

Museum Quarterly

LSU Museum of Natural Science

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Museum of Natural Science Director and Curators

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Letter from the Director...



HURRICANE HASSLES

Those of you who don't live in Louisiana probably don't know that Hurricane Gustav was far worse for Baton Rouge than Katrina. Its effect on my neighborhood was typical--electricity was off for 10 days and damage caused by falling trees was devastating. Although my house survived, many were wrecked. A history professor across the street from me lost his house and three cars (two of which belonged to refugees from New Orleans).

The Museum fared better, but we had some serious scares. Electricity was off for 10 hours, leaving our 15 ultracold freezers and the world's largest collection of frozen wild vertebrate tissues in dire danger of meltdown. Facilities Services kindly provided us with a generator, but didn't hook it up because everyone expected the juice to come on at any moment from LSU's relatively new co-generation plant. Unfortunately, that didn't happen for a long time because of a series of arcane problems. The exhausted Facilities guys finally managed to get the electricity on in Foster Hall at 10:30 on Labor Day night. This, however, caused other problems. Without air conditioning, the freezers rapidly started to overheat, and one blew up the next morning (\$8,000 down the tubes).

While all this was happening, Spanish tiles from the roof of Foster Hall began crashing through the skylight above the Bird Collection and water poured in on the Lyrebird and babbler cases. Fortunately, an alert graduate student, **Amber Gates**, managed to get some garbage cans in place and staved off disaster. While that was happening, mountains of tree debris clogged the drains in the driveway, and water started lapping at the (sand-bagged) basement doors. The basement almost flooded twice in the course of a week. Fortunately, in both cases, alert graduate students came to the rescue, wading through knee-deep water to clear the drains.

We are extremely grateful to the folks at Facilities Services for the help they gave us before and during the crisis. They were terrific. Herpetology curator, **Chris Austin**, was on the job every day staunching wounds, and we would have been in much worse shape without his continuous oversight. And finally, the Museum's graduate students were fantastic. There is no doubt they saved substantial parts of the bird collection and perhaps the entire tissue collection.

If you would like to help us prevent disaster in future hurricanes, we could sure use an automatic generator system for Foster Hall. Facilities Services will install the generator for free if we buy it. All we need is \$36,000.

Fred Sheldon

“Early Bird” Project Really Gets the Worm

LSU Researchers Help Decode Evolutionary History of Birds

Article by Ashley Berthelot

Scientists from the **Museum** recently participated in a project joining together the most prominent ornithological research programs in the world. This study – the largest study of bird genetics ever completed – has not only shaken up the avian evolutionary tree, but completely redrawn it. The results of this massive research project, which relied heavily upon the LSU MNS genetic resources collection, was published in *Science* on June 27.

The results of the study are so broad that the scientific names of dozens of birds will have to be changed, and biology textbooks and bird-watchers’ field guides will have to be revised.

LSU participants in the study include: **Fred Sheldon**, director of the LSU MNS; **Ben Marks**, recent graduate of LSU’s biological sciences doctoral program; and **Chris Witt**, former LSU graduate student and current assistant professor in the Department of Biology and Museum of Southwestern Biology at the University of New Mexico. Leaders of the project include two LSU alumni; **Shannon Hacket** and **Mike Braun**.

For more than five years, the Early Bird Project, funded by the National Science Foundation’s “Assembling the Tree-of-Life” research program, has been collecting DNA sequence data from all major living groups of birds.

“One thing that makes this project unique is its breadth; both in its taxonomic scope and in terms of the amount and type of data we collected,” said Ben Marks.

Thus far, scientists have built and analyzed a dataset of more than 32 kilobases of nuclear DNA sequences from 19 different locations on the DNA of each of 171 bird species.



Fred Sheldon and Ph.D. student **Ben Marks** look at birds in the LSU bird collection.

Photo by Kevin Duffy.

“This paper makes tremendous strides toward determining the evolutionary relationships of the major branches in the bird family tree,” said Chris Witt. “It uses DNA sequences to infer key events in the diversification of birds that happened tens of millions of years ago.”

For example, we now know that birds adapted to diverse environments multiple times. Distinctive

lifestyles (such as nocturnal, raptorial and pelagic, i.e., living on the ocean or open seas) evolved several times. For example, contrary to conventional thinking, colorful, daytime hummingbirds evolved from drab nocturnal nightjars; falcons are not closely related to hawks and eagles; and tropicbirds (white, swift-flying ocean birds) are not closely related to pelicans and other waterbirds.

Letter from our new ichthyologist...

By Prosanta Chakrabarty

I wanted to start by thanking all of you for your efforts on my behalf and on behalf of the fish collection as I start my position here at LSU. I'm very excited about being here and despite the weather I think my side of the museum is starting to take shape. Actually, Hurricane Gustav has been an excellent role model for my first few weeks at the museum. Like Gustav, I've spent my first weeks here breaking a lot of glass, clearing out a lot of old jars, rusty shelves, and general junk. I'll soon be ready to start the rebuilding process.

On the scientific front, I recently returned from Madagascar where I spent most of July. I went there with my American Museum of Natural History and Field Museum colleagues to study blind fishes. We went through a number of cave systems and collected populations of blind gobies that we are studying at both the population and species level. We made a number of novel discoveries including the discovery of the first darkly pigmented blind fish. The caves were beautiful and awe inspiring and made all of us pretty sick: we are naming one of the new species *mararybe*, which means big sickness in Malagasy.

I have been invited to give a talk at this year's Hennig Society Meetings in Tucuman, Argentina. I will be speaking there in October about the family Leiognathidae and my work on resolving the phylogeny of that family and the potential role of sexual selection and bioluminescence in promoting diversification of species in that clade. A taxonomic paper that I wrote with AMNH curator John Sparks cleaning up the confusing taxonomy of this family was published in the American Museum *Novitates* series last week.

Dr. Sparks and I also published a phylogeny of Neotropical Cichlidae which we wrote with Leo Smith (FMNH) that is now available on the *Cladistics* website as an "Early View" publication; we are hoping to snag the cover when this comes out in print. In that publication, we sample all cichlid genera (90 terminals) from Central and South America including the oldest known fossil cichlid. We find using molecular and morphological characters that this fossil taxon is recovered in an apical position on the phylogeny, supporting an ancient (Gondwanan) origin for the family.

I'm looking forward to working with all of you in the near future, and thank you again for your warm welcome to Baton Rouge. My wife, Anne Marie, and I love it here already.



Prosanta with some ponyfish in Java last year.

Atchafalaya Basin IBA First to be Recognized in Louisiana

Article by **Melanie Driscoll**, LSU MNS, Bird Resource Center

The National Audubon Society of Louisiana recognized the Atchafalaya Basin as an Important Bird Area (IBA) on May 10th, 2008, International Migratory Bird Day. This was the first such recognition for any IBA in the state of Louisiana. The IBA recognition ceremony took place at 1:30 p.m. at the Sherburne Wildlife Management Area headquarters on Whiskey Bay Road during Step Outside Day, and was open to the public.

At the IBA recognition ceremony, Paul Kemp, Vice-President of Louisiana's Gulf Coast Initiative, spoke about the importance of the site to birds. Representatives of the major public landowners in the Atchafalaya Basin each spoke about their investment in and management of lands within the Atchafalaya Basin. These individuals included Neil Lalonde of the U.S. Army Corps of Engineers, Danny Breaux of the U.S. Fish and Wildlife Service, and Michael Seymour, of the Louisiana Department of Wildlife and Fisheries.



Melanie Driscoll, Louisiana IBA Coordinator, describes the importance of the Atchafalaya Basin IBA to birds during the May 10th, 2008 IBA recognition ceremony, as Paul Kemp, Director of the Gulf Coast Initiative, National Audubon Society, looks on.



Paul Kemp, Director of the Gulf Coast Initiative, National Audubon Society, gives an Important Bird Area sign to Danny Breaux, U.S. Fish and Wildlife Service, at the Atchafalaya Basin IBA recognition ceremony, May 10th, 2008 at Sherburne Wildlife Management Area headquarters.

The largest remaining tract of bottomland hardwood forest in the United States, the Atchafalaya Basin is gaining recognition as an IBA due to its vital importance for breeding populations of Northern Parula, Kentucky, Prothonotary, Swainson's and Yellow-throated Warblers, as well as Swallow-tailed Kites and the colorful and near-threatened Painted Bunting. America's Great River Swamp, as it is known, is also a migratory stopover site for globally important concentrations of up more than 2,000 Wood Storks in the fall. The forest is also a migratory corridor for hundreds of thousands of Neotropical migratory songbirds, such as the Audubon Watch-Listed Wood Thrush.

The site is visited by hundreds of birders annually, as well as thousands of hunters and anglers.

National Audubon looks forward to working in partnership with the U.S. Army Corps of Engineers, the Louisiana Department of Wildlife and Fisheries, the U.S. Fish and Wildlife Service, and other interested organizations and private landowners, in promoting sound bird conservation practices on the site for years to come. National Audubon Society's Important Bird Areas program identifies significant bird habitat across Louisiana based on data reviewed by a technical committee of 18 experts using peer-reviewed scientific criteria. The IBA Program is a voluntary effort to help willing private and public land managers provide the best stewardship practices for bird conservation on their property. It is a non-regulatory program providing sound scientific information to help build conservation partnerships. (The Louisiana IBA program is part of LSU's Bird Resource Center in the Museum of Natural Science.)

STEP OUTSIDE is a national program administered by the National Shooting Sports Foundation to increase participation in outdoor sports. This year's event ran from 9 a.m. to 3:30 p.m. and included fishing, archery, boating, target and trap shooting, wood crafts construction, nature photography, raptors, bird watching and decoy painting. Each year, Step Outside Day is open to all children and adults, but is targeted to those with special needs.

The Virginia Museum of Natural History

Article by Alton Dooley

The second annual meeting of the Southeastern Association of Vertebrate Paleontology is being hosted by the Virginia Museum of Natural History May 27-30, 2009. The meeting organizer, VMNH Assistant Curator of Paleontology Dr. **Alton Dooley**, is a 1999 graduate of the LSU Museum of Natural Science and the Department of Geology and Geophysics.

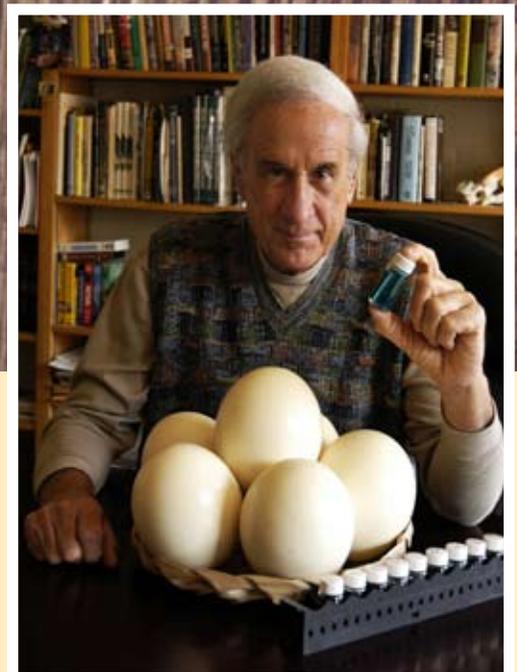
The Virginia Museum of Natural History is located in Martinsville, Virginia.



The official state natural history museum, it was relocated to a new 89,000 square-foot facility in March 2007. This building includes a series of award-winning exhibits as well as state-of-the-art lab and collection storage facilities for VMNH's eight research departments.

The Southeastern Association of Vertebrate Paleontology held its inaugural meeting last June at the Gray Fossil Museum in Gray, Tennessee.

Alan Feduccia



Alan Feduccia, S. K. Heninger Professor Emeritus at the University of North Carolina, was a former Tiger (B.S. '65; Ph.D., Michigan '69), and museum assistant from 1961-65. He went on museum expeditions twice to Honduras, and to El Salvador and Peru, and prepared some 3,000 bird specimens. He also made many of the reptile and amphibian latex casts for the museum's display. Feduccia's career has focused on evolutionary biology, vertebrate history and morphogenesis, and tempo and mode of the Tertiary vertebrate radiation. His 160 or so publications include six major books and five monographs, including *The Age of Birds* and *The Origin and Evolution of Birds*, Harvard (1980) and Yale (1996) University Press, respectively. These were the first modern syntheses of the field. *The Origin and Evolution of Birds* was the 1996 winner of the Professional and Scholar Publishing Award for Excellence in the Biological Sciences by the Association of American Publishers. His recent research in developmental biology resulted in the discovery for the first time of the pentadactyl hand of birds, a problem dating to Meckel, 1820. At UNC he served on the Board of Governors of the University of North Carolina Press, the Board of Directors of the Arts and Sciences Foundation, and was awarded a Favorite Faculty Award by the Senior Class of 1997. Feduccia was elected a Fellow of the American Association for the Advancement of Science and the American Ornithologists' Union, and was Scientist of the Month in *Discover*, February, 2003. He has appeared frequently on national TV and radio, including NPR, Voice of America, BBC, NHK (Japan) and McNeil/Lehrer Report, and is a popular university lecturer. Feduccia was Associate Chair and later Chair (1997-2002) of the Department of Biology, UNC, where he developed genome sciences and received initial approval of a new Genome Sciences Building, to be completed in 2010. He was also Chair of the Division of Natural Sciences.

Top left: Alan, September, 1964, examining facial motif of Cashinaua woman at Balta, Peru (Photo John O'Neill). Inserted above to the right is Alan Feduccia in 2002, shortly after discovering the first digit of the avian hand in 14-day old ostrich embryo.

LSU Ornithologist Receives Award from President of Peru



Picture left are Alan García Pérez (President of Peru) and John O'Neill to his right.

John P. O'Neill, former director of the LSU Museum of Natural Science, or LSU MNS, and current research associate at the museum, was recognized by the Peruvian government on Tuesday, June 17, for his distinguished contributions to the field of ornithology.

O'Neill received a Distinguished Service Merit Award from Peruvian President Alan Garcia Pérez. The award was presented by the Peruvian Minister of Foreign Affairs, José Antonio García Belaúnde, at a ceremony at the Torre Tagle Palace in Lima, Peru.

O'Neill was recognized for his more than 40 years of work studying Peruvian birds. He has described 12 new species of Peruvian birds and published many research articles. Last year, he published the seminal field guide for the country, titled *Birds of Peru*.

The MNS contributes to the goals of LSU's Flagship Agenda by building and studying research collections to generate knowledge of regional and global biodiversity and of geological and human history and prehistory for the benefit of the people of the state, the nation and the world. The vast storehouse of scientific information held within the LSU MNS collections helps researchers understand the historical and con-

temporary processes that have shaped the world's biological diversity. With nearly three million specimens and growing, the MNS collections are one of the largest university-based research collections in the world. As such, it is an invaluable resource that will yield countless important discoveries for generations to come. More information about the LSU MNS is available at <http://appl003.lsu.edu/natsci/lmns.nsf/index>.

More Photos available for download at www.lsu.edu/pa/photos

Earth Science Literacy Initiative

In May, **Dr. Judith Schiebout** was a participant in the online Earth Science Literacy Initiative. This is an NSF-funded project to identify the "Big Ideas" in earth science that all Americans should know. It is expected that legislation and national and state educational standards will be guided by the results of this project.



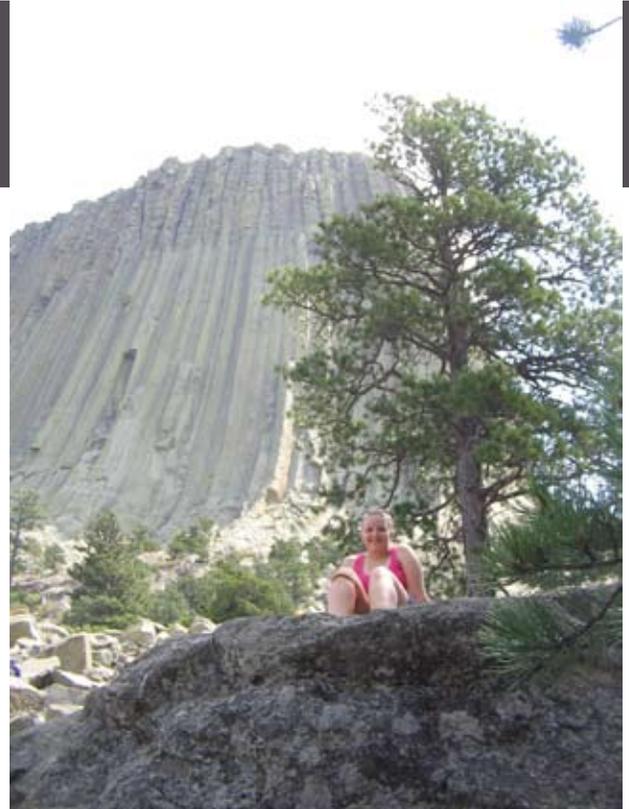
For more information visit the Web site: <http://www.earthscienceliteracy.org/>
Or contact:

Michael Wyssession
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(314) 935-5625)

Lindsay Yann



Lindsay (middle) is pictured on a geology field trip.



Pictured above is Lindsay at Devil's Tower.

Lindsey Yann is a new master's student in vertebrate paleontology at LSU. She grew up in Franklin County, Virginia, and graduated from the county's only high school. Upon graduation, she immediately started at Virginia Tech where she was part of the Marching Virginians (the marching band), Geology Club, Sigma Gamma Epsilon, and participated in undergraduate research on Triassic insect fossils. She graduated from Virginia Tech in May 2008 with a dual degree in Biology and Geological Sciences. Lindsey moved to Baton Rouge in the middle of August, experienced her first hurricane, and is now trying to come up with some research ideas. While she currently does not have a thesis project, her interests lie in the large Ice Age mammals.

A Summer of Science

Article by Travis Atwood



Pictured on left: Travis Atwood at Field Camp Twin Mountain

The excitement of this past summer actually began a year earlier when I started a research project on stable isotopes and Miocene fossil bones from Fort Polk, Louisiana. After a year, I was finally starting the research of my choice. With a lot of tedious work and patience I gathered my data in the spring and decided that they were worthy of a presentation at the first annual conference of the South Eastern association of Vertebrate Paleontology. Sounds easy enough, right?

Soon after I had submitted my abstract to the conference, I was contacted by Dr. Joe Lebold. Dr. Lebold is the professor who runs the LSU Geology and Geophysics field camp for six weeks in the summer. He came to me in need of a TA for the course. I'm very much a field geologist/paleontologist, and I jumped at the chance to participate. However, I had barely started preparing for my research talk. In my excitement to get to the geology camp, I decided that I could deal with working out the presentation details at camp. By the way, I should tell you that the field camp is in the Rocky Mountains just outside Colorado Springs. There's no AC there, and running water is the most precious commodity which isn't always a guarantee. I spent the first few weeks working on my presentation in a log cabin that wasn't much more than a wooden tent with power. I loved it. Being able to look out the window of the cabin to see a running creek, mountains and the occasional black bear while I slaved away to make the perfect Powerpoint seemed like a dream. I was able to stay in contact with my advisor in Baton Rouge by commandeering a van into town on the weekends and using the wi-fi of any building I could find. Catching the plane to Tennessee to go to the conference was an adventure of itself. The geology campers had left to go camping in a different field area for a week, and I had to go with them. My plane was to leave from Denver at 6:30am. Little did I know that the drive there required waking up at 4:30am and traveling on a two lane mountain road made up of hairpin turns. I had to push the envelope so I wouldn't miss my plane. I arrived at the airport having not showered for about 3 days and smelling of campfire. (And I actually did miss my plane.)

A few days later it was time to get up and give my first ever professional talk. Now you think that I would have been shaking in my boots with nervousness. It was the exact opposite. The stress and adventure of the past few weeks was the hard part. Now, finally, I had arrived to give the talk. This was the easy part. And it was. The talk went perfectly. The leading researcher in my particular field even took me out to lunch right afterward. I arrived back in Colorado a few days later to an audience of congratulations from my students and colleagues.



Travis Atwood and Dr. Judith Schiebout are pictured above in the first ever SeAVP.

Mammals and Parasites: Partners in the Oriental Basin of Southern Mexico

Article by Jesús A. Fernández, Roxana Acosta
and Jorge Falcon-Ordaz

The Oriental Basin is located in Southeastern Mexico, and is composed of a series of isolated pockets of desert and semi desert. Despite the close proximity of these habitats to large cities (e.g. Mexico City and Puebla City), surprisingly little is known of vertebrate and invertebrate diversity in the area. In addition to urban expansion into this region, there are many small towns whose main activities are agriculture and cattle raising, resulting in significant and continuous loss of native habitat.

During this past summer, **Jesus A. Fernández**, graduate student of the LSU MNS and the Department of Biological Sciences, joined Jorge Falcón-Ordaz and Roxana Acosta, graduate students at the National University of Mexico (UNAM) for field work in the Oriental Basin. The main goal of the trip was to complete sampling of mammals and reptiles for a study of the influence of past geologic and climatic events on the genetic differentiation and molecular evolution in several species in a comparative context. As a side project, we collected fleas and endoparasites

from every mammal to study the diversity of these parasites in the Oriental Basin and assess the evolutionary relationships among the flea genera.

The Oriental Basin is usually very dry and consists of rocky hills and sandy plains mixed with agricultural fields and pasture. This summer, however, rainfall started very early in the season, and the area looked greener than in past year. Almost every day we experienced heavy rain, making it difficult to collect mammals and reptiles, prepare study skins, and collect endo- and ecto parasites.

Despite the heavy rain, we collected more than 200 mammal and reptile specimens, most of them relevant to the main project. Species collected included Phillip's kangaroo rat (*Dipodomys phillipsii*), the Mexican silky pocket mouse (*Perognathus flavus*), and the rock mouse (*Peromyscus difficilis*). Other species collected, including the Mexican pygmy rattlesnake (*Crotalus ravus*), will be used in research collaborations with scientist from other institutions.



Rock mouse (*Peromyscus difficilis*),
Oriental Basin, Mexico.



Mexican silky pocket mouse (*Perognathus flavus*), Oriental Basin, Mexico.

Our success was not limited to vertebrates, as we collected a wide variety of fleas representing 27 species in 21 genera hosted by at least nine genera of mammals. The most common flea genera were *Plusaetis* and *Jellisonia*, and our collections included two new country records and a new flea species collected from Nelson's woodrat (*Neotoma nelsoni*). Preliminary estimates suggest presence of at least 15 species of trematodes, nematodes and cestodes from the stomach of 10 mammal species, with several new country records and 2 taxa new to science.

Field work would not have been possible without the financial support of the LSU Museum of

Natural Science (Mark S. Hafner), the Mexican Science and Technology Council (Conacyt), the Museum of Zoology, UNAM (PAPIIT, Juan J. Morrone). Special thanks to Fernando Cervantes, Yolanda Hortelano and Julieta Vargas of the National Collection of Mammals who kindly let me work in the collection and laboratory in Mexico City.

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2. Centro de Investigaciones Biológicas, Universidad Autónoma del Estado de Hidalgo Apdo. Postal 1-69, C.P. 42001, Pachuca Hidalgo, México.

Monkeys see, Monkeys do

Article by Heather Jackson



Amanda Accamando is pictured holding a baby rhesus macaque at Caya Santiago island near Puerto Rico.

On Saturday, September 20, 2008, the museum hosted a Special Saturday devoted to primates. Primate biologist Amanda Accamando (currently a graduate student in Biological Sciences) introduced children to the habits of the rhesus macaque. Kids recognized kindred spirits as they watched monkeys chase, wrestle, groom, fight, eat, and spend time with mom. Museum primate specimens were put on display, and some kids were surprised to find humans in the ape section instead of the monkey section. This discovery did not prevent them from monkeying around while

using their binocular vision, opposable thumbs, and large brains to complete special tasks. This important monkey business accomplished, we look forward to the next Special Saturdays.

Scope-On-A-Rope Program Joins Forces with LSUMNS

This summer the museum welcomed a new addition to its education office. **Adrienne S. Lopez**, LSU's Scope-On-A-Rope Program Coordinator, will be working with **Sophie Warny**, the Museum's Education Curator, to provide science education opportunities for students and teachers.

The Scope-On-A-Rope (aka SOAR) is a handheld video microscope that shows focused, magnified images on an ordinary television or projector. It has interchangeable objective lenses that can achieve magnification over two hundred times. Each lens has a contact tip that is at the focal plane of the lens; therefore, simply touching a sample with the lens tip produces an image that is automatically lighted and in focus. Little to no specimen preparation is necessary, but SOAR can be used to view traditional prepared slides as well. Teachers at all levels appreciate its ease of use and durability. Not only can the SOAR operate as a regular video camera, dissecting microscope, compound microscope, and document camera, but an entire class can also view images together, thus facilitating class observations and discussions. Hands-on exploration and cross-curricular applications are endless; the Scope-On-A-Rope inspires and motivates students of all ages and ability levels with its "wow" factor!

The Scope-On-A-Rope Program at LSU started nearly fifteen years ago with the first educational application of the microscope's technology through an EPSCoR grant from NSF. LSU then implemented a lending program bringing the Scope-On-A-Rope to over 200,000 K-12 students in Louisiana and surround-

ing areas through funding from the Howard Hughes Medical Institute. The SOAR Program Coordinator offers professional development for K-12 teachers to train them on the use of SOAR in their classrooms. All trained educators can then borrow a SOAR and other materials from LSU or from our eight partner sites located in all major geographic areas of Louisiana. This lending program helps introduce technology in classrooms without straining schools' limited budgets. Lopez also creates lesson plans and correlates SOAR activities to the state and national curriculum

standards to further assist teachers in implementing the technology to facilitate science inquiry.

Adrienne is also an alumna of the museum (formerly Adrienne Steele). She earned a Master's of Science in Zoology in 1999 under Dr. **Douglas Rossman**, former Curator of Herpetology. After working as the Science Education Curator for the Louisiana Art and Science Museum for four years, Adrienne jumped at the chance to coordinate the Scope-On-

A-Rope Program at LSU in 2003. For four and a half years, the program was housed in the Life Sciences Building in the Department of Biological Sciences. Adrienne had this to say about her move to the education office at the museum:

"I'm very pleased and honored to be working with the world-class curators and graduate students at the Museum of Natural Science. Combining forces with the Museum's education programs will be mutually beneficial, and I feel like I've been welcomed home."



Pictured above is Adrienne using Scope-On-A-Rope on a feather and the magnified image of the feather is displayed on the screen next to her.

Faculty in the Field: Dr. Laurie Anderson Takes Her Research to Peru



Anodontites in place

Omalonix

With funding from the Biotic Surveys and Inventories program of the National Science Foundation, **Laurie Anderson** is participating in a multiyear international collaboration to inventory the aquatic animals of Alto Purús National Park and Purús Communal Reserve. Alto Purús, with Manu National Park and adjacent protected areas in Bolivia and Brazil, is the largest conservation corridor in the Amazon Basin. Nonetheless, only minimal baseline biodiversity data are currently available for the aquatic fauna of the region, and Projecto Alto Purús will focus on fully characterizing diversity within the crustaceans, fishes, platyhelminths, mollusks, and sponges of this region.

The geologic setting of Alto Purús provides a unique opportunity within the Amazon Basin to examine the generation and maintenance of tropical aquatic biodiversity. This region lies within the Fitzcarrald Arch, a geomorphic and structural feature that subdivides the western Amazon into variously named sub-basins. Four fluvial systems, all tributaries of the Amazon River, drain the Fitzcarrald Arch:

the Ríos Alto Yuruá (Juruá), Purús, Madeira, and Ucayali. The headwaters of these drainages are hydrologically semi-isolated by rapids and uplift of the region has been dated to ~4 Ma (Espurt et al 2007), providing an minimum age estimate for divergence of populations/species in these drainages.

In July and August 2008, Dr. Anderson participated in fieldwork on Río Alto Yuruá with colleagues from the USA, Spain, Argentina, and Peru. She served as taxon coordinator for mollusks. Field work focused on three primary environments: the Ríos Yuruá and Huacapishtea, lakes or cochas (primarily oxbow lakes), and small tributary rivers or quebradas. Mollusks, particularly unionoid bivalves or pearly mussels (families Hyriidae, Etheriidae and Mycetopodidae) and apple snails (family Ampullariidae), were diverse and abundant. In the following three years, expeditions to each of the other drainages of the Fitzcarrald Arch are planned. For more information about the project and opportunities for students to participate, please contact Laurie Anderson at glande@lsu.edu

Jumping into Unfamiliar Territory

Article by Valerie Derouen



Valerie Derouen with a *Thomomys umbrinus*.

I am an undergraduate student working in the lab of Dr. **Mark Hafner**. In July, I was invited to go to Mexico to help collect mammals with Dr. Hafner, Dr. David J. Hafner (Curator of Mammals at New Mexico Museum of Natural History), and **Verity Mathis** (a graduate student in Dr. Hafner's lab). I was totally thrilled when I first received the invitation. I am a biological sciences major and want to be a zoologist someday, so getting this experience was an amazing opportunity, especially since I was only a freshman. I am a naturally adventurous person, which worked in my favor since before this trip I had never been on an airplane, never been out of the country, and never been camping. The day we had planned to leave for Mexico, I remember thinking, "What in the world did I get myself into!" I was a total "newbie," not to mention the youngest member of the field team (by eleven years!). Nevertheless, I was interested to see what the whole experience would entail.

While on the trip we trapped and collected many small mammals, mostly pocket gophers, kangaroo rats, and pocket mice. In addition to the mammals we also collected their ectoparasites (including lice). In the field, I was assigned simple, yet important, tasks such as carrying the trap bag, incubating tubes

for karyotyping, putting specimen tubes in the liquid nitrogen tank, and making dinner at our campsites... (actually, I only made dinner twice). Man, did I feel needed! We spent a lot of time traveling from location to location, driving from Albuquerque, NM, through the Mexican states of Chihuahua, Durango, and Zacatecas. I would have never thought I would learn the scientific names of almost every plant and animal we saw. Besides being the general "gopher" girl, I also got the chance to do mammal trapping on my own. Setting traps was an experience in itself, especially when I was sent off alone into the wilderness--my first time not having someone from the trip with me. This locality was a lush desert and every plant had either spines or thorns. I was nervous because if something were to attack me, I would have a hard time running away. Sure enough, as I was setting my traps, a cow spotted me and started walking towards me. I was terrified. I did not know much about wild cattle, and this one would not stop walking toward me. Then along came a bunch of calves and more cows! I thought to myself, "this is just fantastic (not!)" As quickly as I could, I went to find Verity, who assured me that most cows are harmless. I had survived my first trapping experience alone, and I had several kangaroo rats and pocket mice to show for it the next morning. What a relief! Although I was having a great time learning a lot about field research, I must admit by the end of the trip I was ready to be back home. Since we were in Mexico everything was in Spanish, which I do not speak. I was definitely out of my comfort zone.

This fall semester I will be working on getting DNA sequences from the lice we collected. I am thrilled to start my own project and learn more about what it is like being a biologist. Overall, it was a very informative and inspiring trip. I thoroughly enjoyed myself and after all those new and sometimes intimidating experiences, I still want to be a zoologist.

Return to the Sierra Madre Occidental

By Verity Mathis

This past July, I once again traveled to Mexico, where I am lucky enough to have the opportunity to continue my research on the southern pocket gopher, *Thomomys umbrinus*. I had just gone this past December and didn't think another chance would come six months later, but I am glad it did. Our field crew was myself, Dr. **Mark Hafner** (my advisor), Dr. David Hafner (fellow mammalogist from New Mexico), and an undergraduate in our lab, **Valerie Derouen** (Valerie has written her own account of the trip featured in page 14 in this newsletter). The focus of this trip was to explore in greater detail specific areas of

the gopher's range. But first let me tell you a little bit about the gopher in order for you to understand the purpose of the trip. *Thomomys umbrinus* has a broad range from extreme southern Arizona and New Mexico southward through the Trans-Mexican Volcanic Belt of central Mexico. This species usually inhabits mid to high elevations, which means we got to spend most of our time in the

beautiful Sierra Madre Occidental. What makes this gopher interesting (at least to me!) is that there are two chromosomal forms with different diploid numbers. This isn't very unusual in gopher species, which are known for their chromosomal diversity. But I have reason to believe that *Thomomys umbrinus* is actually two species, separated either by chromosomal differences that prevent interbreeding or by habitat differences that keep the two species from coming in contact. My reason for thinking this is based on the findings of previous research on pocket gophers, and part of my dissertation project is to verify this and then investigate the causes. So, the two areas we targeted on this trip are where the two diploid forms are thought to possibly come into contact but may not be

reproductively or ecologically compatible.

We first traveled into a very remote region of the Sierra Madre, where we stayed for several days trapping and karyotyping all our specimens (it is through karyotyping that we would know which diploid group we were encountering). The habitat was by turns rocky, inhospitable mountainsides and lush, wide green valleys. But it did bring some pleasant surprises. We rarely saw anyone (unusual, even in the mountains), until one day driving along a remote road we came upon a truck driven, not by a local, but by a herpetologist and graduate student named Rob Bryson

from the University of Nevada, Las Vegas. Rob was doing fieldwork on the snakes of Mexico, and his advisor (Dr. Brett Riddle) collaborates with Dr. David Hafner, a member of our field team. It was great to see another biologist in such a remote location, and funny that one of our first encounters with people in Mexico would be with another American. All in all we were very



Pictured from left to right: Dr. Mark Hafner, Verity Mathis, Valerie Derouen, and Dr. David Hafner

successful at all our localities, and we were able to narrow the known distance between the two diploid forms to 2 km. Although we did not find them in contact we were very happy with the information we had gained and so moved on. The next few days we worked another potential contact zone for these forms. Similar to above, we did not get the two in sympatry but we were able to narrow the distance significantly. The rest of the trip was spent trapping small mammals to complete the biogeography project headed by David Hafner and Brett Riddle.

Overall, it was a very successful trip, filled with beautiful scenery and fantastic weather and great food. I would like to thank everyone involved for providing such a fantastic, fruitful trip.

Ashley Snider



Ashley "Shley" Snider comes to LSU's Geology department as a new grad student, having completed her Bachelor's degree at Mount Union College in Alliance, Ohio. She graduated with a B.S. in Geology, with minors in Biology and Theatre. Shley was a member of Geology Club, Alpha Psi Omega, Alpha Lambda Delta, and the MUC Players, as well as a French hornist in the MUC symphony, and hopes to be just as active and varied here at LSU. Her undergraduate research included historical geology of the White River Badlands, mammoth curation techniques, and phylogenetics and functional anatomy of wasps, marine reptiles, dinosaurs, and mammals. She hopes to find a way to incorporate her passion for vertebrate paleontology into a thesis dealing with phylogenetics and systematics. She has also recently undertaken a nonfiction book project which she hopes will be in the first stages of publication by the time she receives her Master's degree.

Nearly 100 pound tortoise arrives at Baton Rouge home

Article by Rick Portier, WAFB-TV Reporter



Jeff Boundy
in the news!

The first sign was a neighbor's barking dog. A bark that wouldn't stop. Henry Faircloth went outside his Baton Rouge home to investigate and soon came face-to-face with the culprit - a more than 100 pound tortoise walking through a canal behind his home on Carol Jack Drive, in the Cedarcrest area.



Faircloth quickly went back inside and headed for the refrigerator where he grabbed a head of lettuce. "I let him follow the lettuce until he came in (the yard)," Faircloth said. "Now he's just walking around the back yard looking for lettuce I guess."

"He's very friendly," said Faircloth's sister, Dale Noel. "He didn't try to snap or anything," she explained.

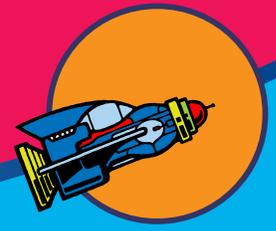
Faircloth called **Jeff Boundy** (an LSU MNS alum) at the Louisiana Department of Wildlife and Fisheries. Their agents retrieve the tortoise. The agency suspects it was someone's pet that either escaped or was set free once it got too big to handle. They now hope to find someone to adopt the animal.



Reach for the Stars!



Sally Ride
Science



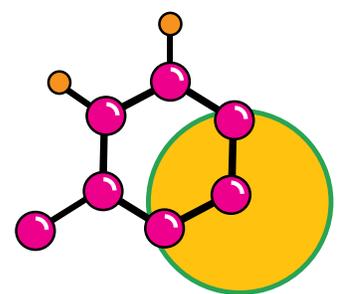
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Sally Ride Science Festival

at Louisiana State University
for 5th - 8th Grade Girls

Advance registration required, \$10

- Street Fair: music and exhibits
- Discovery Workshops with local scientists
- Hands-on science activities
- Bring your friends



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NOVEMBER 16, 2008

BATON ROUGE, LOUISIANA



Special Saturday Schedule

Special Saturdays are science programs especially appropriate for children ages 5-12. A fee of \$3 per child is requested for materials. Accompanying adults attend free of charge. Sessions are held in the exhibit area of Foster Hall (LSU) one Saturday per month. All programs begin at 10:00 am and last ~one hour, but our exhibit area will be open from 10:00 - 12:00 pm.

MONKEY SEE, MONKEY DO

September 20, 2008

Special Guest: Amanda Accamando¹, primatologist

Come listen to Amanda Accamando share her experience observing rhesus monkeys for four years. Learn what makes you a primate and find out what life would be like without a thumb.



LOUISIANA ARCHAEOLOGY

October 4th, 2008

People have lived in Louisiana for thousands of years. Come hear of the customs of Louisiana's people and learn to create Native American art.



SALLY RIDE SCIENCE FESTIVAL

November 16th, 2008 (Sunday)

The LSU Museum of Natural History will assist with the Sally Ride Science Festival, and opportunity for girls, their parents, and their teachers to get into science. Sign up and find out more at www.sallyridescience.com.



BACK IN TIME WITH POLLEN GRAINS

December 6, 2008

Special Guest: Rebecca Tedford², palynologist

Wouldn't it be great to travel back in time? Rebecca Tedford can do the next best thing. She can read clues left in the earth to understand the history of Louisiana. She has agreed to teach us her trade so that you too can see into the past.



DISEASE - DON'T PASS IT ON

January 31, 2009

Special Guest: Bret Elderd¹, disease ecologist

You know you don't like colds or the flu, but do you know how to avoid them? Dr. Bret Elderd studies the spread of disease and will share some of his expertise with us.



WHAT THE TREES CAN TELL US

February 7, 2009

Special Guest: Rae Crandall¹, fire ecologist

If you know how to ask them, trees can tell you a lot about life in Louisiana. Rae Crandall will share what she has learned by reading tree rings and will give you the opportunity to read tree rings yourself. We'll learn about the fires, drought, and hurricanes that these trees have lived to tell about.



MIGRATING BIRDS

March 21, 2009

Special Guest: Richard Gibbons¹, ornithologist

Did you know you live in a birders paradise? Louisiana is a major resting place for birds as they travel across the Gulf of Mexico. Richard Gibbons runs a program that monitors birds in the state of Louisiana and can tell us all about their habits and the importance of a healthy coast to a successful journey. We'll learn about Louisiana's birds, and we'll play the migration game.



HERPS IN THE ENVIRONMENT

April 25, 2009

Special Guest: Nathan Jackson¹, herpetologist

Salamanders, frogs, lizards, alligators and snakes – these are the herps. Nathan Jackson will tell us about their sneaky ways. We will look at live animals and learn how they are able to live in water, on land, and in trees.



MOVING LIKE A MAMMAL

May 16, 2009

Special Guest: Verity Mathis¹, mammologist

You walk, mice crawl, squirrels climb, kangaroos hop, dolphins swim, and bats fly. Mammals have mastered all types of movement, and Verity Mathis will tell us why.



¹ -LSU Department of Biological Sciences
² - LSU Department of Geology and Geophysics

Register with Heather Bird Jackson • hjacks1@lsu.edu • (225) 578-7221

For more information visit us at www.lsu.edu/mns-education

Student Awards

- Bird alums: at the just-concluded joint AFO/WOS meeting in Mobile, **Curt Burney** (one of **Robb Brumfield**'s students) won a WOS outstanding student paper award for his presentation on his doctoral research on ecological correlates of genetic differentiation in Neotropical birds.
- **Andrés Cuervo** received the WOS's Fuertes Award, given to only one student each year, to help fund his work on patterns of Andean bird differentiation.
- **Erik Johnson**, one of Phil Stouffer's doctoral students in LSU Renewable Natural Resources, also won an outstanding student poster award for his research on ectoparasite loads on birds in forest fragments near Manaus.
- In the icing-on-cake-for-LSU department, Curt and Erik each found separate Black-whiskered Vireos on Dauphin Island the next day.
- At the Annual Meeting of the American Ornithologists' Union, **Luciano Naka** won one of the three student awards for his research talk on Amazonian birds.

Giving Form to Support the Museum of Natural Science

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Enclosed is My Gift of:

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If you would like to include items in the next issue of *Museum Quarterly* please send information, articles and photographs to the Museum Education Office c/o Elizabeth Maier, public relations intern. 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. Simply email your material to emaier2@lsu.edu or mail to:

The LSU Museum of Natural Science
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