Museum Quarterly

LSU Museum of Natural Science

November, 2004 Volume 22, Issue 3

Letter from the Director...

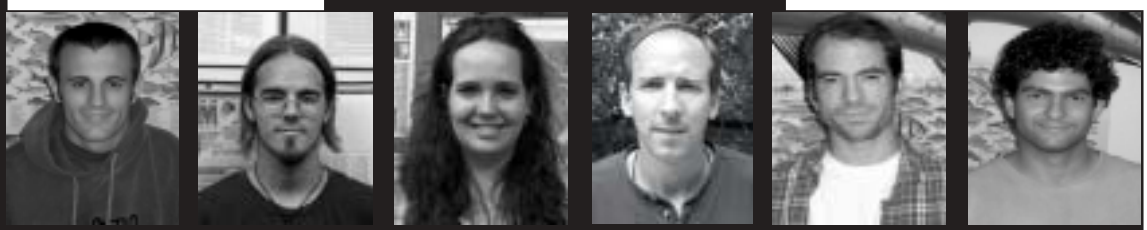
One day this past summer Dr. John P. O'Neill and his wife Letty Alamia left town for good and headed to Texas. It was a bad day for the Museum and LSU. For 40 years, John has been a tremendous force for the University, as an explorer, scientist, mentor, and artist. His contributions have changed the Museum from a sleepy backwater to one of the world's leading institutions of ornithology, with a vaunted graduate program, a bird collection that rivals those of Harvard, Michigan, and Berkeley, and a tissue collection with no peers. Through his discoveries and art, John has repeatedly brought national and international attention to the University. Many articles and even a book (*A Parrot Without A Name*) have been written about his explorations. Despite these contributions and his career-long dedication to the Museum, John has been taken largely for granted by LSU. In his last 20 years of service, he was not even paid. Nevertheless, he always managed to come up with grant money and donations so that undergraduates and graduate students could accompany him on his expeditions to Peru, and he always focused his field work on the needs of the Museum's collections. We never expected anything less from him.

As a small sign of appreciation for John's years of dedication, I'd like to take stock of some of his contributions to the Museum. His adventures as an explorer and bird artist are legendary. He organized more than 20 major expeditions to Peru. These trips laid the foundation for LSU's remarkable collections of birds and tissues and helped attract outstanding ornithology students to the University, young men and women wanting not only academic training but adventure in the tropics. Together, John and his students and colleagues completely revolutionized our understanding of the distribution and biogeography of birds in Peru, the world's richest country in terms of resident breeding species. They described more new species of birds than any modern research program (John personally has described 13, more than any living ornithologist); they produced more than 170 publications on Peruvian birds; and soon their work will culminate in a landmark handbook on the birds of Peru. As an artist, John has illustrated numerous articles for his colleagues in the Museum, including covers of three issues of *Science* magazine. He also has illustrated many books (e.g., most recently *Great Texas Birds*), and the paintings from these and other projects grace the exhibit area and offices of the Museum. Indeed, they serve as a constant reminder of John's contributions..

John isn't dead, or even retired, so we can't talk about him completely in the past tense. He is still hard at work on the Peru book and still will take our students on expeditions in the coming years. But his departure from Baton Rouge is too important an event not to recognize with a statement of appreciation and sadness.

Fred Sheldon

MNS New Graduate Students



Jamie Oaks | Grant Boardman | Julie Hill | David Anderson | Nathan Jackson | Luciano Naka

MNS Researcher Discovers New Bird Species

Forty years ago, many prominent ornithologists thought that all the world's bird species had been discovered and officially described. Since 1964, however, ornithologists from the LSU Museum of Natural Science have discovered 24 species in Peru alone. This feat has even generated a book on discovering new species of birds in Peru ("A Parrot Without a Name," Don Stap). On June 9th, number 25 was discovered, a species of tanager that is remarkably different from any previously known tanager.

The story actually begins in 2000 in the foothills of the Andes of southern Peru, when LSUMNS research associate **Dan Lane** and LSUMNS alum **Gary Rosenberg** were co-leading a tour for bird-watchers. As the sun rose over the Amazon basin to the east and shone on the misty slopes where they had their tour participants trained on a flock of various colorful, tropical birds, the two ornithologists spotted a bright yellow bird they could not identify, nor even decide to which bird family it belonged. With Lane and Rosenberg's well-known expertise on tropical birds, especially those of Peru, such a claim was viewed with cautious interest. Both Lane and Rosenberg had previously discovered and described new bird species in Peru and Ecuador. But in science, however, such sightings do not "count" unless backed by physical evidence that can be examined independently by other scientists.

Despite some searching at the same site, no one saw the bird in 2001 or 2002, and the two investigators were beginning to wonder themselves whether the yellow bird lived only in their imaginations. Then in 2003, Lane, Rosenberg, and another group of bird-watchers, saw the bird in the same area, but with the same frustrating result … no specimen for documentation, not even a photo … This time, however, Lane was able to obtain good tape-recordings of the bird's voice. The mental image of the "Mystery Yellow Bird," the one that got away, still haunted Lane and Rosenberg.

Then this June, Lane teamed up with ornithologist friends Barry Walker and Huw Lloyd, and long-time Peruvian field assistant Abraham Urbay, to make a trip to the area of the original sighting in hopes of obtaining a specimen that would allow official documentation of the bird's existence and erase forever any doubts by others. This time, they used the recordings of the bird's song from 2003 to lure it in, and it worked the first day! From the extensive bamboo thickets that dominate the terrain, a bright yellow bird emerged in obvious agitation in response to the song recordings, and to the delight of the team, it was the same unknown species that Lane and Rosenberg had seen there previously. **A**fter an hour of observation and study, the team was able to obtain one specimen for official documentation, the minimum requirement for scientific evidence of the bird's existence and for a formal publication that describes the bird and gives it an official scientific name. Although suitable habitat appears extensive in this remote area, it is generally inaccessible, and until surveyed, the actual population size of the new species remains unknown.

With the bird in the hand, Lane and his team noted that the species almost certainly belongs to the tanager family, as they had originally suspected. Tanagers are small, brightly colored birds found exclusively in the tropics, from Mexico to northern Argentina. Until recently, tanagers were thought to occur also in the USA and southern Canada, but recent genetic results from the laboratory of LSUMNS alumnus **Dr. Kevin Burns** of San Diego State University show that our "tanagers" here in the USA, such as the Scarlet Tanager and Summer Tanager, aren't really tanagers at all but belong in a family of birds that includes our Cardinal, Rose-breasted Grosbeak, Indigo Bunting, and others. The DNA sample taken from the specimen of the "Mystery Yellow Tanager" will allow Kevin to determine not only whether it is a true tanager but which tanager species are its closest relatives. The leading candidate for the latter is the Gray-headed Tanager (*Eucometis penicillata*), which shares several features with the new bird, such as a yellow belly, olive-green back, and a slight crest on the head, but it is a lowland species that has a completely different head pattern and bill color.

Dan will begin working on the technical, published description of the new species as soon as he returns, and he will then decide what to name the bird, both its official scientific name and its common name. Meanwhile, we can remove the "Mystery" from the its nickname.

Amazing as it may seem, these events, while perhaps somewhat dramatic to read, are not too rare for LSU ornithologists working in the American tropics. Along with the new tanager, at least four other bird species are in the process of being described by staff and students of the LSU Museum of Natural Science, including Staff Research Associate **Bret Whitney** and student **Thomas Valqui**, carrying on a legacy LSU has earned thanks to the hard work of pioneers such as Staff Research Associate **Dr. John O'Neill**. Whereas the new tanager may be among the most eye-catching of the lot, the others are equally as intriguing to ornithologists who are determined to identify and describe the avian diversity of the world. Each species is uniquely tangled in the story of its evolution and adaptation to its environment. Understanding these stories has been one of the central themes in the work that has been conducted at the LSU Museum of Natural Sciences.

Research Trip to

Northern Mexico

Dr. Mark Hafner, Lowery Professor and Curator of Mammals at the LSU Museum of Natural Science, along with Postdoctoral Associate, **Dr. Luke Hasty**, and three LSU students, conducted a research trip to northern Mexico from August 9-18. The students included doctoral candidate **Jessica Light** and undergraduate students **Kathleen Elstrott** and **Erin O'Donal**, all enrolled in the LSU Department of Biological Sciences.

The group spent 10 days exploring primarily in the vicinity of Monterrey and Saltillo, Mexico. Although Dr. Hafner and his colleagues have conducted many research trips to Mexico and Central America, this was their first attempt to discover the relationships among the pocket gophers (and their chewing lice) that reside in this particular region of Mexico. The louse research focused on several species that have not been studied using modern molecular methods.

A group of researchers from the New Mexico Museum of Natural History and the University of Nevada at Las Vegas collaborated with the LSU team. The main focus of the researchers from New Mexico and Nevada was on desert rodents, including kangaroo rats and pocket mice.

Overall, the research data collected during this field season will be instrumental in determining many of the relationships within this particular gopher group. At this point, Dr. Hafner's group will continue analyzing data here at the LSU Museum of Natural Science. The undergraduates will be doing DNA sequencing for both the gophers and the lice.

The group intends to continue research on this topic. They plan to go to Guatemala and Honduras next year to investigate relationships among gophers and lice from these countries.

September Special Saturday: "Making Pots the Native American Way"

The Museum of Natural Science was filled with excited children ready to make pottery the Native American way at the September's Special Saturday. Children ages 6-13, and their parents, gathered around tables in anticipation of getting their hands dirty with red clay in an attempt to replicate Native American pottery.

This fun-filled event began with a talk about the background of Native American pottery. Mrs. Rachel Watson, Staff Archaeologist for the LA Division of Archaeology, volunteered her time to present this program to the children. Mrs. Watson brought supplemental posters to explain to the kids the progression of Native American pottery through different eras. She also discussed some of the tools that were used to decorate the pottery and passed them around for all to see.

Next came the highlight of the event — everyone making their own piece of Native American pottery. The children and their parents excitedly ripped into the red clay ready to create a unique piece of pottery that they could take home with them from the Special Saturday.

The process began by making coils of clay and wrapping them tightly to create the shape of their choice. After many layers of wrapped coils, it was time to smooth out the cracks and make one unified piece of pottery. Many of the children used WetWipes to help them smooth out their piece. As a finishing touch, several of the children used the tools Mrs. Watson provided in order to specialize their pottery. Clare Kelsey, a very excited 6 1/2 year old said, "Making my flower pot was my favorite part." Mrs. Watson said, "I think the children had a wonderful time. They made traditional Native American pottery but encompassed their own style in decoration."

"Overall, the event was truly a success" said **Ms. Rebecca Tedford**, a doctoral student in micropaleontology and **Dr. Sophie Warny**'s education assistant at the Museum of Natural Science. Rebecca is responsible for organizing the event and registering the children that attend. She said, "Considering the fact that we had an early football game this Saturday, we still had a large turn out because the subject really attracted a lot of attention. One of the moms that attended with her daughter emailed us following the event and said, "Clare really enjoyed the program a lot. It was the highlight of her weekend!"

Would you like to attend one of the MNS future Special Saturdays? For more information, call (225) 578-3080 or email Rebecca Tedford at rtedfo1@lsu.edu.

"Honeybees: A Hive Full of Honey".....Nov. 20
"Fishing is Fun in Louisiana".....Jan. 29
"A Walk in the Jurassic".....Feb. 26
"Secrets of the Sand".....Mar. 19
"An Arbor Day Celebration!"....Apr. 23
"Minerals All Around!".....May 21

See our website www.museum.lsu.edu/education for more details!

MNS Student News

Chris Witt Receives Ernst Mayr Award

In the early 1970's, Harvard biologist Dr. Stephen Jay Gould, along with his colleague Dr. Niles Eldredge, from the American Museum of Natural History, introduced the theory of punctuated equilibrium, which holds that most evolutionary change occurs in 'fits and spurts', not gradually over geological time. That theory, based on a new interpretation of the fossil record, has been one of the most influential and controversial ideas in evolutionary biology over the last three decades. In recent years, several researchers have reported evidence that 'punctuated equilibrium' applies not only to the fossil record, but to the evolution of the DNA molecules that provide life's genetic code. **Chris Witt**, a Museum ornithology graduate student, examined those new claims closely, and he found that the tests that were used to infer punctuated equilibrium for DNA evolution were faulty. He introduced a new method for testing the tempo of DNA evolution. His new test showed that DNA seems to evolve gradually, rather than in 'fits and spurts'. Most importantly, Witt was able to demonstrate his findings effectively to his fellow evolutionary biologists, 1400 of whom attended the recent "Evolution 2004" conference in Fort Collins, Colorado (June 26-30). Witt was awarded the prestigious Ernst Mayr Award for the best scientific talk delivered by a graduate student or postdoc. The award is named for one of the most important biologists of the 20th century, Ernst Mayr, who celebrated his 100th birthday on July 5, 2004.

Santiago Claramunt Presented with Ornithology Award

The newly established Virginia L. Mouw Award in Ornithology is presented to an ornithology graduate student at the beginning of his or her second year and recognizes the enthusiasm, hard work, and promise of that student to be an outstanding scholar in avian biology. The award consists of $200 that may be used toward research.

Santiago Claramunt is the first recipient of this award. Santiago is an Uruguayan studying the systematics of the Neotropical ovenbird family.

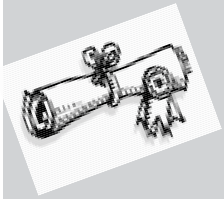
Brandon Kilbourne Completed Summer Internship in Chicago

Brandon Kilbourne, a LSU undergraduate student working with **Dr. Schiebout**, recently completed an internship at the Field Museum of Natural History in Chicago. While there, he worked with Dr. Peter Makovicky, and he participated in an ongoing study into the effects of allometric growth in tyrannosaurs. Using scaling and biomechanical analyses, Brandon will try to determine whether the massive increase in body mass during tyrannosaur development resulted in a change of locomotory habit in these animals.

Jessica Light Elected to Board of Directors

Jessica Light, a doctoral student at the Museum of Natural Science and Department of Biological Sciences, has been elected to the Board of Directors of The American Society of Mammalogists. She will serve a three-year term (2004-2007) assisting in the directing of the world's oldest and largest scientific organization devoted to mammals.

Congratulations Recent Graduate Timothy Schilling



Timothy Schilling graduated in May 2004 with an MA degree in Anthropology. **Dr. Becky Saunders** was his major professor and **Dr. Rob Mann**, with the regional archaeology program, was also on his committee. Currently, Tim is starting a Ph.D. degree at Washington University in St. Louis. He is in the Anthropology Department and focusing in Archaeology. Schilling's advisor at Washington University is Dr. T.R. Kiddder.

MNS Lab Aquires New DNA Sequencer

The museum's DNA Lab has recently aquired a new ABI Prism 3100 Capillary DNA Sequencer. This machine is a top of the line, fully automated sequencer, which lets the lab produce hundreds of DNA sequences per day. The instrument is run by **Nanette Crochet**, the LSU MNS lab manager.

Ichthyology News

Mark McRae and **Dr. Mike Fitzsimons**, curator of Fishes, have been joined by former museum graduate students **Lori Benson** (University of Tampa) and **Jim Parham** (University of Nebraska) in a three-year project sponsored by the Bishop Museum to determine the biological effect of returning water to the watershed of Waipi'o Valley on the Island of Hawai'i. Mark is studying patterns of drift of newly hatched stream fishes from inland spawning sites into the ocean, and the return of larvae and postlarval fishes from the ocean back into fresh water. Juveniles of the gobiid fish, *Lentipes concolor*, use their fused pelvic fins as a holdfast when ascending waterfalls as high as 1,100 feet (photo) when reaching sections of the stream occupied by adults. Dr. Fitzsimons is using the behavior of adult fishes above and below Ipu'u and Hi'ilawe falls to track the effect of increased water flow on the five species of indigenous stream fishes. Lori is investigating the distribution and behavioral ecology of juveniles of the marine fish species *Kuhlia xenura* in the estuaries and lower stream reaches during stream restoration, and Jim is developing a model to predict the gain or loss of fish microhabitats in response to changing water levels.

This fall and next spring, Mark and Dr. Fitzsimons are organizing a symposium on the biology of Hawaiian streams and estuaries under the auspices of the Division of Aquatic Resources, Department of Land and Natural Resources, State of Hawai'i, to summarize available knowledge about the animals and plants that occur in streams and estuaries among the Hawaiian high islands and to identify major areas for future research. Twenty-seven scientists from New Zealand, Japan, Canada, Hawai'i, and the mainland United States are preparing formal research papers to be published next summer in a peer-reviewed issue of a special bulletin produced by the Bishop Museum in Honolulu, and they will present talks based on these manuscripts at a conference to be convened in Kailau-Kona during the first week of April 2005.

-submitted by Dr. Fitzsimons

Spring Expedition to Panama

in search of Ovenbirds and Antbirds

In April and May 2004, **Dr. Robb Brumfield**, curator of Genetic Resources, mounted an expedition to Panama to collect antbirds and ovenbirds for his projects on the evolutionary relationships of those two bird families. The expedition included an exciting trip to the beautiful Isla Coiba, a large island off the Pacific coast that houses, in addition to many endemic birds, a large prison infamous for the human rights abuses that occurred there during Noriega's presidency. Thankfully, the prison is now being phased out and the island converted to a nature sanctuary. Dr. Brumfield went there in search of the Rusty-backed Spinetail (*Cranioleuca dissita*). The occurrence of this sedentary species on the island is a bit of a conundrum, because the closest mainland populations are in eastern Colombia, several hundred kilometers away. After many days of searching, he managed to collect two specimens on the last morning of the trip! That was too close for comfort.

Preparing specimens on the beach of Isla Coiba are, left to right, Peggy Guitton (Peru), Matt Miller (Univ. Alaska), Robb, and Sara (Panama). Watching are two park guards.

Dr. Brumfield also visited Isla San Jose in the Pearl Islands to find and collect specimens of an endemic subspecies of the White-fringed Antwren (*Formicivora grisea alticincta*). Its occurrence there is also a bit of a mystery, because the closest mainland populations of this sedentary species occur not on the adjacent Panamanian coast, but in northern Colombia. Using DNA sequences, he hopes to discover from where and when these islands were colonized by these non-migratory species.

The most exciting part of the trip by far was the trip to the frontier lands of Darién, the easternmost province of Panama at the border of Colombia. Dr. Brumfield was in search of the Double-banded Greytail (*Xenerpestes minlosi*), an ovenbird from which no tissue specimen exists in the world. In fact, LSU does not have any specimens of this species, which occurs along the Pacific coast from northern Ecuador to eastern Panama. Because of the security situation in Colombia and extreme eastern Panama (the two main guerilla groups involved in the civil war in Colombia routinely kidnap foreigners to garner large ransoms), Dr. Brumfield was accompanied by five members of the elite Panamanian Special Forces. When they landed on the airstrip at El Real, they were greeted by lots of soldiers and a television crew that asked if they were frightened about the security problems.

At that point Dr. Brumfield wanted to hop back on the plane and get out of there, but a soldier assured him that they would be ok. He was right. They hiked out to a field station called Rancho Frio and had a great week collecting birds with the soldiers. It was amusing to watch a soldier, with a machine gun swung across his back and a bandolier of grenades across his chest, delicately removing small birds from mist nets. They think the soldiers had a good time on this somewhat unusual "mission". On the last morning of the camp, Dr. Brumfield spotted a Graytail foraging silently in the canopy of a tree near the camp. He yelled to the soldiers "Colagris, colagris!!!", and Seargent Alvaro Gomez came running. He handed him his.16 gauge, and he shot the bird. The specimen landed in a creek, and when he fished it out and showed it to him, it didn't look like the Graytail — the eye was yellow instead of dark brown as it is depicted in Ridgely's "Birds of Panama." Dejected, Dr. Brumfield looked around the camp to see if any other individuals were still foraging in the treetops, but none were around. But as **Mike Braun**, the Smithsonian researcher who joined Brumfield and LSU graduates on the trip, began to dry the bird, two prominent white wingbars revealed themselves and they rejoiced at collecting LSU's first specimen of the Double-banded Greytail!

Collecting at Rancho Firo, Darien, Panama, with Panamanian Special Forces.

Other MNS news...

Museum Education Director **Dr. Sophie Warny** was invited to join the National Conference on Evolution. The Florida Museum of Natural History will be hosting a national conference this Fall with funds from the National Science Foundation. The topic of the conference will be "Enhancing natural history museum visitor understanding of evolution." The goal of this first meeting is to create a coordinated approach among research-based natural history museums to enhance visitors understanding of evolution through exhibitions and related programs. Dr. Warny is one of 32 nation-wide invited participants, including education directors and faculty members from institutions such as the American Museum of Natural History, Yale Peabody Museum, Sam Noble Oklahoma Museum of Natural History, and the Smithsonian Institution.

Dr. Luke Hasty comes to the Museum directly from his Ph.D. studies in Environmental Science, Policy and Management at the University of California, Berkeley. His research there focused on a group of planthopper insects (family Delphacidae, genus *Nesosydne*) endemic to the Hawaiian islands. Those insects are very host-specific, with each species of insect typically known from only one species of native plant. He is now working with **Dr. Mark Hafner,** studying louse insects host-specific to pocket gophers. Luke is from Georgia. He obtained his B.S. (Zoology) from the University of Georgia where he had internships and part-time positions with the Museum of Natural History and the Zooarchaeological Laboratory. He obtained an M.S. (Zoology) from the University of Tennessee, Knoxville, with research on the morphological and population genetic variation of a group of Anolis lizards. During the time before and after his master's degree, Luke worked for government, industry, academic and conservation organizations, so he brings a diversity of experiene to his new job at LSU.

Dr. Suyin Ting was recently in Beijing doing research at the Institute of Vertebrate Paleontology and Paleoanthropology . The National Geographic Society supports her research on the Paleocene/Eocene transition in Asia, and invited her to participate in a panel discussion on September 11 at Peking University and other events involving Chinese and US researchers, including a September 13 dinner banquet at the Great Hall of the People, in Tiananmen Square. The banquet included Committee for Research and Exploration members, staff, Chinese Academy of Sciences officials, Chinese Academy of Science and Technology officials, Peking University officials, Beijing Municipal Botanic Garden officials, Committee for Research and Exploration grantees, and National Geographic Channel associates. Peter Raven was among the US attendees.

Summer Expedition to Sabah, North Borneo

Museum Director **Dr. Fred Sheldon** and ornithology graduate student **Cheryl Haines** made a brief trip to Sabah, Malaysia (North Borneo). The trip had two main goals: to obtain specimens of a subspecies of Glossy Swiftlet (*Collocalia esculenta dodgei*) endemic to Mt. Kinabalu, and to obtain specimens of three species endemic to forests growing on nutrient-poor soils—Grey-breasted Babbler (*Malacopteron albogulare*), Hook-billed Bulbul (*Setornis criniger*), and Scarlet-breasted Flowerpecker (*Prionochilus thoracicus*).

The visit to Mt. Kinabalu was a great success because of enthusiastic help lent by Kinabalu Park research officers in catching the swiftlets, and because Cheryl got to climb to the top of the 13,455 foot mountain. (Dr. Sheldon chose to remain comfortable on the resthouse veranda.) The swiftlet specimens will be used in molecular genetic studies to determine whether they are related to other Bornean subspecies or, rather, to the Javan species *C. lynchi*.

After working on Mt. Kinabalu, Dr. Sheldon and Cheryl moved to a "kerangas" forest near the center of Sabah. This is a stunted forest growing on posolized soils, and it was thought to be home to the three species listed above. A week of hard work with a crew from the Sabah Museum yielded two of the three species. These will be compared with specimens collected from other poor-soil forests in Sabah to determine the amount of migration and gene flow among birds living in these isolated and potentially endangered habitats. The kerangas forest also yielded lots of excellent views of Rhinoceros and Black Hornbills, tracks of Clouded Leopards (mother and kittens), cackling of Red-leaf Monkeys, and early morning hooting of lonely Bornean Gibbons.

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