The Ohio State University

Museum of Biological Diversity

College of Arts and Sciences. Department of Evolution, Ecology and Organismal Biology

Museum of Biological Diversity
Discovery · Documentation · Interpretation · Education
Newsletter
Editor: L. Musetti

Museum Open House 2012

J. Freudenstein, Herbarium

February is time for the **MBD Open House**, the largest annual outreach event for EEOB and one of the largest for the College of the Arts and Sciences. The latest was held on Saturday, February 11.

Our topic this year was "Backyard Biodiversity", featuring many of the most interesting species that are found in central Ohio and nearby areas. We also emphasized the importance of historical biological collections, given that 2012 is the bicentennial year for Columbus.

When people ask collections staff, "How much are these specimens worth?" or "How much would it cost to replace them?", I think that we often shudder, since such specimens are irreplaceable. They are not just random examples of species, but are associated with data that document their occurrence in a particular time and place. It's true that we could obtain new examples of many species (as long as they are not extinct), but we can never actually replace unique historical samples.

As usual, all the Museum units prepared special exhibits to make selections from their collections accessible to the public in an attractive and informative way (*see "Open House day in the Collections"*). In addition, displays in the auditorium focused on the Backyard Biodiversity theme. We organized these displays by habitat, including woodlands, wetlands, prairies, human-influenced settings, and the time aspect, as represented by fossils. The School of Earth Science was once again present as our partner to emphasize the time dimension of biodiversity.

This year we had approximately 1,050 visitors. They came as singles, as couples, as families, as scouting troops and sometimes the number passing through the door was just overwhelming! The event is always popular with families, who bring many small children. We always have activities for children based on biodiversity themes – some have a lesson and some are just fun.

This event is always a lot of work for all involved. The time that is invested by all of the collections in preparing the exhibits, the planning, and the involvement of approximately 100 Museum and other EEOB students, staff and faculty on a Saturday in February is substantial. But the appreciative comments from the public, the look of excitement on the children's faces and the sense of community among our workers from across the collections on that day make the investment worth it.

Open House day in the collections

The ***Borror Laboratory of Bioacoustics*** set up a voice print station in the auditorium. Younger members of the audience enjoyed imitating the lions roar and other animal sounds. Visitors could follow the visual representation of the sound on a sonogram while listening to playback of their own voice.

Young visitor at the Open House 2012 watching his voice on a computer screen.

On a sound kiosk, visitors listened to woodland birds and frogs, species which are often heard during a Sunday afternoon walk, but are hard to see and identify *(A. Nelson)*☘

Lauren Burns explaining the sound kiosk to a young visitor at the Open House.

Moss garden display at the OSU Herbarium.

The focus of the ***Herbarium*** in the 2012 Open House was to display and inform about the small plants and plant-and animal-like organisms that are often with us but easily overlooked and not given much attention in displays in museums. Since many of the organisms are small, parents and children were encouraged to view the demonstrations kept on microscopes. The organisms displayed belonged to the following groups: Algae, Fungi, other Protists, Lichens and Mosses & relatives.

The displays about Algae focused on their importance as being the ancestors of land plants (*Chara* with notes was displayed), as the sources of food for many small organisms living in water and on land (samples from pond water on microscopes), as the sources of food for over a million people on earth (displays of Nori, Kelp, etc.), and as additives in food and other products (displays of Carrageenan in toothpaste, chocolate milk, Vanilla Ice Cream, Knorr Gravy Classics, Hidden Valley Ranch, etc.); Alginate (from brown algae) in Velveeta Cheese; Agar in Krispy Kreme Doughnuts. A display on how to measure algal bloom (for elementary or middle school children) was also included.

The displays on Fungi focused on the larger fungi that grow in people's backyards and also on disease (both crop and human) causing fungi; on Protists, other than algae, the focus was on slime molds, organisms with the features of plants, animals and fungi that can easily be observed on logs and on decaying organic matter in spring; on Lichens (fungi and algae living together), the focus was on various types of lichens that can easily be observed on tree trunks, logs, rocks, etc., and on Mosses and relatives the focus was on diversity and economic importance of mosses and liverworts, how to create a moss garden easily at home, and a slide show on diversity in mosses & relatives and their habitats in Ohio. Graduate students of EEOB, volunteers from outside OSU and staff of the Herbarium participated in explaining the various displays to the visitors. *(Mesfin Tadesse)*☘

Displays containing local insect fauna were available at the Triplehorn Insect Collection.

To go with this year's Open House theme of "Backyard Biodiversity", the ***Triplehorn Insect Collection*** had multiple displays containing insects found in Ohio. A bright yellow star highlighted the displays with local fauna (*right*).

Displays of the diversity of butterflies and beetles (local and exotic), were again very popular with visitors. We also displayed some examples of the rich fauna of parasitic wasps found in Ohio and other states in the midwest.

Though ubiquitous, numerous and very important, parasitic wasps are

rarely seen or noticed by people. Most of these wasps are simply too small to be observed with the naked eye; others, like the large ichneumon wasp *Megarhyssa*, go unnoticed because of where they live or because of the way they blend in with the background.


PHOTO: CTaekul

One of our newest displays highlighted the insects that staff and students of the insect collection have collected over the past few years at a spot across the street from the Museum. Right there, as amazing as it might seem, we have found several species of insects that are new to science!

In total we had thirty-two of our permanent displays out for public view, plus two large display cases and several wall displays with maps and photographs.

Once again our "***bug drawing station***" (*left*) was a tremendous success. Visitors of all ages enjoy that relaxed activity and the artwork produced is truly amazing at times. A selection of the finest bug drawings produced during the Museum Open House (2009 to 2012) is available at the collection's Facebook page (*www.facebook.com/TriplehornInsectCollection*).

A heartfelt ***thank you*** to the sixteen people, staff and volunteers of the insect collection, who spent the whole day sharing their enthusiasm for insects with Open House visitors. *(L. Musetti)*☘

As in times past, the Giant Man-eating Clam is the hook to get people in the door of the ***Division of Molluscs***. Can you eat it? (yes) Will it eat you? (it's a man-eating clam so it depends). Our small display of "curiosities" - carrier shells (snails that collect other shells), cameos, pearls, deadly cone snails, etc. is always popular. The idea that some snails can kill you always evokes a look of surprise.

Once inside most people are amazed at the "real" collection - freshwater mussels. They have no idea of the diversity in their own back yard. They are shocked to learn that dozens of species have become extinct, some right here in central Ohio. Displays of rare and extinct species, as well as a sampling of other mussels, were made available. *(G.T. Watters)*☘


PHOTO: JFreudenstein

Dr. Tom Watters next to Giant Man-eating Clam.

In the **Tetrapod collection** visitors enjoyed a display of common garden birds. Recent OSU graduate Ben Nickley had set up a realistic display of different bird species flying above or perching on various types of bird feeders. The feeders and a bird bath were gratefully provided by Wild Birds Unlimited. Visitors could test their skills of recognizing birds by sound on one of the Borror lab's sound kiosks. Liz Calhoon, Alex Champagne, Bill Whan, Stephanie Wright and Andy Yoak kept kids spell-bound with their stories about birds. Paying tribute to the many occurrences of snowy owls in Ohio this winter visitors could take a final look at the Hardin County specimen. This owl died of starvation and was collected earlier this year and prepared Into a study skin by Assistant Professor Jacqueline Augustine. Several visitors had seen the bird alive and were astonished to get another look at the bird, this time close-up. *(A. Nelson)*☘


PHOTOS: ANelson

Left: Display of common garden birds at bird feeders in the Tetrapod collection during Open House 2012.

*Enjoy the **Spring** issue of the Museum's newsletter!*

News & Updates

▪ ***Acarology Laboratory.*** *Samuel Bolton* (PhD student) has just won a Smithsonian pre-doctoral fellowship to research the morphological evolution and diversity of endeostigmatid mites for nine months, starting in February 2013. Much of the work will involve using cryo-SEM at the USDA, Beltsville, just outside Washington DC. This is also where the Smithsonian's mite collection is based. Additionally, this fellowship will provide a great opportunity to undertake taxonomic revisions of some neglected families of mites. Access to some of the most advanced types of microscopy and the ready availability of specimens from two of the largest and most diverse collections of mites in North America (the Ohio State University and the Smithsonian) will now make these goals more achievable. (*S. Bolton*)☘

▪ ***Fish Division.*** We have been busy this past winter updating its database by cataloging and georeferencing OSUM collections, as well as combining records from other state and federal agencies. One major source of data came from the Ohio River Valley Water Sanitation Commission (ORSANCO). A total of 24,576 records from fish monitoring surveys of the Ohio River dating back to 1957 were added. These records were from rotenone surveys of lock chambers (1957-2005), benthic trawling (2006-2008), and boat electrofishing (1991-present). Another source of data currently being added to the database includes records from the Ohio Environmental Protection Agency (OEPA). These data represent a massive amount of information on fish distributions across the state with 401,112 records from approximately 10,000 locations over the last 36 years. With the addition of these two sources of data, records in our database have increased more than four-fold.

Members of the ***Fish Division*** have also been actively cataloging collections and have added approximately 1,200 new vouchered material to the database since December. These new records came from collections made by Brian Zimmerman and Justin Baker during surveys over the past year, as well as newly cataloged material from OEPA collections made over the past 10 years. The **Fish Division** has also started systematically reviewing and updating existing museum collections on a species-by-species basis. To date three species have been completely reviewed: the northern studfish, *Fundulus catenatus*, the redside dace, *Clinostomus elongatus*, and the variegate darter, *Etheostoma variatum*. All collection records for these species (≈1,000) have been georeferenced and updated in the database, with specific changes pertaining to localities and comments of individual collections being made. Progress made on the "Freshwater Fish Inventory and Distribution" project thus far has been encouraging to say the least. With the addition of new data and updates, the **Fish Division** database (*http://osuc.biosci.ohio-state.edu/Fishes/*) has grown considerably and has become an even more valuable resource to researchers. (*J. Baker*)☘

Justin Baker (standing) and Brian Zimmerman (snorkling), collecting at Big Beaver Creek.

▪ ***Triplehorn Insect Collection.*** On April 02, we were honored by the visit of Dr. Manita Kongchuensin. She is the head of the Acarology group, Plant Protection Research and Development Office, Department of Agriculture, Thailand, and a proud OSU alumna. Dr. Manita specializes on the use of predatory mites as biological control agents and the integrated pest management in several agricultural products e.g. orchids, roses, strawberries. She received her masters degree in the Department of Entomology at OSU, under the advice of Dr. Dana Wrensch. Dr. Manita visited the ***Acarology Lab*** and the ***Triplehorn Insect Collection***, hosted by Charuwat Taekul, a PhD candidate working with parasitic wasps in Norman Johnson's lab.

Congratulations to *Elijah Talamas* (*right*), who recently won two student travel grants: $1,000 from the International Society of Hymenopterists Student Travel Award, and $2,500 from the Entomological Society of America Student and Young Professional Travel Award. He will be traveling to Korea this summer to present his research on gustatory and odorant receptor genes in *Trissolcus basalis* at the International Congress of Entomology. Elijah is a PhD candidate in Entomology working with parasitic wasps in Norman Johnson's lab. (*L. Musetti*)☘

Elijah Talamas in South Africa

▪ ***Borror Laboratory of Bioacoustics*** (BLB). *Angelika* and *Doug Nelson's* research on singing behavior in white-crowned sparrows (*right*) in Oregon, USA was featured in the Science section of the Columbus Dispatch: "*Decoding the language of birds - Scientists dissect tweets to unravel complex avian behavior.*"

Singing White-crowned Sparrow.

The ***Borror lab*** provided, among others, sound recordings to the citizen science project, FrogWatch USA, hosted by the Association of Zoos & Aquariums; recordings of Bengal Tigers (obtained at the Columbus Zoo) for a display at the Cincinnati Zoo & Botanical Garden; recordings of various North American songbird species to the Patuxent Research Refuge in Laurel, Maryland for the use of bird identification by visitors.

*Angelika Nelso*n has finished updating the websites for the ***Tetrapod collection*** and the ***Borror Laboratory of Bioacoustics***; both sites will soon be online at *http://www.tetrapods.osu.edu/* and *http://www.blb.osu.edu/* respectively.

Angelika Nelson is currently collaborating with Amanda Conover from the Ohio Bird Conservation Initiative on the project "Lights Out Columbus". This project aims to investigate the impact of extensive lighting on tall buildings in downtown Columbus on migratory bird species at night. Volunteers collect bird casualties each morning and these birds are transferred to the museum where the species is identified and specimens are stored for later preparation into study skins. *http://www.obcinet.org/home/lightsout.php*.

Alex Hughes & Alex Champagne, current and former president of the OSU Ornithology Club respectively, gave a radio interview for WCRS Columbus Community Radio on "A bird's eye view of birding." Youth Beat reporter Nicole Jackson talked with them about the social and mental benefits of birding. They discussed the activities the club participates in and the ways in which anyone can begin birding in their leisure time. Angelika Nelson is faculty advisor for the Ornithology Club.

Thanks to funding by the Department, the ***bird collection*** received three long-needed new specimen cabinets. Undergraduate student Sarah Focht has taken on the task of relocating specimens from the songbird family into the new cabinets. Sarah had just finished cataloging and re-organizing the bird teaching collection – right on time for the course Introduction to Ornithology which utilizes these specimens for teaching.

Undergraduate student Lauren Burns is currently digitizing sound recordings from the collection of Luis Baptista (1941-2000), donated to the lab by the California Academy of Sciences. Luis F. Baptista, former Curator of Birds & Department Chairman, possessed what was perhaps the most sensitive and talented ear in the world for listening to bird song. He left thousands of hours of bird song recordings which are now being preserved for posteriority in digital format.

Ben Nickley, recent OSU graduate and manager of our project to digitize the sound recordings in the Florida Museum of Natural History over the last year, has left Ohio State for a field-based internship in Tennessee. Undergraduate student Laurel Cope and graduate student Erica Szeyller continue to digitize recordings for that NSF-funded project. (*A. Nelson*)☘

▪ ***Visitors to the Museum.*** On January 21 the Central Ohio Chapter of the Ohio Young Birders Club (OYBC) visited the OSU Museum of Biological Diversity for some hands-on activities. Tim Daniel videotaped the event which can be viewed at *http://www.facebook.com/bsbobird/posts/180692795365141*.

Dave Slager with students at the OYBC event.

The students were first treated to highlights of the bird collection, including a pair of Ivory-billed Woodpeckers and an Olive-sided Flycatcher collected by Teddy Roosevelt. Dave Slager, Stephanie Wright, Erica Szeyller-Macolley, Bill Whan and Jennifer Hale guided the students through some activities: students sorted birds into groups according to their taxonomy, they used field guides and their knowledge to identify various North American bird study skins as well as some birds from anywhere in the world and explored bird anatomy.

Students watch Jackie Augustine preparing study skin of snowy owl.

One of the highlights was watching Assistant Professor Jacqueline Augustine preparing a snowy owl specimen into a study skin. The bird had been found dead, most likely due to starvation, in Hardin County where it made the news: *http://www.dispatch.com/content/stories/local/2012/01/12/snowy-owl-on-dispatch-front-page-found-dead.html*. The students were fascinated by the process and proud of being part of preparing the Snowy Owl for its final destination in the bird collection.

Jackie Augustine preparing a snowy owl into study skin.

A group of 12 birders from the Worthington Women's club, calling themselves the "Feathered Friends," visited the ***Borror Laboratory of Bioacoustics*** (BLB) and the **bird collection** on March 1. They watched the digitization process of sound recordings and learned about the use of recordings in research and public outreach. They enjoyed seeing their common garden birds close-up as scientific specimens.

A group of 30 members and guests of Columbus Audubon toured the Museum of Biological Diversity on March 3. The focus of the visit was on three collections: the ***Borror Laboratory of Bioacoustics*** (BLB), the ***bird skin collection*** and the ***Triplehorn Insect Collection***. In the BLB, Angelika Nelson informed visitors of the extent and use of the collection (almost 40,000 recordings of over 1,600 animal species including fishes, amphibians, reptiles, mammals and birds). Visitors listened to song dialects of white-crowned sparrows recorded along the Pacific Northwest coast, learned about the use of sound recordings in museum displays, cell phone ring tones and movie; many visitors took home free copies of bird song CDs to improve their birding-by-ear skills. In the bird skin collection Bill Whan treated visitors to the highlights of the collection. Visitors admired a pair of male and female Ivory-billed Woodpeckers, Passenger Pigeons and Carolina Parakeets and compared these extinct species to similar extant species. Dave Horn, a retired Entomology professor, presented the ***Triplehorn Insect Collection*** which is ranked among the top 12 university collections in North America. He could only give a glimpse of the over 3.5 million catalogued specimens.

Columbus Audubon visitor next to Pelican and Mallard in the bird collection.

A group of 80 first graders from *Tremont Elementary School* were ornithologists for a day on their visit to the ***bird collection*** on March 14. Each child was assigned a bird species for detailed study. The students found all species on display, grouped by taxonomy and could observe common features in the bill, feet and overall shape of "their" birds. The students were amazed by seeing details on birds close-up and greatly enjoyed their visit. *(A. Nelson)*☘

CSI at MBD: unraveling the mysteries of a valuable Lepidoptera collection.

Steven Passoa, USDA, Animal and Plant Health Inspection Service, Plant Protection and Quarantine

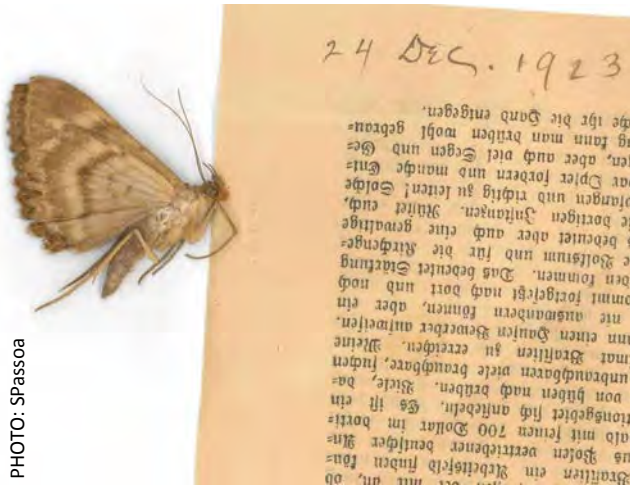


PHOTO: SPassoa

Usually donated specimens are well prepared and the curator knows their history. However, this is not always the case and managing a collection sometimes requires a fair amount of research to discover the origin and story behind the organism. This may involve educated guesses, lots of luck, or both. A recent donation of Lepidoptera (moths and butterflies) from the Ohio Historical Society is a good example of how curators sometimes need to function. Hundreds of moths and butterflies were stored at the Ohio Historical Society in envelopes. No one had any intention of using them, and being from Brazil, they did not fit their mission to preserve Ohio artifacts. At first, it was clear that the specimens were from Rio Grande do Sul, and the butterflies themselves supported this (esp. a few of the endemic swallowtails). The specimens were wrapped in German writing (*right*), and this made sense as several famous German collectors used to sell specimens from Brazil. However, the dates were too early to be one of these collectors, and after attempts to make the facts fit, the idea that it was bought from anyone was discarded. No one could figure out how the specimens ended up at the Ohio Historical Society.

PHOTO: SPassoa

Then, the lucky part. One of the Brazilian specimens was wrapped in an envelope with a name (Henninger), part of an address (Rio Grande do Sul, Brazil), and a US postage stamp (*left*). This was the break needed to solve the mystery. A google search showed that *Waiter F. Henninger* was an Auglaize County church pastor who collected insects and published on Lepidoptera. He was sent to Rio Grande do Sul by his church at exactly the right time to have made this collection. He grew up in Germany, thus the German language paper used to wrap the insects made sense. Henninger was also interested in mammals and birds, he would have likely been in contact with naturalists at the Ohio Historical Society. It all fit together. Even his name on the box, which made no sense previously and went unrecognized, was now legible.

I still wondered why *Morphos* or *Agrias*, gems of the Neotropics, were absent from the collection, and why so many of the specimens where often slow moving butterflies. We know now that Henninger was ill while in Brazil and maybe he just did not have the strength to chase them (nowadays we use rotten fruit as bait for these species).

This collection was made before deforestation impacted the environment. Many of the species in the Henninger collection are still common today, demonstrating that some insects easily adapt to changing conditions. More obvious is the lack of several noctuid agricultural pests of corn and soybean. They do not survive without large monocultures now present in the region. Another benefit of this collection is that southern Brazil contains endemic species and relatives of insects we have in Ohio. Compare the buckeye butterfly from Ohio with a related species from Brazil (*right*). These insects were collected before permits were required; traveling to the tropics today is both expensive and time consuming, if the country even will give permits.

The Henninger collection will be divided up among several institutions, included the ***Triplehorn Insect Collection***. Thanks the Ohio Historical Society, and especially Bob Glotzhober, for their support.♣


PHOTO: SPassoa

Buckeye butterflies from the Triplehorn Insect Collection. Top, species from Ohio. Bottom, species from Brazil.

Recent Publications

Johnson, NF. 2012. A collaborative, integrated and electronic future for taxonomy. ***Invertebrate Systematics*** 25: 471–475. *http://dx.doi.org/10.1071/IS11052*

Johnson, NF and **L Musetti**. 2012. Genera of the parasitoid wasp family Monomachidae (Hymenoptera: Diaprioidea). ***Zootaxa*** 3188: 31–41.

Nelson, DA & **A Poesel**. 2012. Responses to variation in song length by male white-crowned sparrows. ***Ethology*** (118): 24–32.

Passoa, S. 2011. Field key to late instars of Spodoptera of America North of Mexico. In Wagner, D. L., D. F Schweitzer, J. Bolling Sullivan and R. C. Reardon. Owlet Caterpillars of Eastern North America. Princeton University Press. 576 pages.

Poesel, A & **DA Nelson**. 2012. Delayed song maturation and territorial aggression in a songbird. ***Biology Letters*** published online February 8, 2012.

Poesel, A, DA Nelson & HL Gibbs. 2012. Song sharing correlates with social but not extra-pair mating success in the white-crowned sparrow. ***Behavioral Ecology*** first published online February 2, 2012 *doi:10.1093/beheco/ars007*.

Mao, M, **A Valerio**, AD Austin, M Dowton and **NF Johnson**. 2012. The first mitochondrial genome for the wasp superfamily Platygastroidea: the egg parasitoid *Trissolcus basalis*. ***Genome*** 55: 194-204. *doi:10.1139/g2012-005*.

Fellowships & Current Grants

Beati, L, **H Klompen**, L Durden & **NF Johnson**. "REVSYS: Exploiting a large existing resource for biogeographical and host-parasite data: linking immature and adult amblyommine ticks. National Science Foundation DEB, ***$298,865***. (OSU Subcontract). 2010-2013.

Fish Division. "Freshwater Fish Inventory and Distribution project." Under the Ohio Biodiversity Conservation Partnership. We will synthesize existing records from the Fish Division with records from the ODOW, OEPA and other sources. The results will guide new collection efforts to generate an accurate and current record of freshwater fish distributions in Ohio, which will be used to help direct future research and management efforts. ***$83,356***. 2011-2012.

Nelson, DA, A Nelson, DW Steadman & T Webber. Digitization of recorded sounds in the Florida Museum of Natural History, NSF, $***466,000.*** 2009-2012.

Nelson, DA, **A Nelson**, HL Gibbs & JW Olesik. Co-Principal Investigators. "Digitization of recorded sounds in the Florida Museum of Natural History," National Science Foundation, DBI-0846354, REU Supplement. ***$5,998***. 2010-2012.

Freudenstein, JV. "Systematics of Monotropoideae and Pyroloideae (Ericaceae)." National Science Foundation, 2009-2012.

Freudenstein, JV & **M Tadesse**. "Databasing of the Ohio Flora at The Ohio State University", National Science Foundation, 2009-2012.

Johnson, NF. "Fine-grained semantic markup of descriptive data for knowledge applications in biodiversity domains". National Science Foundation, ***$50,490***. (OSU Subcontract). 2010–2012.

OSU Herbarium. "Digitization TCN Collaborative Research: North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change", collaborative with multiple institutions, National Science Foundation, 2011-2015.

Field Work & Research Travel

Last spring Brian Zimmerman and Justin Baker from the ***Fish Division*** sampled 17 glacial lakes in west central and northwest Ohio. Most of these were located in Logan, Champaign, Clark, Miami, and Williams counties. Glacial lakes offer a unique diversity of aquatic and terrestrial species, including several state endangered plants as well as dragonflies and damselflies. These natural lakes also harbor a unique assemblage of fish species. A combination of boat electrofishing and seining techniques were used around the shoreline to specifically target two state listed fish species the lake chubsucker, *Erimyzon sucetta*, and Iowa darter, *Etheostoma exile*.

Iowa darters were found at only 6 of 12 historic localities, with healthy populations occurring at three of the six locations. Lake chubsuckers were found at only five lakes: Braden, Lemen, Newell, Mud Lake Bog, and Rush Creek Lake. For our upcoming 2012 spring field season, Brian and Justin will continue conducting surveys of glacial lakes, this time in the northeast part of the state. Forty lakes, wetlands, or marshes have been identified as having quality habitat and a high probability of supporting either species. The majority of these habitats are located in Summit, Portage, and Geauga counties. Several of these lakes, including Fox, Dohner, and Singer Lake, have never been surveyed for fish according to museum records.(*J. Baker*)☘


PHOTO: MKibbey

Sand Darters.

On a recent night excursion to the ichthyologically historical stream site on Big Darby Creek at State Route 104, Marc Kibbey (*bottom, right)*), of the ***Fish Division***, and Michael Flores collected a single specimen of eastern sand darter *Ammocrypta pellucida*. This capture represents the first record of the species seen in Big Darby since 1960, when the last documented specimen was collected by longtime OSUM fish curator Milton B. Trautman. The stream morphology at the Route 104 bridge crossing is known for its transient nature, with the four locally well-known "Trautman's Riffles" having been washed out by the flash flooding typical of the stream, which may have contributed to the disappearance of one of the state's two extinct species (Scioto madtom, *Noturus trautmani*) whose only known population was limited to that locale. The area above the bridge had maintained the sort of habitat necessary for the sand darter, but extensive use of the site for fish class field trips and other work failed to find them. It is not clear whether the species is moving up from the Scioto River where they inhabit clean patches of sand under fast moving water, or down from a relict population in Big Darby where years of collecting has missed them; in any case this is an encouraging example of beneficial results from environmentally friendly practices like no-till farming that reduce siltation in our waterways. (*M. Kibbey*)☘


PHOTO: MKibbey

Marc Kibbey, knee-deep in the Big Darby Creek.

Norman Johnson of the ***Triplehorn Insect Collection*** traveled on 28-30 March to Arizona State University in Tempe. The biological collections at ASU are slated to move from their present building to a site off-campus, about 2 miles distance, where a one-story former

warehouse will be renovated to hold them. Norman was invited by Brian Smith, former Entomology faculty at OSU, to share his experiences during the move of the ***Triplehorn Insect Collection*** from the old Botany & Zoology Building to the Museum. The ASU collections include a large and impressive herbarium, an exquisitely curated insect collection (though still rather small at the moment), fish, tetrapods, and fossil plants. (*N. Johnson*)♣

South China - OSU Entomological connections

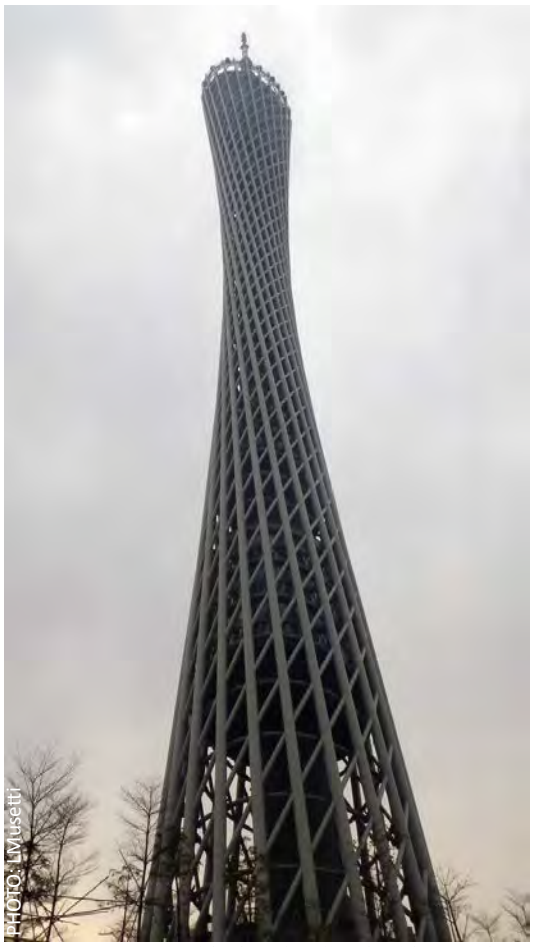
N. F. Johnson, Triplehorn Insect Collection

Norman and Huayan with the university gates in the background.

From 25 February to 10 March, Luciana Musetti and Norman Johnson visited the laboratory of Dr. Xu Zaifu at the South China Agricultural University in Guangzhou, China. We first flew to Hong Kong, spent the night at the airport hotel, and then took the train the next morning to the city of Guangzhou (formerly known as Canton). The university is one of several descendants of the former Sun Yat-sen University, named after the first president of the Republic of China that overthrew the Manchu dynasty – that's the Qing dynasty for those of you who want the precise name – in 1912. It's a huge place, with some 41,000 students on a campus that spreads over 550 hectares. Three years ago the university celebrated its centenary, but despite its age it has the look and feel of a modern, growing institution.

Dr. Xu has a large group of masters and doctoral students and postdocs working on taxonomy of natural enemies and biological control. They've put a great deal of effort recently into developing a research collection of parasitic wasps, and have collected in provinces over the entire country. Naturally, though, the emphasis so far has been on south China, particularly the provinces of Guangdong, Hainan, and Yunnan. Thanks to the visit of our colleague, Lubomir Masner, a few years ago, the mounted part of the collection is very well prepared and labelled. Lurking in cold storage, however, is a huge amount of material that has been rough-sorted, but not yet processed for study.

The goal of our visit was to assess the prospects for future collaboration in the systematics of Platygastroidea, and I'm happy to report that the prospects are excellent. Dr. Xu has a very good student, *Chen Huayan*, who is currently finishing his masters degree and plans to apply to OSU for his Ph.D. Huayan was our constant companion during the trip, picking us up in Hong Kong, helping with everything along the way, a particular help since my broken Chinese would only be moderately useful. Huayan is finishing a study of the species of the genus *Macroteleia* of China, and his manuscript already looks to be in good shape. As a result of these positive results, we plan to return to Guangzhou in October to undertake a couple of projects that will integrate Chinese species into our larger projects on tropical Asian genera of platygastroids.



Canton Tower, world's fourth tallest building to date.

An October return was the unanimous recommendation to deal with the difficult weather conditions in Guangzhou. The summer in the city is very hot and always with very high humidity (>90%), making for very uncomfortable conditions. We can now attest that the winter weather is not much better at all. Even though Guangzhou is located south of the Tropic of Cancer and, therefore, formally in the tropics, you couldn't tell from the weather. With one brief exception one morning, it was uniformly heavily overcast and for much of the time it was downright chilly! Temperatures in the low 50's and high 40's would be happily greeted during a Columbus winter, but in Guangzhou –

Left to Right: Luciana, Norman and Dr. Xu

where there is no central heating anywhere, it seems – it was uncomfortable in the extreme. (I admit to wearing my jacket to sleep at night!)

If the weather was poor, the hospitality and the food were extremely good. We were treated like royalty and overwhelmed by the variety and quality of the food. I added a new phylum to my culinary experience (an annelid) and for the first time had goose intestines. The guts were darn good. In addition to the obvious Cantonese style food, we also went to restaurants specializing in the cuisines of Hainan (complete with an indoor imitation of a tropical rain shower), Hong Kong, Sichuan, and Hunan. The university's hotel, the Bamboo Garden Hotel, has a very nice restaurant attached where we were fed very well. We took our breakfasts at a small campus bakery where, across the street, was a daily market with a range of fruits, vegetables, meats, and trinkets for sale. It's too bad we didn't have the capacity to cook at our hotel.

In addition to the scientific work, we also were treated to a few of the sights of Guangzhou. Like many Chinese cities, Guangzhou exists on a scale that is hard to imagine: the current population is said to be 12.78 million people, and in population in the area is 25.8 million, making this the second largest agglomeration of people in the world. Our principal sightseeing took us gave us two different perspectives. The Chenjiaci (Chen Clan Academy) was built during the Qing dynasty and is a clan ancestral temple, today housing exhibits of porcelain, ivory carving, painting, embroidery, etc. At the other extreme is the Guangzhou Tower, a modern super-skyscraper. Sited on the banks of the Pearl River, the tower is the world's fourth tallest building, has observation levels at 168 and 454 m. The building was opened in 2010 for the Asian Games. Fortunately, this was one day when the weather cooperated a bit, so that we were able to have a spectacular panoramic view of the sprawling city.♣

Chen Clan Academy internal courtyard.

Living gems of Hispaniola

G. Thomas Watters, Division of Molluscs

Hispaniola, particularly the Dominican Republic (DR), is known for one gem: amber. But the island also hosts a wealth of living gems in the form of land snails. The family Annulariidae is one of the largest land snail families, with over 1,600 nominal species, all packed into the Caribbean region. Cuba is the center of diversity, but Hispaniola is not far behind. For some years I have worked with several collectors and museums to document this diversity. In conjunction with Meg Daly's lab I am finishing (I hope!) a phylogenetic analysis as well. Preliminary results indicate that one group of these snails seems to be very unique in terms of genetics and morphology – they are also among the most beautiful of all land snails. This group is represented by the genus *Abbottella* and related genera, the topic of this article.

Abbottella and its relatives are extreme calciphiles. They are never found far from limestone cliffs and outcrops, usually in karst areas. Most require a cool, shaded environment among lush tropical vegetation – a rapidly dwindling habitat. Because of the patchiness of their environment, endemism is the rule. Many species are known from a single location; some species may exist on a single cliff face. Not surprisingly the possibility of extinction is high. The shells of these snails are highly sculptured with spines, ribs, and cords, a rarity in land snails. Attached to their foot is the operculum, a trapdoor that seals the entrance when the snail withdraws for protection. In this group the operculum bears an curious spiral, calcified lamella to further discourage predators. They are small snails, from 5-15 mm in width.

In March I made my annual pilgrimage to the Florida Museum of Natural History, which houses one of the most valuable collections of this family. This is due to the near superhuman efforts of Dr. Fred Thompson of UF, who in the 1970's crisscrossed Hispaniola collecting at hundreds of sites.

But being a malacologist in places like Haiti can be an adventure. For instance, in 1929 while collecting snails and plants, the naturalist Charles Orcutt remarked "*Along the southern Dominican border it is not safe for a lone traveler; out of Fonds Verettes I was attacked after dark and wounded in the forehead with a stone. I bled like a stuck pig but did not lose consciousness...*" He later died of illness in Haiti. Things haven't improved much since then – the United Nations called Port-au-Prince "*the most dangerous place on earth.*"

Even if we could safely revisit his sites it is possible that many of these snails no longer exist. In place after place, Dr. Thompson found only the remnants of the snail's habitat, now cleared for pasture, cocoa groves, and coffee plantations. This is particularly true of Haiti where locals have cut down 98% of the original forest cover to fuel cooking stoves. So some of the species I will be describing may already be extinct. A few species are fortunate enough to be living in some of the Dominican Republic's growing number of national parks where they will receive at least some protection, but they are the exception.

The distribution of the Annulariidae in general has important implications for our understanding of the zoogeography of the Caribbean. Two theories vie for explaining the distributional patterns there. One is based on vicariance, the other dispersal. The vicariance model suggests that the Caribbean biota were tectonically rafted from proto-Central America to their present locations; the pattern is from Central America to the Greater Antilles to the Lesser Antilles. The dispersal model, known as the GAARlandia theory

(***G***reater ***A***ntilles – ***A***ves ***R***idge), invokes a land bridge, the Aves Ridge, from South America through the Lesser Antilles to the Great Antilles and beyond. According to this theory the Caribbean biota is therefore of South American descent. Our preliminary work seems to come down squarely with the vicariance model – but stay tuned. However, the *Abbottella* group has no relation to Central America and seems to have evolved in place in Hispaniola.

Shown below is a small sample of *Abbottella* and its relatives. Many have not been described.

From left to right, top to bottom:

Abbottella moreletiana (Crosse, 1873) – San Pedro de Marcoris, Dominican Replublic (DR);

Rolleia oberi Watters & Duffy, 2010 – Yásica Abajo, DR;

Leiabbottella sp. – Majugual, DR;

Abbottella sp. – Loma Traversada, DR;

Abbottella sp. – La Guana, DR;

Abbottella sp. – Las Terrenas, DR;

Abbottella rosaliae Bartsch, 1946 – Loma Catalina, DR;

Abbottella abbotti Bartsch, 1946 – El Valle, DR;

Abbottella sp. – José Contreras, DR.☘

PHOTO: GTWatters

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Next issue of the MBDNewsletter coming up Summer 2012

We want to hear from our readers!

Please send feedback to the Editor (*osuc-curator@osu.edu*).

ABOUT US

The **Museum of Biological Diversity** (MBD) is a research facility in the *Department of Evolution, Ecology and Organismal Biology, College Arts & Sciences, The Ohio State University*. The Museum houses all of OSU's biological collections, except fossils. The collections are an irreplaceable repository of specimens and information on the biodiversity of Ohio, the USA and the world. We provide extensive information about our holdings to the scientific community and to the general public through publications, websites and online databases. The main focus of the collections is the discovery, documentation and interpretation of biodiversity. Links to the collections websites are available on the Museum website at ***mbd.osu.edu***.

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