The Ohio State University

Newsletter

Fall 2014

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

Dear Readers:

Welcome to the Fall 2014 issue of the ***MBDNewletter***! Please enjoy, and feel free to send your comments to the Editor.

In this issue:

Please join us for the Museum Open House

Saturday, February 7, 2015

The **MBDNewsletter** is a publication featuring news and information on the collections at the **Museum of Biological Diversity**. The newsletter is produced by the Curators of the collections, with contributions from faculty, staff, students and associates of the collections. The **MBDNewsletter** is available **online** at ***https://mbd.osu.edu/newsletter***.

Cover – Carolina wolf spider *(Hogna carolinensis)*, female. Photo courtesy of Richard Bradley

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

Mark your calendars for the 2015 Museum Open House

By Marymegan Daly

Lion fish, an invasive poisonous ocean fish. Photo from NOOA.

Double, double toil and trouble;
Fire burn, and caldron bubble.
Fillet of a fenny snake,
In the caldron boil and bake;
Eye of newt, and toe of frog,
Wool of bat, and tongue of dog,
Adder's fork, and blind-worm's sting,
Lizard's leg, and owlet's wing,—
For a charm of powerful trouble.
(Wm Shakespeare, Macbeth)

Shakespeare's recipe for the witches in Macbeth is fiction, but plants and animals are in fact the source and inspiration for the most potent poisons and medicines. The complexity of these chemicals is matched only by the complexity of behaviors, anatomies, and biologies that organisms have evolved to deploy these natural weapons. On **February 7, 2015,** join us at the **Museum of Biological Diversity's annual Open House** as we explore venoms, poisons, and the organisms that make them.☘

It's a great time for spiders!

By Richard Bradley

Ocrepeira ectypa *female (left);* ***Ocrepeira*** *web (right).*

Late summer and autumn are always a busy time for spider workers. Many large and conspicuous species are growing large enough to be noticed, and some are maturing and searching for mates. This activity provides the context for many requests for public programs on spiders. In addition it is the best time for conducting sampling for many, but not all, spider groups. Rich Bradley has been very busy this year, providing seven public spider programs, two live radio interviews; with two more programs on the schedule later this year. One particularly interesting event was a short course on spiders for the Edge of Appalachia Preserves from 19-21 September. The course was fully enrolled and the students were very enthusiastic.

We found a number of very interesting spiders on the field trips. They included a relatively rare chance to observe the

asterisk spider in her web. This species (*Ocrepeira ectypa*; formerly known as *Wixia ectypa*) is known for its unusual reduced "asterisk-shaped" orb web. The spider builds only a small silk hub, suspended from bare twigs as support by only a small number of radial lines. When foraging, the spider waits at the hub, evidently monitoring vibrations that arrive through the radial lines of the movement of potential prey along the twig supports. When a prey item is detected, the spider rushes from the hub to the twig and makes a capture. This is one of a number of species of orbweavers (Family Araneidae) that construct "reduced" webs. The captures made by *Ocrepeira* are unusual. Because the radial lines of the asterisk-shaped web are not sticky, the spider must leave the web and capture the prey by a wrapping attack. *Ocrepeira* employs the unusual method of wrapping the entire twig-and-prey with swathing layers of silk to immobilize the prey. Then the spider can safely approach, bite, and consume the prey.

One of the highlights of the field trip was the chance to conduct a search for a newly re-discovered species of Ohio spider, the Carolina wolf spider (*Hogna carolinensis*). The re-discovery of this species on an Edge-of-Appalachia reserve property earlier this autumn made big news in the Ohio media. The reason for the fuss is that this large burrowing wolf spider has been conspicuous by its absence during the 20 years of the Ohio Spider Survey, until now. The re-discovery after a long absence is all the more remarkable because the species was originally reported to be "Probably the commonest burrowing spider in Ohio" by William Barrows in his first published list of Ohio spiders in 1918. When I checked our collections after launching the Ohio Spider Survey in 1994 I found only a few specimens, the most recent one from 1963 in Marion, Ohio. Since then, sampling over 40,000 spiders, and yet nothing until now. The recent find was made by Laura and David Hughes, John Howard, and Jim MacCormac. They located and photographed a subadult male. Our field trip returned to the same site and we found four individuals, including one immature, presumably the same subadult male (in the same burrow) as well as an adult male and one adult female (see photos). This was quite exciting! It is likely that the species has survived in such isolated spots all along, but that these sites have not been searched for spiders. The Carolina wolf spider is a palm-sized monster, with a leg span that can exceed 3-4 inches.

*Carolina wolf spider (**Hogna carolinensis**), male.*

*Mite of the genus **Leptus**.*

An interesting mite find occurred on a small bio-blitz activity held on September 12-13 at a newly purchased property of the Delaware County Preservation Parks. During the event we documented a number of common spider species, and even a few rarely encountered ones. For me the highlight wasn't a spider at all, it was a large and beautiful mite. Hans Klompen and Cal Welbourn identified it as a member of the genus *Leptus* (Family Erythraeidae). *Photos courtesy of the author.*☘

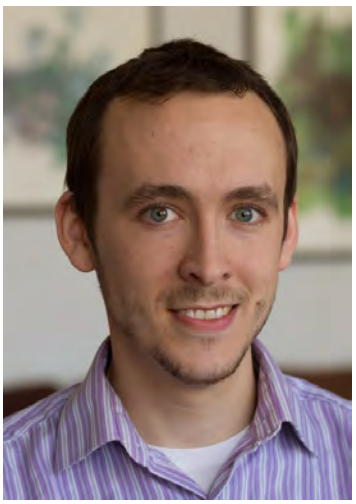
Graduate Student Awards

By John Freudenstein

Two PhD students working with **John Freudenstein** in the Herbarium have received major awards in the past few months. **Ryan Folk**, working on the systematics of *Heuchera* (Coral-bells), and **Brandon Sinn**, studying the Appalachian members of *Asarum* (Wild Ginger), were awarded National Science Foundation Doctoral Dissertation Improvement Grants. These awards allow students who are engaged in dissertation research to expand their studies to new levels or incorporate techniques that would not have been possible without this funding.

Ryan Folk also received the George R. Cooley Award at the Botany 2014 joint meeting of societies held July 26-30 in Boise, Idaho. This award is given by the American Society of Plant

Brandon Sinn



Ryan Folk

Taxonomists for the best oral presentation from an early career participant (up to 5 years post-PhD). Ryan's talk was entitled "Sky islands" in the eastern US? – Strong phylogeographic structure in the *Heuchera parviflora* group. Congratulations to Ryan and Brandon for these major accomplishments! *Photos courtesy of the author.*☘

Brown Creepers of the Forest

By Jennifer Kleinrichert, Environmental Educator at Inniswood Metro Gardens

Summer is a great time of year to get out and visit Columbus Metro Parks so every summer at Inniswood Metro Gardens we offer 8 weeks of programs geared for children 8 years and younger. On average we see close to 2,000 attendees! I taught about Brown Creepers and thanks to the Museum of Biological Diversity, the children had the opportunity to observe a brown creeper study skin, wings, feet and eggs. Having real specimens offers richness to the discovery process that photos alone cannot offer. We equip the children with magnifying lenses and microscopes when appropriate for detailed observation since it is likely they might not ever be this close to some of these animals or plants again.

A young admirer of the Brown Creeper listening intently. Specimen from Tetrapod Collection. Photo courtesy of the author.

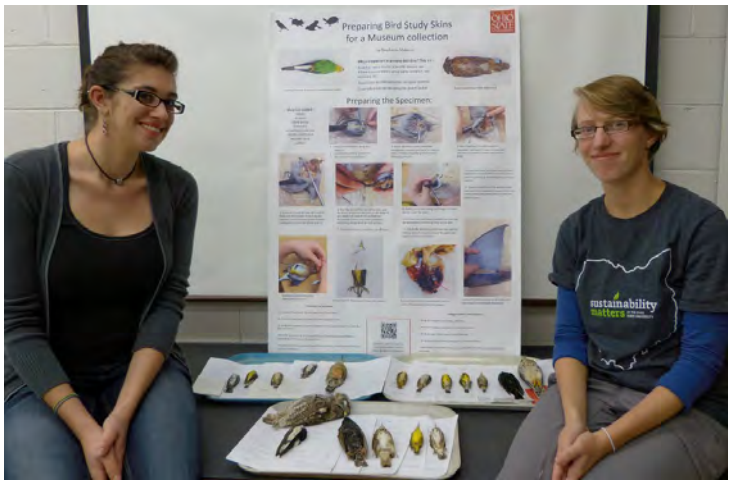
To engage the children during the program, two Inniswood volunteers sewed a child-sized brown creeper costume so I could turn a child into a bird while teaching not only what makes a bird a bird, but also what makes a brown creeper a brown creeper. We shared many laughs and giggles as our human quickly transformed into a bird and pondered why our human bird couldn't fly, even with all the bird body parts present. Following the program, children had the opportunity to explore the discovery station, fly and feed like a brown creeper, practice using real binoculars, make a bird mask, and plant an acorn to benefit brown creepers and other tree dwelling birds.☘

News & Updates

▪ **BORROR LABORATORY OF BIOACOUSTICS (BLB) & TETRAPOD DIVISION. Donation –** Dr. Arthur Borror, professor emeritus at the University of New Hampshire and son of Donald Borror, former OSU entomology professor and founder of the Borror Laboratory of Bioacoustics, donated 160 tapes with animal sound recordings that he has made over the years. We have started digitizing these recordings to add them to the sound archive. Included are recordings from Argentina, Antarctica, Belize, Canada, Ecuador, Germany, and several islands in the South Atlantic. As widespread as the locations are the species: Montezuma Oropendola, Great Tinamou, Wood Thrush (recorded in Belize!), Northern Gannet, Adelie Penguin, Magellanic Oystercatcher, to name a few. We expect to add quite a few new species to our collection!

Exhibit – Angelika Nelson represented the Borror Laboratory of Biaocoustics and the Tetrapod Collection at the **Natural History Day** at the Ohio History Center on November 1st, 9 am – noon. The Center is located at 800 E 17th Ave Columbus, Ohio. www.ohiohistory.org/museums/ohc.

People – Stephanie Malinich, who worked in the bird collection when she was an undergraduate assistant, is back to prepare bird study skins. Together with OSU undergraduate Rebecca Price (*right*), Stephanie is preparing many specimens from small wood warblers to large hawks .



Rebecca Price and Stephanie Malinich with bird specimens they recently prepared. Photo by Angelika Nelson.

Projects – "BioPresence" Bringing (Other) Animals into the Framework. In the last issue I reported about "BioPresence", a project to find out about (secret) animal life on the OSU campus (www.facebook.com/pages/BioPresence-Animalosu). Many people have now posted their sightings of animals on OSU campus on twitter twitter.com/AnimalOSU. How can you contribute? Whenever you observe an animal on campus – a fly, a beetle, a bird, a mammal ... every animal counts – take a photo, video clip, write a story, or find a story and post it somewhere online with the hashtag #AnimalOSU.

Visits to the Collections – Three drawing classes in the Department of Arts at OSU visited the Tetrapod Collection. **Alana Thomas**, graduate teaching assistant, and **Dani Leventhal**, Assistant Professor of Art, include drawing of natural history specimens in their syllabi of Art 2100 - Beginning Drawing Class, Art 4004 - Special Topics: Drawing, and Art 2504 - Life Studio Drawing 1. The students examined the objects attentively and the results were impressive. Read what **Dani Leventhal** says about their visit: "*On October 9 and 21 students from the drawing area of the OSU Art Department took field trips to the Museum of Biological Diversity to draw specimens from their collection. A giraffe brain in a jar, a taxidermy barn owl and stretched leopard skin were some of the subjects available for observational drawing. The Life Drawing class was beginning a project on "the human being in space" and it was important to begin looking at animal bodies instead of just human bodies (which we had been doing all semester). It was the beginning of thinking about the environment that we live in and whom we share it with. The Special Topics class was working on an homage drawing to nature, and the opportunity to draw the animals and bones and organs at the museum was a great launching pad for their research. The Art Department thanks Angelika Nelson for the opportunity to draw at the museum.*" (*A. Nelson*)☘

Studying the skeleton of a Brown Kiwi, Apteryx mantelli. Photo by Dani Leventhal.

A student's perspective of a duck specimen. Photo by Alana Thomas.

▪ **MOLLUSCS. Workshop –** In October the Division held a four day workshop on freshwater mussel identification, sampling methods, and permitting processes. The workshop, held at the Museum of Biological Diversity, was attended by twenty three paid participants from seven states, four Ohio State students, and Division staff members and volunteers. It consisted of two days of hands-on identification and a half day of guest speakers. Field trips were made to the Columbus Zoo and Aquarium Freshwater Mussel Research Facility and reintroduction sites on Big Darby Creek to see a demonstration of the use of Passive Integrated Transponders in monitoring endangered mussels. Additional field trips included behind-the-scenes tours of the Aquarium and Manatee exhibits at the Zoo and the Battelle-Darby Creek Nature Center.

Some of the workshop attendees at the Battelle-Darby Creek Nature Center.

Endangered Species Relocation – The Mollusc Division, in cooperation with the U.S. Fish and Wildlife Service, the Ohio Division of Wildlife, the Columbus Zoo and Aquarium, and Franklin County Metro Parks, continued its seven year effort to relocate the federally endangered Northern Riffleshell and Clubshell from the Allegheny River in Pennsylvania to Big Darby Creek in Ohio. To date, almost 12,000 individuals of the two species have been moved and tagged with Passive Integrated Transponders (PITs). This is the largest relocation of an endangered species in the history of the state. More information on this project is available on our report "*Reintroducing an Endangered Species to Ohio: The Northern Riffleshell*", in the Spring 2013 issue of the Museum Newsletter at go.osu.edu/MBDNewsletter_Spring2013.

Collecting muscles at the Allegheny River.

New People – We are happy to introduce Caitlin Byrne, the new **Collections Manager** for the Mollusc Division. Caitlin was born and raised in Columbus, Ohio and graduated from Bowling Green State University with a bachelor's degree in Biology. She loves the outdoors and spent many of her summers canoeing hundreds of miles exploring remote rivers and forests in the Canadian wilderness. Since 2011, Caitlin has worked on many different research and conservation projects with The Wilds and Columbus Zoo. Caitlin teamed up with Dr. Watters and other malacologists from OSU and the Columbus Zoo to develop a method to detect different mussel species using a technique called environmental DNA surveying. Caitlin's passion for aquatic ecosystems is the reason she choose to pursue conservation and she hopes to work with freshwater mussels and other imperiled aquatic species for many years to come! *Photos courtesy of G.T. Watters.* (*G.T. Watters*)☘

Caitlin Byrne, new Collections Manager.

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▪ **TRIPLEHORN INSECT COLLECTION.** The past three months, and October in particular, have been very busy for us at the Triplehorn Insect Collection. We hosted academic visitors and gave tours of the collection to private groups and Ohio State classes, we were featured on a newspaper article and on a blog post, and we submitted three grant proposals to the National Science Foundation, among other things. Here's a quick overview:

Gisele da Silva taking a break from work.

In the News – The insect collection was featured on the October 4th issue of the **Columbus Dispatch**. If you missed it you can read it online here: *go.osu.edu/digital_archive*. Still on "news": **Richard Levine**, Communications Program Manager for the Entomological Society of America and blogger behind the *EntomologyToday* website, visited us on October 17. Richard was in town for the annual meeting of the National Association of Science Writers, and was interested in featuring Ohio State entomology facilities on the blog. Coordinating Richard's visit was Dr. Carol Anelli, Professor and Associate Chair of the Department of Entomology. After visiting several entomology labs on campus, Richard stopped by the insect collection, where we gave him a tour of the facilities and talked about collections, curation, and taxonomic research. His blog post on the visit to Ohio State is available at *go.osu.edu/at_ESA_blog*.

Academic Visitors – Clayton Gonçalves, PhD student from the Federal University of Rio de Janeiro in Brazil, was our guest from September 8 to 25. He came here to study our rich leafhopper collection and had to work long hours every day to examined and illustrated all the specimens in his list. Clayton also determined a good amount of specimens from our unsorted material to species or genus. A second Brazilian PhD Student, **Gisele de Souza da Silva**, from the Federal University of Rio Grande do Sul, spent 10 days with us between October 28 and November 7, in preparation for an extended research visit next year. Gisele will study the genetic diversity of egg parasitoids in rice agro-ecosystems in southern Brazil. We look forward to seeing her again soon.


Clayton Gonçalves examining leafhopper specimens.

Dr. Gavin Svenson, from the Department of Invertebrate Zoology at the Cleveland Museum of Natural History, visited the collection on October 17. They were here to begin to formalize a collaboration that will result in the digitization of the invertebrate collection at the Cleveland Museum. Once the data are in our database they will be made available online to the general community.

We were also delighted to host **Dr. Nathan Lord**, Postdoctoral Associate at Brigham Young University, and beetle specialist, for a week of scientific collaboration and little brown beetle bonanza here at the Triplehorn Insect Collection (October 6-10). During the week Nathan found a few rare gems and added many new determinations to specimens from our unsorted beetle collection. He also gave an inspiring seminar on his research, his carrier as an entomologist, and his life-long passion for science and entomology. Much like his friend Gavin Svenson (see above), Nathan too will be using our database facilities to store and make specimen data available online. *See photos of Nathan's visit here: go.osu.edu/NathanLord*.


Girl Scouts make 'bugs in goo'.

TOURS OF THE COLLECTION – **Girl Scouts** came to visit! On October 7 we welcomed around 15 girls, first and second grade students from Worthington, plus the leaders of the troop, and a couple of parents. The girls were working on a badge about bugs, so they had lots of very good questions. We talked about the differences between "bugs" (common name for all arthropods) and insects, "good bugs" and "bad bugs", and what entomologists do. The girls also got to make their own "bugs in goo". It was a fun-filled afternoon! Later in the month, **Dr. Carol Anelli** brought her class (**Entomology 1101** Insect Biology for non-majors) for a tour of the collection. The class was divided into two groups, one came in around lunch time, the other later in the afternoon. *More photos of the tours and visits to the Triplehorn Insect Collection are also available here go.osu.edu/Fall14_Visitors*.

PEOPLE – A big welcome to new PhD Student **Katherine Nesheim**, who joined the Johnson lab this semester. Katherine comes to us from Cornell University where she received her undergraduate education in Entomology. She came to Ohio State to study the Systematics and Evolution of the Platygastroidea. Since August she's been hard at work, writing her research project, learning new techniques, and working as a teaching assistant in Integrative Biology. Welcome also to undergraduate intern **Katherine Beigel.** She is a Biology and Arts double major and she is interested in learning about micro- and macrophotography of insects. Katherine has been working with Elizabeth Alvarez on imaging and image techniques since early August.

This semester we said goodbye to two of our undergraduate curatorial assistants. First it was **Josh Gibson**: he graduated in the Summer (*Summa Cum Laude*, major in Entomology and minor in Mathematics) and before he could catch a breath he left Columbus to start his new life as a graduate student at the University of Illinois, Champaign. There are lucky to have him as a student! In early October we said goodbye to **Carina Thiemann**, who is graduating this semester. She left us earlier than expected so she could start the training program for a job position she landed months before she finished school! We miss Josh and Carina, but they sure did well for themselves and we are very proud of them. We wish them a wonderful life!

Happy birthday to **Chuck Triplehorn!** The professor emeritus in Entomology, beetle specialist, and long-time curator of the collection, celebrated his 87th birthday on October 27.

Dominical amber containing tiny parasitic wasp specimens that are around 25 million years old.

TRAVEL – Norman Johnson & Luciana Musetti were in Champaign, IL on October 20-21 to visit **Dr. Sam Heads** at the *Systematic Entomology and Insect Palaeontology Lab* (Prairie Research Institute, Illinois Natural History Survey). Sam and lab technician Jared Thomas are in the process of curating the massive Dominican amber collection owned by the Illinois Natural History Survey. The work will take several years to be completed, but they are already uncovering many interesting insect specimens, including some very dear to our hearts (hint: parasitoid wasps*, see photo above*). During our short stay we toured the facilities, examined some of the newly prepared specimens of parasitic wasps and other Hymenoptera, and established the beginnings of a collaboration with Sam to study the egg parasitoid wasps that are found in their Dominican amber collection. The guys were ultra-friendly and helpful. While there in Champaign we also had a chance to catch up with Josh Gibson, former undergrad assistant at the insect collection and now a grad student in the lab of Dr. Andy Suarez. Overall it was a great trip! *Photos by L. Musetti* (*L. Musetti*)☘

Seasonal Changes in Fishes

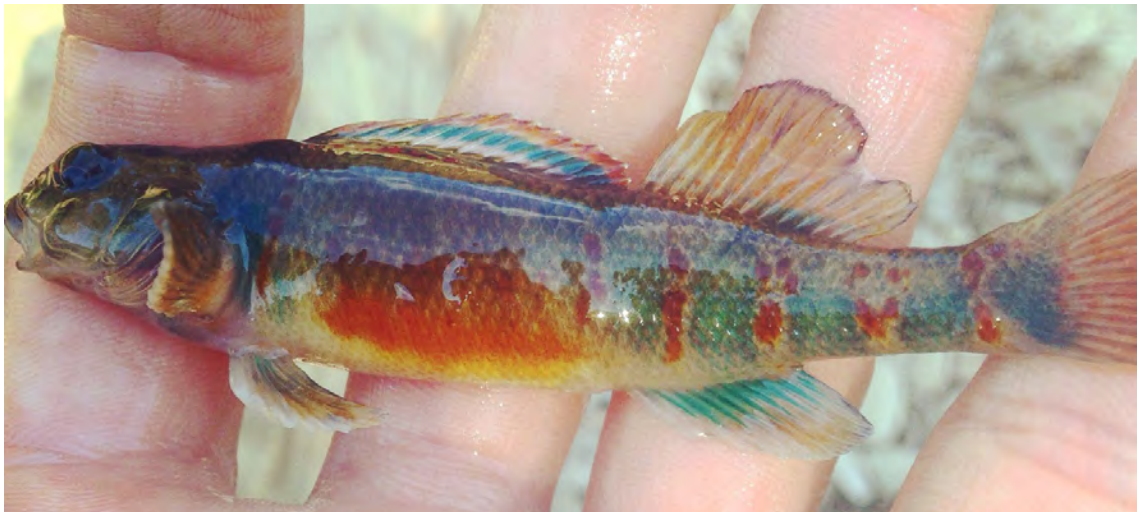
By Marc Kibbey

When an angler hears the words “fish” and “seasons”, the terms most frequently bring to mind the concept of managed periods when we are allowed to catch various gamefish species. Our own fish sampling crew changes their schedule to accommodate the seasons as well. After spending most of their time in the spring, summer and early autumn in the field catching fish with electroshockers, seines and trawls, they have moved inside with the onset of colder temperatures to process their fish vouchers and records. But when one applies the terms to fish physiology, a world of wonder arises. As tetrapods the world we can observe on a daily basis provides a kaleidoscope of colors that change with the seasons; particularly the leaves on the trees and bushes, also the fur of certain mammals takes on hues to correspond to the surroundings in concert with temperature and light

Brian Zimmerman, Jamie Russell, and Jared Burson. Photo OEPA's Brian Alsdorf.

changes. When we use fishing poles, nets, or even cameras for the divers and snorkelers, to sample the fauna in streams and lakes a hidden world of change comes to light. Although the colors have now faded, many fish species undergo color changes to varying degrees, particularly the males, with some exhibiting astoundingly brilliant hues in the spring. For the fishes these colors are associated with reproductive development. Females in the fish world, similar to birds and mammals, often select the most flamboyantly colored mates: the most colorful males are often the largest and most vigorous.

Many species of darters develop the most striking reds, blues, oranges and greens during spawning condition that then fade through the summer and fall (*below)*). These changes are accompanied by gonad growth and regression, as well as an increase in feeding to fuel development of the reproductive organs, which change corresponds to the spring hatch of other aquatic organisms.



Variegate darter, showing amazing colors. Photo by Jared Burson.

Another aspect associated with seasonal succesion that anglers become familiar with is that of fish behavior. Since they are cold blooded and don't produce their own heat most fish species move to accommodate temperature changes. Anglers adjust to follow walleye and bass when they move to deeper areas to avoid the temperature and oxygen fluctuations present in shallower waters. Minnows and sunfishes in streams congregate in deeper pools in the winter to accommodate their diminished metabolic rates and corresponding activity. For the most part they lay on the bottom or swim slowly, eating smaller fish or the few other organisms within their refuge while exerting the least amount of energy possible. Most other fish species follow the same pattern, but a very few other species move into the shallower freshwaters in the winter. The burbot (the only freshwater species of the cod family) actually moves into shallow waters of the lakes and upstream in rivers to spawn in the winter under ice, then they move back to deeper, colder waters in late spring.

Since Ohio lacks connections to marine environments we don't get to experience some of the amazing spawning migrations, at least not to the same extent; that are part of the life history of several marine fish species. One such lesser known such species (that also has a less impressive albeit interesting migration) is the flounder (*right*). Populations of the Winter flounder migrate inshore from outer shelf areas in the Atlantic Ocean to shallower waters and estuaries in late fall and early winter. Spawning takes place in these shallow areas during late winter and early spring, whereupon the adults move back to deeper waters. In the case of some populations of the European flounder migration actually consists of a movement into rivers and associated lakes to spawn, followed by the Spring migration back to the ocean. Some of the better known and more visible migrations from coastal marine waters occur in the spring with Freshwater eels, American shad, Striped bass, and Atlantic salmon, but spawning runs from Lake Erie upstream are part of the life history of Walleye and Rainbow trout, and thus also part of the annual seasonal motivation for anglers to take advantage of those runs.☘

European flounder. Photo by Bj.schoenmakers.

Recent Publications

Hale, J. A., D. A. Nelson, and J. K. Augustine. 2014. Are vocal signals used to recognize individuals during male-male competition in greater prairie-chickens (*Tympanuchus cupido*)? **Behav. Ecol. Sociobiol.** 68: 1441-1449.

Nelson, DA & Poesel, A (2014) Tutor choice and imitation accuracy during song learning in a wild population of the Puget Sound white-crowned sparrow. **Behav. Ecol. Sociobiol.** 68: 1741-1752.

Roznere, I., Watters, G.T., Wolfe, B.A. & M. Daly. 2014. Nontargeted metabolomics reveals biochemical pathways altered in response to captivity and food limitation in the freshwater mussel *Amblema plicata*. **Comparative Biochemistry and Physiology, Part D**, 12: 53-60.

Watters, G.T. 2014. A preliminary review of the Annulariidae (Gastropoda: Littorinoidea) of the Lesser Antilles. **Nautilus** 128: 65-90.

Watters, G.T. 2014. A revision of the Annulariidae of Central America (Gastropoda: Littorinoidea). **Zootaxa** 3878: 301–350.

Watters, G.T. & J. Coltro. 2014. First record of the invasive freshwater mussel *Sinanodonta woodiana* (Lea, 1834) in Guatemala. **Ellipsaria** 16(3): 11-12.

Recent Presentations

Watters, G.T. 2014. A review of the Annulariidae of Central America. Ohio Valley Unified Malacologists, University of Cincinnati.

Watters, G.T. 2014. Restoring an endangered freshwater mussel to Ohio, or, the bitch is back. Ohio Valley Unified Malacologists, University of Cincinnati.

Watters, G.T. 2014. Restoring endangered freshwater mussels to Ohio. Cleveland Museum of Natural History Conservation Symposium.

Division of Molluscs staff. 2014. Freshwater mussel demonstration, Darby Day. Indian Ridge Metro Park.

Fellowships & Current Grants

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, current record of freshwater fish distributions in Ohio, which will be used to help direct future research and management efforts. $153, 100. 2013-2014.

OSU Herbarium. "National Science Foundation, "Digitization TCN Collaborative Research: North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change". Collaborative with multiple PIs. Total funding: $4,198,841. 2011-2015.

Nelson, A. "Arts and Sciences Staff Professional Development Grant". The Ohio State University. $425. 2014-2015.

Youngs, A. co-PIs: Gehrt ST, Hawkins T, Lewis M, Livingston R, Nelson A, Rinaldo K. "BioPresence: Bringing (Other) Animals into the Framework". OSU framework grant. $9,940. May 1, 2014 – April 30, 2015 .☘

Identifying an unknown seed.

By Mesfin Tadesse

The Ohio State University Herbarium periodically receives requests to identify or provide scientific names of specimens, seeds, crumpled up leaves, plants from pictures, etc. One of these included seeds and crumpled up leaves that were sent from Texas and which were reportedly applied in the treatment of injured or bruised body parts and even cancer-related internal injuries by herbalists. We were able to identify one of the plants by growing the seeds at the OSU green house. However, the other plants could not be identified due to the nature of the preservation of the leaves and the associated parts, mostly crushed and in pieces. One of the plants that was grown from seeds is shown below and is identified to be Indian Sweet Clover (*Melilotus indica* L.), a leguminous plant, originally known from India and widespread in Asia and northern Africa. It is naturalized in the rest of the world, usually introduced as a source of nectar for bees and as a soil fertilizer. In the US, it is known from Arizona, Louisiana, Mississippi, New Mexico and Texas. The author thanks Emily Yoders-Horn and Joan Leonard of the Biological Sciences Greenhouse for help in growing and maintaining the seedlings until harvest. *Photos by the author.*☘

Indian Sweet Clover (Melilotus indica L.) in the greenhouse.

Join us for the 2015 Museum Open House

Saturday, February 7, 2015.

Heartfelt thanks to all our contributors!

Frequent Contributors: (alphabetical order, by last name)

- Marc Kibbey, Associate Curator, Fish Division
- Luciana Musetti, Curator, Triplehorn Insect Collection
- Angelika Nelson, Curator, Borror Lab & Tetrapod Division
- Mesfin Tadesse, Curator, Herbarium
- G. Tom Watters, Curator, Division of Molluscs

Other contributors in this issue: (alphabetical order, by last name)

- Richard Bradley, EEOB, Emeritus Professor, Acarology Lab & Spider Collection
- Marymegan Daly, EEOB, Associate Professor, Fish Division
- John Freudenstein, EEOB, Professor, Herbarium.
- Jennifer Kleinrichert, Environmental Educator, Inniswood Metro Gardens

Open House Volunteer T-Shirt History (2006 to 2014)

Next issue of the MBDNewsletter:

All about the 2015 Museum Open House! (and the new t-shirt!)

Coming up Spring 2015

We greatly enjoy hearing from our readers!

Please send your feedback to the Editor at *osuc-curator@osu.edu*

Please consider giving to the Museum of Biological Diversity at Ohio State.

Your gift will help support **community outreach activities** such as the Museum Open House, the **training of undergraduate and graduate students**, and the **long-term preservation of our collections**. To join our community of supporters, please visit *go.osu.edu/giveMBD* and search for one of the funds listed below by number. Or call Samara Preisler, Associate Director of Development (*preisler.7@osu.edu*), (614) 292-6059.

Funds Associated with the Museum of Biological Diversity:

- **George and Mildred Wharton Endowment for Acarology Fund** (**607675**): Supports the Acarology Laboratory.
- **The Hoogstraal Memorial Acarology Student Fund** (**603280**): Supports Acarology students at the OSU Acarology Summer Program.
- **Donald J. Borror Fund for Bioacoustical Studies** (**600654**): Supports bioacoustical research, teaching and service programs.
- **D.J. and J.N. Knull Fund in Entomology** (**603756**): Supports systematic Entomology research and curatorial work in Entomology.
- **The Josef N. Knull Memorial Fund in Entomology** (**603759**): Supports systematic Entomology research and curatorial work in Entomology.
- **Friends of the C.A. Triplehorn Insect Collection Fund** (**314967**): Supports outreach, education, and curation at the Triplehorn Insect Collection.
- **The Ichthyology Research Endowment Fund** (**603357**): Supports research and publication in the Fish Collection.
- **Friends of the Herbarium Fund** (**305104**): Support the activities of the Herbarium.
- **The David H. Stansbery Bivalves Endowment Fund** (**606910**): For the enrichment and maintenance of the Bivalve Mollusc Collection, including expeditions, purchase of collections, and related expenses.
- **The Museum of Zoology Fund** (**607989**): Supports expeditions, purchase of collections and related expenses of the Museum of Zoology.
- **Tetrapod Collection Support Fund** (**314614**): Supports students, specimen acquisition and maintenance in the Tetrapod collection.

Mission

The **Museum of Biological Diversity at The Ohio State University** houses all the university's biological collections, except fossils. We are part of the Department of Evolution, Ecology and Organismal Biology in the College of Arts and Sciences.

We are dedicated to the ***Preservation***, ***Documentation***, ***Scientific Study*** and ***Interpretation*** of the biological diversity of Ohio, the nation and the world.

We fulfill that mission by:

- building and maintaining extensive collections of specimens and information for future generations;
- creating and disseminating knowledge on evolution and biological diversity through the publication of cutting-edge collections-based research, books, online databases and websites;
- providing service to the broader scientific community through loans of specimens to qualified users for study and identification;
- training the next generation of biodiversity scientists.

The Ohio State University | College of Arts and Sciences | Department of Evolution, Ecology and Organismal Biology

Museum of Biological Diversity

Acarology Laboratory
www.biosci.ohio-state.edu/~acarolog/collection

Borror Laboratory of Bioacoustics
blb.osu.edu

Fish Division
www.biosci.ohio-state.edu/~paleoich

Herbarium
herbarium.osu.edu

Mollusc Division
www.biosci.ohio-state.edu/~molluscs/OSUM2

Tetrapod Division
tetrapods.osu.edu

Triplehorn Insect Collection
insects.osu.edu

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THE OHIO STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES