

Museum Quarterly

LSU Museum of Natural Science

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Letter from the Director...



Good News on the Job Front

Lately we've received some good news at the Museum. Three of our talented troops have been offered jobs as professors and will be moving on. This is what we, the curators, live for—to have our students make it in academia. When our kids succeed, we enjoy the satisfaction of doting parents and also the benefit of having LSU's influence spread throughout the country. Not only does the reputation of LSU grow, but professors who are our former students send their most promising offspring back to us as graduate students and faculty members (more on that later).

The three successful applicants are **Zac Cheviron**, **Liz Derryberry**, and **John McCormack**. **Zac** is a former graduate student in ornithology, who has a creative research program on the genetics and physiology of birds in the Andes. He received a job offer from the University of Illinois—the big one at Urbana-Champaign. **Liz**, who came to LSU in 2007 as a postdoc in ornithology and has run our molecular genetics lab ever since, has been offered a position in the Department of Ecology & Evolution at Tulane. She is a behavioral ecologist cum molecular systematist, and we will undoubtedly be seeing lots of her, as she will be just down the road. **John** is another postdoc in ornithology. He's only been at LSU about a year, but has had a big impact on our population genetics program. He's headed to Occidental College in Los Angeles, an outstanding undergraduate institution with a world-class collection of Mexican birds.

All three of these ornithologists were mentored by **Robb Brumfield**, our curator of Genetic Resources. Robb, a Baton Rouge native and LSU undergrad, was himself a graduate student of two LSU PhD's: **Angelo Capparella** (Illinois State University) and **Michael Braun** (University of Maryland). **Robb** returned home to join the faculty here in 2003. Now his students—**Zac**, **Liz**, and **John** (and also **Matt Carling**, hired earlier at the University of Wyoming)—will be sending their students back to us. As I said, we reap great benefits by scattering our seeds across the nation and around the world.

Fred Sheldon



A Summer in Costa Rica

By: César Sánchez

During this last summer I started fieldwork aiming to gather data for my dissertation, working with bird species occurring in lowland rainforest in Costa Rica. The lowland rainforests of Costa Rica and westernmost Panama are isolated from each other by a natural barrier, the Talamanca-Chiriqui Mountains. Also, dry forests to the north and south of the mountains isolate the rainforest on the Pacific slope, providing conditions for high endemism (a large number of species and subspecies found only here). As soon as I arrived I made my headquarters at the institution where I did my undergraduate studies, the Escuela de Biología, Universidad de Costa Rica. I had great support from the Curator of Birds, Gilbert Barrantes, as well as the Biology Director, Gustavo Gutierrez.

About a week after I arrived in Costa Rica, **Mike Harvey**, a first-year grad student in **Dr. Brumfield's** lab, joined me. With him we conducted the first two collecting field trips. We first moved to the welcoming Tirimbina Biological Reserve, and obtained the first specimen of several lowlands rainforest spe-

cies.

After Tirimbina, we moved south to the Pacific on the Osa Península where we were greeted by botanist Reinaldo Aguilar at the Los Charcos de Osa. The forest owned by "Rei" is a magnificent place, with tons of birds, a 120-foot tall canopy, and more than 700 species of trees. With Mike (and a brief visit from my father), we were able to secure a wide diversity of important specimens, including the Charming Hummingbird (*Amazilia decora*) and the Osa endemic Black-cheeked Ant-tanager (*Habia atrimaxillaris*).

A few days after Mike left, I was joined by **Sarah Hird** (see her account), also a second-year doctoral student who is co-advised by **Dr. Brumfield** and **Dr. Carstens** in the Department of Biological Sciences. Along with LSUMNS alumnus **Santiago Claramunt**, who was visiting Costa Rica, we conducted a one-day trip to Cartago to collect endemics of the highlands of southern Central America. We then moved to the Caribbean lowlands, where we visited several sites near the city of Limón. **Sarah's** luck with birds surprised me --- on this, her first visit to the tropics, she was able to observe

elusive species such as the range restricted Sulphur-rumped Tanager (*Heterospingus rubrifrons*) and the highly endangered Bare-necked Umbrellabird (*Cephalopterus glabri-collis*). These trips to the Caribbean lowlands helped us secure important tissues that are very poorly represented in the LSU Genetic Resources collection.

During the nearly 80 field days of the expedition, we visited four localities on the Caribbean Slope, three in the lowlands of the southern Pacific, and a few assorted localities at middle and high elevations, up to 3200m. At the highest point we worked, we managed to collect some endemics of the Talamanca-Chiriqui Mountains. LSU grad student **James Maley** (see his account below) accompanied me on this leg of the trip. We had some hospitable weather that allowed us several successful field days working in the central Pacific lowlands, just north of Quepos and then near Golfito in the southern Pacific lowlands. We obtained a good series of specimens, including some Pacific lowland endemics, such as Scaly-breasted Hummingbird (*Phaeochroa cuvierii maculicauda*), Black-faced Antthrush (*Formicarius analis hoffmanii*), and Black – hooded Antshrike (*Thamnophilus bridgesi*). We secured the second specimen record and first Costa Rican tissue sample of the Mouse-colored Flycatcher (*Phaeomyias murina*).

This was perhaps the most successful LSU trip to Costa Rica in terms of number of specimens collected, and the number of tissues obtained that are new to the LSU Genetic Resources Collection. We also founded a bird tissue collection in Cos-

ta Rica, secured specimens for the Zoology Museum at Universidad de Costa Rica, and forged alliances that will help us continue to study the avifauna of this small but highly diverse country.





Costa Rica

By: Sarah Hird

I assisted **César** in the field for two weeks this summer. This was my first time collecting avian museum specimens and I feel fortunate to have experienced it. We traveled to the Caribbean coast twice, visiting the Veragua Rainforest outside Limón and around the town of Cahuita, on the coast. We also collected outside San Jose on a day trip – and we saw a quetzal! Although I am primarily a computational biologist (i.e., desk biologist not field biologist), my dissertation is going to contain research on the microbial communities in the digestive tract of neotropical birds. Throughout the summer, **César** (and several other museum grad students) helped my project by extracting the digestive tracts of appropriate specimens, so that I may sequence the metagenome of these communities and look for signals of parallel evolution with the host (the bird). By spending some time in the forests of Costa Rica, I learned three major things. First, successful bird collection requires a level of expertise I had (naively) not anticipated. It requires extensive knowledge of

birdcalls and taxonomy, an understanding of diverse landscapes and infinite patience. My proudest moment was being the one out of several people searching for a hummingbird on the leaf-littered forest floor to finally spot it after half an hour of searching. Second, bird preparation is an art. The collection that LSUMNS houses is the product of more man-hours of labor and devotion to nature than I can imagine. Finally, I now have a first hand appreciation for the time and energy that goes in to collecting birds (and bird digestive tracts). It was an exhausting two weeks, but it was the most informative and interesting two weeks of my summer by far.

Costa Rica

By: James Maley

I was fortunate enough to join **César Sánchez** in Costa Rica for two weeks this summer. Courtesy of my advisor, **Robb Brumfield**, I went down to help César with his field work and to enjoy collecting and observing birds in the Costa Rican highlands and lowlands. It had been two years since my last collecting trip to the tropics, and a welcome change from my recent efforts collecting rails in the marshes of Louisiana. I particularly wanted to escape the summer disaster in the Gulf, as some of my favorite places along the coast were being heavily affected by oil.

I flew into San José and met César at the airport and spent a couple of days attending an ornithological conference where we met with recent LSUMNS graduate **Santiago Claramunt** and enjoyed his talk on ovenbird diver-

sification. We finalized our gear and headed up into the cloud forest, where I was able to collect and observe quite a few new species for me, including highlights such as Volcano Hummingbird, Zeledonia, and both Peg-billed and Large-footed finches. I was immediately struck by César's expansive knowledge of the avifauna and country, which enhanced the experience dramatically.

We descended to the Pacific foothills near Quepos, where we were fortunate enough to stay in a beautiful hilltop villa overlooking the Pacific at an ecolodge. It was a gorgeous location, and full of good birds. We set up some nets and were able to obtain an important bird for ongoing research conducted by **Andrés Cuervo**, a *Rufous Piha*. There were many other highlights, including my first experiences with Fiery-billed Aracaris. We moved along from there to the base of the Osa Peninsula at an Austrian research station. We observed many excellent birds in this area, including my first pair of Great Curassows and a White-throated Shrike-Tanager, and we collected pedestrian but important birds

for César's research, such as Bright-rumped Attila and Buff-throated Foliage-gleaner. We returned to San José and spent some time in the Atlantic foothills, where we were lucky to find several large mixed-species flocks, one of which included a pair of Streak-crowned Antwrens, a first for me (we collected the world's first tissues of this species for the LSU Genetic Resources Collection). On our next trip we were joined again by **Santiago Claramunt**, collecting and observing birds in highlands near Cartago. We followed this short trip with a birding trip to spectacular Tapantí National Park, where I saw my first Red-headed Barbet among other species.

Overall, I was able to help César and others with their research, and enjoy a much-needed working vacation to a fantastic place.

Costa Rica is truly an incredible country, with far more protected habitat than I have experienced in any other Latin American country. The diversity of habitats crowded into a small country make for easy access to a wide array of bird species.





NEW TIGER EXHIBIT COMING TO THE MNS THIS SPRING!

Inspired by the specimen cases of early scientific collection, our concept features two freestanding interpretive walls that juxtapose organic and geometric sensibilities that become an expression of science and nature. Envisioned to be part of a “contemporary cabinet of curiosities,” one interpretive wall will present a history of Mike, the LSU mascot. The exhibit will be dramatically punctuated by a vitrine containing the tiger specimen while the other wall will present hands-on elements and graphic panels on tigers as an endangered species. This second wall will also provide content on other endangered plant and animal species as well as broader conservation issues related to the Gulf Coast.



Conceptual renderings of the new exhibits designed for the MNS (top) and for the outdoor venue at the Alex Box stadium.

Constructed from marine coated cabinet-grade plywood, brushed aluminum laminate, and plate steel, the exhibit's materiality will give it a look and feel that unifies with the interior architecture of the natural science museum as well as the outdoor venue where a duplicate set will be on display at the Alex Box stadium.

This project is a collaboration between three LSU entities: the School of Veterinary Medicine (Drs. Baker and Senior), the Museum of Natural Science (Drs. Sheldon and Warny), and the Athletic Department (Eddie Nunez).



Another digital rendering of the newest edition to the LSU Museum of Natural Science.

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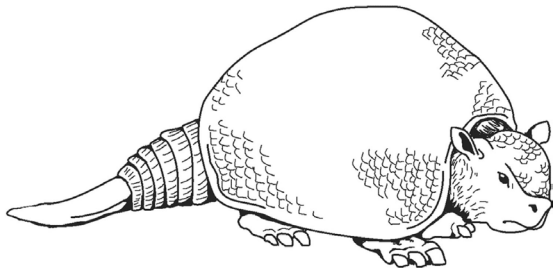
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Please help us improve our collections and exhibits



Drawing by Mary Lee Eggart

Citizen scientists donate glyptodont fossils to LSU

By: Judith Schiebout

Glyptodonts are armadillo relatives that originated in South America and migrated to North America in an interchange of fauna that took place when the Isthmus of Panama formed. North American large glyptodonts are also known from the Ice Age (Pleistocene) in Texas and Florida. They have a dome-shaped covering of bony scutes protecting their bodies. Unlike turtles, they cannot pull their heads and tails into the protection of the bony dome, so the protruding head and tail are also strongly armored. A big glyptodont would measure around 11 feet long.

On October 28, 2010, Barry and Ellen Meyer of Baton Rouge donated to the Museum of Natural Science Vertebrate Paleontological collection a scute and partial rib of a large glyptodont, which they had found on a field trip led by Bill Lee. Specimens were found in a creek bed in the Tunica Hills. A single fragment of a small scute had been the only evidence of glyptodonts in Louisiana prior to this find. Other Ice Age animals from Louisiana include a sabretooth cat (*Smilodon*), giant ground sloths, camels, mastodons, American horses, and musk oxen. Many large Ice Age mammals died out worldwide, around 10,000 years ago.



Barry and Ellen Meyer show off the scute and rib of the glyptodont.



Ellen Meyer holding the scute.



Barry Meyer holding the rib.



Collecting Behavior: A New “Gold Standard”

By: Liz Derryberry

Taking a break from fieldwork to climb a tafone (Elephant Rocks) near Dillon Beach, CA

We stood bundled against the 5 am chill of a May morning on the steep cliffs of Marin County, California, our backs to the ocean and our eyes fixed on a small speaker perched on a worn camp chair. We counted down the “pre-trial” seconds, 60...59...58...struggling not to stomp our feet for warmth. At moment zero, a loud bird song burst from the speaker, propelling a nearby, quietly preening white-crowned sparrow into full attack. Like a bullet, he sped towards the speaker, narrowly missing the camp chair, only to turn about and swoop the speaker again as another song played six seconds later. He was defending his ter-

ritory against a presumed intruder. This aggressive behavior continued for the next three minutes of playback as I rapidly called out behaviors – “fly over”, “wing wave”, “mad trill” – and my assistant furiously scribbled notes into time blocks printed on a clipboard. When the trial ended, my assistant, Jenny Phillips*, stood with her gaze locked on the small male, now stationary over the speaker but singing full tilt, while I scrambled to assemble the recording equipment wrapped against the morning damp. As I righted myself, Jenny updated me on the male’s location. He had chased off a neighboring male, who had approached during the playback trial, and was now singing from a different bush, about 20 meters to the west. We worked our way towards the focal male, my eyes on the recorder input levels and Jenny’s eyes on the “little guy”. At about 5 meters, we froze facing the male and I recorded 10 clear, crisp songs.

A few years ago, I would have stopped collecting data at this point. I am a behavioral ecologist by training and most of my work centers around understanding how songs vary from one location to the next and how birds respond to this variation in important contexts such as defending their territory or attracting a mate. Most behavioral ecologists do not consider collecting the individuals they study as physical specimens for museums, because what value can be had in knowing the behavior of a bird that is now a study skin in a museum drawer? Much as tissues associated with vouchered specimens are the “gold standard” of phylogenetic and phylogeographic studies, behavioral biologists, such as myself,



Recording white-crowned sparrows in Manchester State Park, CA



Fieldwork on the beautiful coast of Marin County, California.

are beginning to recognize the value not only of archiving behavioral data (audio and video libraries) but also of collecting vouchered specimens for particular behaviors. This new “gold standard” for behavioral data provides a means of studying the evolution of behaviors, such as bird songs used in mate choice, that are closely associated with the generation and maintenance of biodiversity.

So instead of moving on to the next playback trial, Jenny kept her eye on the little guy while I set up a twelve foot long and six foot high black net stretched between two green aluminum poles sunk into the ground. This mist net is almost like the net on a tennis court, but much finer and taller. Again, we set the speaker on the camp chair, but now next to the net. After a few songs, the male zoomed into the net, and we surged forth from our hiding places behind the bushes, thrilled we had caught him so quickly. That handsome male white-crowned sparrow, along with fifty others caught in eight locations along the coast of California this summer, is now a specimen in the **LSU Museum of Natural Science**. These physical speci-

mens associated with detailed behavioral data will help us to unravel the complex association between behavioral and genetic divergence in avian diversification.

*Jenny Phillips is a master's student at the California State University in Fresno.



Liz removing a white-crowned sparrow from a mist net.

Ocean Commotion at the LSU Pete Maravich Assembly Center



Ocean Commotion, Nov. 9, 2010, hosted **2,088** K-12 students, plus 368 teachers and chaperones, representing 32 public, private and home schools from eight parishes.

Drs. Warny and Chakrabarty and a group of volunteers hosted a Modern and Fossil Sea Monster Exhibition. This allowed children to view specimens from the fish, reptile and paleontology collections of the **Museum of Natural Science**.



Museum of Natural Science's Sandra Garzon taught children and adults about the sea creatures and fossils they had on display.



2010 LSU Foundation Staff Outstanding Service Award

CONGRATULATIONS TO TAMMY JACKSON!





On the importance of museum collections

By Prosanta Chakrabarty and Caleb McMahan

The Cuvier Collection

In December, my first-year graduate student **Caleb McMahan** and I went to visit the natural history collections in Paris and London. We went to these collections to look at type specimens of fish species related to my grant on Neotropical cichlids. It occurred to me while explaining the purpose of our trip to my family that it is not obvious why it is necessary to travel 5000 miles to look at fish preserved 100 years ago. I've written this little essay to explain the importance of type specimens and the importance of natural history collections in general.

Type specimens are the most important parts of a natural history collection because these specimens are tied to new species. Each time a new species is described, at least one type specimen is designated. These specimens represent the ideal for that species according to the first describer of that species. Whenever someone wants to know if the fish, bird, frog or whatever organism they've collected is actually a member of a particular species, they should refer to the types. This isn't always feasible so we rely on scientific papers and guidebooks for shortcuts. Whether collecting fish in a particular country or looking at birds in a salt marsh in Louisiana, we usually use a guidebook that helps key out what species we have just seen or collected. Unfortunately, these often have errors. Errors can be due to a name, let's say, *Buteo*

buteo being tied to the wrong characteristics and therefore often the wrong species. The only way to be sure a list of characters or a name is correctly associated with a species is by examining the type specimens. That is because the original describer of that species chose those specimens to specifically represent that species. It is remarkable to see how different a particular species described in a guidebook can actually be from the species that was originally described.

You might be thinking, "Any damn fool can tell a buzzard from a sparrow, who cares about this nonsense." Unfortunately most distinctions aren't so clear-cut. Remember the *Brontosaurus*? In examining the type of *Brontosaurus excelsus* it was discovered that it was identical to *Apatosaurus ajax* (which had been described two years earlier by the same researcher), so the valid name is the older *Apatosaurus*, and *Brontosaurus* is the invalid synonym. The famous fruit fly best known as *Drosophila melanogaster* is now *Sophophora melanogaster* because it is more closely related to members of its current genus than to the former. Ideally, scientific names tell us about the phylogenetic position of a taxon, these names should change as our understanding of relationships do. However, the names don't mean much if they aren't linked to specimens, just like a book title wouldn't mean much if the book never ex-

isted.

Without museum collections and type specimens we would never be able to check errors related to the description or diagnosis of a species. This is why **Caleb** and I went to Paris and London; they have a remarkable collection of types of *Neotropical cichlids*, many of them collected more than a century ago. Examining these specimens will help us determine whether what people are calling a species today is the same as what people would have called those same species originally; or if the guidebooks are correct; or if a new species that was recently described is really something that was described previously. Species exist in nature but until example specimens are housed in a museum, named and described we haven't really acknowledging their existence. Only after this initial introduction can they go on to be studied as research organisms, or preserved for conservation. As the saying goes, "In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught."

Museum collections contain not just types but other specimens of historical importance. Some of these specimens tell us a great deal not only about that particularly species but of changing habitats in a rapidly changing world. Why were no specimens of opossums collected in the Upper Peninsula of Michigan until 5 years ago – was it too cold until recently? Why was a particular species suddenly collected in a new range – human introduction, global warming, or natural range expansion?

As we push further into a molecular age of natural history exploration where researchers like Caleb and I download a sequence of a particular species from GenBank, we generally trust that the species name linked to the files are correct – we should not. If guidebooks are rife with errors, GenBank can be a disaster. GenBank is where most gene sequences used in molecular analyses are uploaded. Few researchers bother to report the catalogued voucher specimens linked to these sequences. It is hard, sometimes impossible, to know which sequences correctly

represent the actual species. These errors aren't intentional, just a by-product of how difficult it is to identify most species. That is why this past year I proposed a new nomenclature for genetic sequences called genotypes (**Chakrabarty**, 2010). Genotypes is a nomenclature for genetic sequences similar to what we use for type specimens.



Samples of *Cichlasoma labiatum*

Recognizing genetic sequences of type specimens and tagging them with the proposed classification will help reduce errors by providing gold standard representative sequences for each species.

Caleb and I went to Paris and London and carefully measured, photographed, and took notes on specimens because names and identification of species are important. Imagine if we were trying to conserve a species endemic to a rare habitat in Louisiana, and that species turned out to be the same as another species found all over the continental U.S. Getting the identifications and scientific names correct is the first step to ensuring that the research conducted subsequently is sound.

Our trip to London and Paris was successful, and having looked at numerous types we are now better prepared to go in to the field to study

these species alive. Some of these species may have gone extinct, others may have changed. Due to introductions of non-native species many of the endemic cichlids we examined are now rare and do not achieve the same adult body sizes they once did. As a consequence the adult characteristics once used to identify this species sometimes no longer exist in nature.

Luckily, Caleb and I work at the **LSUMNS**, a museum that cares about the natural world and the changes taking place in it. As the study of natural history evolves we must remember that it isn't just new collections that are important, but also the historical collections of years past.



**Caleb McMahon
hard at work.**



Working with different samples.

The Undergrad Research Experience

by Valerie Derouen

Figuring out what you want to do for the rest of your life can be a tremendous challenge. As I began my college journey, my goal was to become a biological research scientist. I love learning about animals and I was very active in science fairs in high school, so I figured I could do something within the field of ecology or evolution. I am the type of person who likes to be well prepared for the future, so when the organization fair rolled around freshman year, I found a group called Tri-Beta who specialized in helping students interested in research. I joined the club and spoke to the officers after the first meeting. One member, **Katie Faust**, asked me if I would like to meet one of the biologists in the lab she was working in. I was thrilled. Katie set up a meeting for me to talk to **LSUMNS** mammalogist, Dr. **Mark Hafner**. After talking about my interests, he offered me a job as a student worker in the lab under the training of his graduate student **Verity Mathis**. Through this job I learned how to work with DNA, including sequencing and had the opportunity to collect mammals in the field in Mexico (see my previous Newsletter article about this trip).

Although I loved the experience, by sophomore year my interest for research was waning. At that point I still wanted to go into research but thought I would try a different type. I was accepted into the National Science Foundation REU (Research Experience for Undergraduates) program at Sam Houston State University the sum-

mer between my sophomore and junior year. This particular program focused more on ecology and field research rather than molecular work, so I was eager to try something new. My mentor, Dr. Matthew P. Rowe, was in the process of studying the predator prey co-evolution between grasshopper mice and scorpions. My project had two parts. First, I was going to try and accurately describe the mating rituals of the scorpion *Centruroides vittatus*. Secondly, my mentor's wife, Ashlee Rowe, was doing research on the toxicity of these scorpions so I extracted the venom and used some of her data to see if there were differences in the composition of male and female venom. Some scorpions use stings during mating and if these particular scorpions did, differences could be relevant.



Taking more samples in the field.

Through this program, I acquired experience in collecting scorpions, extracting their venom, caring for a captive colony of lab mice, creek walking for cottonmouths, grant writing, making and presenting a poster, making and presenting a powerpoint, participating in scientific discussions, and writing a final paper. It was basically a taste of what you would do as a graduate student as well as a glimpse into the life of a biologist. I also got the opportunity to do some field research in west Texas and Arizona. The overall experience was amazing. I met many great people, got tons of experience, and saw countless wild animals. I even got some new pets, Malagasy hissing cockroaches. Meeting the students in the program and graduate students at the university was by far my favorite part of this project. I love meeting people and I am still friends with some of the students. I also loved seeing all of the cool animals and presenting my research. I like to talk, so telling people about what I did was a real joy.

Although I'd count joining the REU program as one of the best decisions I've ever made, I was unfortunately not a huge fan of the actual research or the scientific writing. By this point, I was beginning to realize that maybe research was not

for me. Despite these moments of doubt, I continued to work in the lab at school. It wasn't until I was getting ready to apply to graduate school that I realized a research job just was not for me. I didn't have enough passion for it to pursue it as a career. I had an initial moment of despair, when I realized that I was about to graduate without a plan for the next step in my life. I started to think about what I liked about science and what I liked to do with it. I realized that I loved to communicate science to others. I loved presenting my research and giving tours of the Museum of Natural Science to my friends. This made me think about going into museum or zoo education particularly as someone developing science education programs for the general public. **Adrienne Lopez** (LSUMNS Education Office) has helped me realize this was a good option for me, and she's helped me get on the path to achieving my goal. As of right now, I am entering the Master of Natural Science program at LSU under the direction of LSUMNS Ichthyology curator, **Dr. Prosanta Chakrabarty**, with the hopes of becoming a museum or zoo educator. I think uniting my love of science with my desire to communicate with people will fuel a passion for science education and will lead to a fulfilling career.



GEOCACHING at the LSU Museum of Natural Science

Many of you know what one is talking about when the word “geocaching” is mentioned, but for those who do not- it is a worldwide game of treasure hiding and seeking!

You can find geocaches using GPS technology to pinpoint their locations.

Recently the **LSU Museum of Natural Science** partnered with LPB to hide a specific geocache, part of the Dinosaur Train series. The dinosaur hidden on campus is the *Lesothosaurus* geocache. This Jurassic dinosaur was only about 3 feet long and will be found in a small plastic container near the museum.

For more information on geocaching, log on to:

geocaching.com

to find the exact GPS coordinates.



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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 Taylor Brett, 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 mmc-nee1@lsu.edu or mail to:

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

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