award honors Peter Stettenheim, an enthusiastic leader of AOS's precursor societies, the American Ornithologists' Union (AOU) and the Cooper Ornithological Society (COS), who served in Society governance and contributed in many ways to advance ornithology. This year's awardee is Dr. Fred Sheldon.

Dr. Sheldon received his Ph.D. from Yale University in 1986. For 28 years, he has worked at Louisiana State University, where he is the George H. Lowery, Jr.,

Distinguished Professor of Natural Science, Curator of Genetic Resources in the Museum of Natural Science, and Professor of Biological Sciences. Dr. Sheldon's history of service to the ornithological community and to AOS and its precursors, in particular, is lengthy and varied. He served as AOU Treasurer from 1993 to 2000, and Vice President from 2002 to 2003. In addition to elected offices, Dr. Sheldon served on numerous committees, including a 10-year stint on the Finance Committee (1993–2003), the Publications Committee (2001–2003), the Student Awards Committee (2002–2003), the Scientific Program Committee for NAOC in 2002, and the Development Committee, which he chaired from 2003 to 2004.

Dr. Sheldon also devoted considerable time to our Society publications, serving as an Associate Editor for *The Condor* (now *Ornithological Applications*) from 2008 to 2013, and for *The Auk* (now *Ornithology*) from 1999 to 2003, and again from 2013 to 2019. His gift of service extended beyond AOS to include the Ornithological Societies of North America (OSNA), where he participated in the Managing (1993–2000) and Contracts (2003–2004) committees. Evidently not one to be idle, Dr. Sheldon devoted nearly 10 years on the Managing Board of *The Birds of North America* when it was just getting started (1994–2003). The AOS is honored to recognize and express gratitude to Dr. Sheldon, whose generosity of service has touched every aspect of our Society and made it stronger. In recognition of his outstanding service to AOS and the ornithological community, the Society is proud to recognize Fred Sheldon as this year's recipient of the Peter R. Stettenheim Service Award.

MNS NEWS

Retirements



Frederick Sheldon

Fred Sheldon, our curator of genetic resources, arrived at LSU in 1994, and after 28 years of dedicated service to the MNS will be retiring this month. As you already saw above, he was awarded the prestigious American Ornithological Society's Peter R. Stettenheim Service Award, a well-deserved award acknowledging his service contributions to the AOS and the field of ornithology in general. Fred's keen insights into southeast Asian ornithology set his research program apart from others working in the region. We all wish him a happy retirement.



Suyin Ting

Ting came to LSU as a visiting scholar from China in 1980 and again in 1988. She received her Ph.D. from LSU in 1995, the same year she started working at the LSU Museum of Natural Science under her Ph.D. advisor, the late Curator of Vertebrate Paleontology Judith Schiebout. Ting's research specialized in early Tertiary, or Paleocene-Early Eocene, mammals and stratigraphy, for which she has contributed to five books and 41 peer-reviewed journal articles. She retired December 2021.

Graduates

Oscar Johnson

Oscar completed his PhD in the LSU Museum of Natural Science and Department of Biological Sciences, where he was advised by Dr. Robb Brumfield. He is currently a postdoctoral fellow in the Harvey Lab at the University of Texas at El Paso, where his research seeks to understand the processes that govern speciation of birds in species-rich tropical environments. He uses macroevolutionary and comparative phylogenetic methods to bridge the gap between fine- and broad-scale biogeographic patterns among species. He is also actively involved in field work related to museum collections, both in the desert Southwest and in the western Amazon Basin.

Jessie Salter

Jessie completed her PhD in the LSU Museum of Natural Science and Department of Biological Sciences, where she was co-advised by Dr. Brant Faircloth and Dr. Robb Brumfield. She is a museum-based ornithologist interested in the evolutionary processes responsible for generating diversity among closely-related organisms. Salter is currently an NSF Postdoctoral Fellow working with Dr. Allison Shultz and Dr. Kayce Bell at the Natural History Museum of Los Angeles County.



Above: (Left to right) Dr. Robb Brumfield, Dr. Oscar Johnson, Dr. Jessie Salter, and Dr. Brant Faircloth. Photo taken after the graduation ceremony outside the LSU Museum of Natural Science.

MNS NEWS

MNS Awards



Irene Marti Gil, Dissertation Year Fellowship

Irene Martí Gil won a Dissertation Year Fellowship from the Graduate School. The Dissertation Year Fellowship is a competitive fellowship that is awarded to high-achieving PhD/Doctoral candidates who are in their final academic year of study. Irene is in the Anthropology Division; she is an archaeologist and a linguist. Her dissertation title is: *Fighting the Illicit Antiquities 'Artworld': A Critical Approach to the Heritage Laws of Guatemala*.



Kenneth Tremblay, Doctoral Fellowship

Ken Tremblay received an MA from LSU's Department of Geography and Anthropology in May 2021. Since that time, he has been a Research Associate 4 in the Anthropology Division at the Museum. But he is moving on. He was awarded a Trustees Doctoral Fellowship from the University of Central Florida, where he will begin his PhD studies in the Integrative Anthropological Sciences Program in the fall. This four-year fellowship is the highest of the multi-disciplinary awards given out by the UCF Graduate School. He will be studying the identification of different forms of violence in archaeological contexts.



Christopher Austin, 2022 LSU Distinguished Faculty Award

Christopher Austin, Director and curator of amphibians and reptiles, received the LSU Distinguished Faculty Award for 2022. This award recognizes faculty members who have a sustained record of excellence in teaching, research, service, or any combination of the three.

New Teaching Microscope System

LSUMNS was awarded \$6,500 by the LSU Student Technology Fee Oversight Committee for the purchase of a Teaching Microscope System. This new learning tool will allow our instructors to show their students what they are viewing under the microscope, both in person and over Zoom. Our teachers will also be able to take images of their slides to compare to each other or save them to show later.

Other News



John O'Neill's 80th Birthday

Former Director of the LSU Museum of Natural Science and renowned ornithologist and artist Dr. John P. O'Neill recently turned 80! The museum was fortunate enough to be able to host this momentous birthday celebration for John, his family, friends, and colleagues. More details in the next issue.

Photo by Jonathan Schmitt.

2021 LSUMNS Publications

Anthropology

Cordell, A. S., Mitchem, J. M., & **Saunders**, R. (2021). Introduction. In A.S. Cordell & J.M. Mitchem (Eds.), *Methods, Mounds, and Missions: New Contributions to Florida Archaeology* (1st ed., pp.1-10). Gainesville: University of Florida Press.

Saunders, R. (2021). Catholic Intrusions: Spanish Colonial Missionization of the Old World and the New, with an Emphasis on La Florida. In A.S. Cordell & J.M. Mitchem (Eds.), *Methods, Mounds, and Middens: New Contributions to Florida Archaeology* (1st ed., pp. 310–336). Gainesville: University of Florida Press.

Fossil Protists & Invertebrates

Smith, L. E., & Barun K. Sen Gupta. (2021). Henry V. Howe and his collection of Foraminifera at Louisiana State University. *Occasional Papers of the Museum of Natural Science, Louisiana State University*, 91, 1–80.

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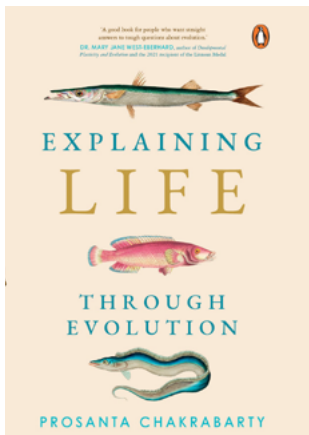
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2021 Book Publications



Explaining Life Through Evolution by Prosanta Chakrabarty

This new publication from our Curator of Fishes will cover the story of four billion years of life on Earth. Available for purchase on August 4th, 2022 and available for preorder now through Barnes & Noble, Thrift Books, Book Depository, and other retailers!



Methods for Fish Biology 2nd edition

This is the 2nd edition of a classic fish methods edited volume. Prosanta Chakrabarty collaborated with Stephen R. Midway and Caleb T. Hasler on this updated edition (published by the American Fisheries Society) and is designed as both a reference and a handbook for the study of fishes. It is a source of methods commonly used to research fish genetics, systematics, anatomy, physiology, developmental biology, toxicology, behavior, and ecology.

Outreach Update



Fig. 1 Above: Girls Day at the Museum 2022!

Fig 2 Below: Diego Cueva leading a tour of our bird collection for Girls Day at the Museum 2022!



Girls Day at the Museum

In collaboration with the LSU College of Science (CoS), we hosted Girls' Day at the Museum for the fifth year in a row. Girls grades 4th-6th applied to be chosen for this special program that encourages our next generation to stay interested in STEM and STEM careers! Our participants were able to meet women scientists in the CoS, tour the museum's collections, and participate in science activity stations themed around biology, chemistry, geology, math, and museum specimens.

Master Naturalist Workshop

For the second year in a row, we have hosted the annual Louisiana Master Naturalists of Greater Baton Rouge Bird Workshop. After an overview of the museum, participants learned how we prep bird specimens with Donna Dittmann. Later, they went on a behind-the-scenes tour of the bird collection with Andre Moncreiff to learn about the world's third largest museum based bird collection.

Audubon Day

For the first time in three years, Hill Memorial Library was able to host its highly anticipated one-day viewing party of original elephant folios of John James Audubon's "Birds of America." Our Ornithology students acted as experts, providing additional information to guests about the birds. In addition to the viewing, the LSUMNS's Ornithology students provided private tours for small groups through our Birds Collection.

6th Grade Day

Over the course of three days, over 1,600 Baton Rouge sixth-graders came onto campus to learn about what LSU has to offer! The MNS was a highlight of their activities as they answered animal trivia, spoke to current students about what it is like to actually attend LSU, and participated in a scavenger hunt in the museum.

Giving Form to Support the Museum of Natural Science

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If you would like to include items in the next issue of *Museum Newsletter*, 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 ereynolds1@lsu.edu

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