



The Glowworm

Campers thrive in the intensity of experience and opportunity to pursue their interest in Bug & Plant Camp, metamorphosing into entomologist before our eyes! ~J. Guyton



Volume XXII No. 4

July–August 2015

An Extension Newsletter of the Dept. of Biochemistry, Molecular Biology, Entomology, & Plant Pathology

Bug & Plant Camp 2015 is in the Record Book by Dr. John Guyton



The 29th Bug & Plant Camp in 22 years was a resounding success! This is our most anticipated and exciting event of the year. Registration began in November and planning commenced in January, starting with the agenda. By March we were checking the number of spreading boards, collecting jars, pins, etc. to make sure we had adequate supplies. This year we had 26 campers from 5 states including Mississippi (14), Georgia (6), Iowa (1), Tennessee (3) California (1) and Panama (1). We also enjoyed having Dr. Rebecca Baldwin from the University of Florida and Dr. Andrine Shufran from Oklahoma State University on our camp staff. We experiment with new things every year and this year we found a keeper. We invited parents and campers that arrived before camp to join us for a cookout in the Clay Lyle Pollinator Garden Saturday evening. Relaxing with campers and their parents before camp proved an enjoyable way to start the week!

Lois Connington and Peggy Guyton are closely guarded camp secrets. Peggy, our most prolific unpaid volunteer, has been assisting with camp for so long she has camp routines ingrained in her annual agenda! Registering campers, working with housing on dorm assignments, cooking

insects, washing igloos, sheets and nets, helping check out lights, and dozens of other tasks occupy her months before camp. Lois, as curator of our Arthropod Zoo and the principle caretaker of our pollinator garden, also worked almost round-the-clock to make sure everything is deadheaded, fed and watered and in perfect shape for our most exciting and enjoyable event of the year. By using refrigeration to manipulate the emergence of painted lady butterflies her timing was perfect to have an active colony when camp started. As campers arrived she was checking on the other arthropods and wiping down the cages!

Our partnership with the Sam D. Hamilton Noxubee National Wildlife Refuge enables us to have an outstanding place to introduce people to the study of arthropods and this year Project Leader Dr. Steve Reagan fielded a huge number of questions from campers about the function and operation of refuges.

Our faculty, students and staff are our most valuable assets. Sherry McMullins and Marie Jefferies take care of financial matters; Melanie Chesser orders and tracks purchases; we enjoyed collecting on Dr. John Schneider's farm this year, Extension agents, when available, drive the vans and serve as dorm parents while learning enough about entomology to answer questions in their counties and lead youth entomology activities. We were glad to have Ross Overstreet for a couple days this year. Janet Chapman the northeast Mississippi basin manager from the Mississippi Department of Environmental Quality was back to lead our aquatic insect collecting. Amanda Lawrence with the Institute for Imaging and Analytical Technologies (I²AT) makes camp so much more exciting with her introduction to insect diseases and access to electron microscopes, including the scanning electron microscope she allows us to bring upstairs and use in our lab during camp. Clarissa Balbalian covered plant diseases and botany. Drs. Goddard, Krishnan, Harris, Layton, and Department Head Dr. Jeff Dean helped with many tasks! Our graduate students and volunteers perform a wide range of services from loading and unloading equipment to instructing. Dr. Daniel Flemming, as in the past, jumped in and solved unexpected problems! Medical entomology graduate student Santos Portugal was also there for us and is always ready to give us a hand. Of note, he set up the forensic lab, when colleagues unexpectedly homesteaded our forensic cages! New MSU graduate student and camper Matthew Thorn was great help this year with evening collecting trips and even teaching micro-moth pinning! Our custodial staff are patient with us and tip-toed around the bugs and piles of equipment while doing an outstanding job keeping things in tip top shape! The faculty have been a powerful factor in camps since the beginning and remain a significant element in its success and credibility.



Breanna enjoying a giant lichen orb weaver or nature's "Yo-Yo" collected by Aaron Grissom on the SDH NNWR



Mississippi State University
Extension Service

Every year we have staff that rise to the occasion and this year was no exception. Breanna Lyle was incredible and she was ever-ready to get things done. Not only did she assist in loading and transport nets, lights, extension cords, spreading boards, jars, etc. She helped set up for camp, she drove a van, helped serve meals, worked as camp taxonomist, lead the forensic lab and closed the days out as dorm counselor! Just before camp when we noticed our butterfly tent's top was in terrible shape she and Peggy spent a day replacing it, stitch by stitch! Breanna brought the Linnaean Games back to camp this year and

she was actively taking notes and writing questions during sessions, when not otherwise engaged. The spirit of Bug and Plant camp lives in her veins!

The 2015 Bug and Plant Campers continued the enjoyable tradition of older campers just jumping in and doing things! Not only is their enjoyment of camp and spirit of cooperation infectious they know what comes next, and make it happen. Brady Dunnaway and Aaron Grissom stepped into staff roles and one of the most exciting things to observe during an intergenerational camp is watching younger campers telling older newer campers things they have learned about arthropods, sharing where to find various insects and how to pin. They are metamorphosing into entomologist before our eyes. Drs. Lelia Kelly, Mike Williams, Jeff Harris, the camp faculty and staff and I are already looking forward to camping season 2016! We may even offer a day camp for youngsters!

BugFest at the MSU Crosby Arboretum, Picayune, MS

BugFest this year will be **September 18 and 19th**. We will work with school groups during the day Friday. Friday evening we will turn on the blacklights to see what is flying and crawling in the dark. As always we welcome and campers' participation and that makes this an exciting event. We will be bringing arthropods and materials for doing a variety of programs. Dr. Harris will be with us so we will have a strong beekeeping focus. I think we will have a Monarch Talk.

Campers, if you can join us and you have an idea of something you wish to teach, email or call me and let's discuss it. We can probably make it work. If you need props or specific arthropods we will bring them with us. Extension Agents are always welcome.

Plans are to sleep on the floor of the visitors' center so bring a sleeping bag, air mattress, and pillow. The Arthropod Adventures team from campus will be headed down Thursday afternoon.

WE WORK IN AN INCREDIBLE PLACE

Is Interest in Arthropods Genetic, or Do Bugs just Swim in Some Families' Veins? by John Guyton

Lyles Meet in Clay Lyle Entomology Complex

Breanna Lyle has known her entire life she wanted to be an entomologist. And, she knew she was at home during her first Bug and Plant Camp. She is working on a degree in biology but spends most of her spare time working and volunteering in our department. Breanna must have been asked a thousand times if she was kin to the Clay Lyle, for whom our building is named, and she confessed she really did not know.



It was almost predictable that when members of the Clay Lyle family, came by while reflecting on the Clay Lyle legacy that Breanna would be in the lobby working on an exhibit for our arthropod zoo. As is common when people that share a surname meet, the visiting Lyles were curious about where Breanna's family were from. When they discovered both Lyle families were from Georgia one of the Georgia cousins commented that Breanna looked like one of their "other" cousins. And then there is that entomology thing that seems to run in some families, like the Lyles. In the photo Dr. Richard Brown and Breanna pose with the Lyle family.

Entomology Seems to Run in Some Families During a recent visit Dr. Charles Bryson mentioned that as an undergraduate student in entomology he discovered a Cerambycid or long-horned beetle in the museum that had been collected by his grandfather. When he asked his grandfather, John Rives Crumpton, about it he learned he had been collected in 1917 as a student in this department when MSU was A&M College. His grandfather went on to describe how they made

spreading boards in cigar boxes. They cut strips of pith from corn stalks, sized with a sharp knife, and glued into place.

Dr. Bryson was accompanied by his grandson, Michael Rives Bryson, who is interested in insects so this was just too good an opportunity, if we could find that beetle! It did not take museum curator Terry Schiefer long to find Crumpton's beetle in the museum featuring well over a million specimens. In the picture entomologist Bryson shows his grandson Michael Rives Bryson his great great grandfather's Ceranbycid. Michael already looks like an entomologist, don't you think? It won't be long until he is Bug and Plant camper age and I bet we can get his grandfather to join our camp staff!



BUG CLUB ACTIVITIES:

Enter the 4-H Entomology Art Exhibition and Photo Salon!

Submission Deadline for 2015 4-H Entomology Art Exhibition and Photo Salon - October 15

The 2015 4-H Entomology Art Exhibition and Photo Salon will be held during the Mississippi Entomological Association Meeting, October 19–20. Please review the following contest details closely, as the rules have been revised. All entries must be received by Wednesday, October 15, 2015. The guidelines can be found in the September 2014 Gloworm in the Archives: <http://msucares.com/newsletters/pests/gloworm/index.html>.

Get your Insect Collection Ready for the State Fair

We have had very few 4-H insect collections submitted to the state fair lately and their quality has left something to be desired. We are currently seeing a lot of old insects and you have time to add new insects. I saw insects in 8 orders over the weekend. We have insect boxes (\$35) and pins (\$6/pack of 100) if you need them. Camper's collections tend to win!

Bug and Plant Camper Christopher Perry is a Student in our Department and is Being Trained as an Arthropod Zoo Tour Guide by Dr. John Guyton

We are excited to welcome Bug and Plant Camper Christopher Perry to the Bulldog family! And that is not all, he is stating a degree in our department! Christopher's father, Dave, is a Bulldog and was pleased that one of his twins decided to come to MSU. Christopher's brother Matthew, also a Camper, will be attending college in Georgia on his way to becoming a biology teacher.

Guyton's Tao involves providing training for new college students, who have participated in our camping program, that they can begin using immediately. This serves several functions including providing an academic home, encouraging responsibility and a volunteer job where they can share their knowledge with their peers and others. Training begins with learning to conduct tours and goes on to include husbandry, collecting new species and learning to care for them and raising plants to sustain the arthropods. Guides are trained to rear butterflies and assist in rearing butterflies for our zoo.

Camper Matthew Thorn Begins Graduate School in Entomology at MSU! by Dr. John Guyton

Recently we have enjoyed watching a camper per year start college intent on going into entomology, and a camper per year starting graduate school in entomology. It is especially enjoyable when one enters graduate school in our department. Matthew had a lot of interests and options and his love of nature was in part responsible for his decision to accept a position in a forest entomology masters program under Dr. John Riggins.

About eight years ago Dr. Richard Brown and I were in the lab talking while the campers were at dinner when he, examining Matthew's collection on the table beside him, complimented Matthew's collection and his attention to details when pinning. We have been watching Matthew's interest in entomology grow and he is currently working for Dr. Brown in the museum. This past year his undergraduate research poster won the president's award at ESA and he received the Plant Insect Ecosystem's Outstanding Undergraduate Award.

WHAT IS NEW AT THE ARTHROPOD ZOO?

***Beetles, Doodlebugs and Scorpions are Always Popular* by Dr. John Guyton**

Ada Fulgham's beetles, featured in the last Gloworm, are doing well, and by now regular readers will realize we featured the adult beetles in our 2015 camp logo. This picture includes three that quickly devoured a slice of banana leaving only a ring! The hard to see one is under the largest beetle on the left. They spend a lot of time underground and appear to "swim" through the soil as easy as we swim under water. The spots on their wings are useful in identification like our fingerprints.

We are enjoying a "colony" of doodlebugs, or antlions, in the Arthropod Zoo. We were looking for something a little unusual for camp and this certainly was the perfect solution! They were contributed by Dr. John Schneider, from his barn where they have an established colony. They seem to enjoy the fire ants we are feeding them, but it is hard to find volunteers to collect the ants! We have also noticed "doodles" or their footprints the sand where they have ventured out and roamed around during the evenings.

While Breanna was feeding the arthropods last week she went looking for one of our centipedes that she had not seen recently. When she turned over a patch of moss she was delighted to find our centipede with eggs!

***Entomophagy as an Example in an Introduction to Cultural Entomology and Ethnoentomology* by Dr. John Guyton**

The talks at Bug and Plant Camp including Medical Entomology, Integrated Pest Management, Forensic Entomology, Insect and Plant Diseases, Veterinary Entomology and Insect Physiology are all focused on science, survival or economic entomology and all reflect the academic nature of our department.

Human interactions with arthropods has inspired a flood of creative juices in art, music, religion, and literature including poetry, songs, legends, stories, etc. and these fall within the realm of **cultural** entomology. Systematic observations and even analytical tools are often used with cultural entomology.

Ethnoentomology, on the other hand, is the study of another human-insect interactions involving humans' use of insects and other arthropods. The use of arthropods in medicine or for essential nutrition are examples.



Entomophagy, or eating insects, can be an example of cultural entomology and/or ethnoentomology. Eating insects as a principle source of nutrition for a population is about survival and therefore an example of ethnoentomology. When we serve insects at Bug and Plant Camp or BugFest as a novelty or festival food, and primarily for amusement, it is an example of cultural entomology. It can also, incidentally, be considered an introduction to “the world’s cuisine” since it is common worldwide and an example of ethnoentomology. If we are conducting experiments, such as a taste test, that too would be cultural entomology.

Campers From the Past Return to Camp

It is always enjoyable to have former campers drop in for a few days of camp. This year we had two. Nicki Miyazaki, former Camper



(in blue) and her son Shin, who was busy looking at aquatic insects, spent an enjoyable few days with us.

Max Miller also was enjoyable to have around during camp and jumped in and helped in many activities. He even joined a Linnaean games team that needed another member (Max on right in picture to the left).



It is amazing what, and how much, campers retain and how they are using it years after camp. Nicki has helped in county extension programs and we may not be through with Max yet! Campers are always welcome to drop in, and if we know you are coming it would be fun to talk before camp. If you had a favorite camp activity we might be able to bring it back. Maybe Dr. Mike and I have periodically discussed having a reunion! What do you think? Let me know or start a discussion on the Gloworm Facebook page.

Drs. Baldwin and Shufran Came to Camp and Went Right to Work!

By Dr. John Guyton, *Chair-elect of the ESA's Education and Outreach Committee*

Dr. Andrine Shufran, past Chair of the Entomology Society of America's Education and Outreach Committee, is Coordinator of the Oklahoma State University Insect Adventure and an Associate Extension Specialist. Her job at the Insect Adventure involves husbandry of numerous arthropod species, supervising student entomologists, maintaining USDA quarantine regulations, overseeing improvements to the facility, and providing more than 200 educational programs on arthropods, annually to children of all ages throughout the state.



Dr. Rebecca Baldwin, current Chair of ESA's Education and Outreach Committee, is the Undergraduate Coordinator in the Entomology and Nematology Dept. at the University of Florida and is 20% Extension 80% teaching. Her responsibilities include developing manuals, extension material, newsletters, presentations and reports for IPM programs. She also leads education and training programs for IPM, maintains the School IPM National Website, and co-leads the school IPM statewide expansion.



Drs. Baldwin and Shufran were right at home and went straight to work. It was like an entomological dance where everyone knew the steps. They began talking about coming to camp over a year ago and saving some days in their busy schedules. At first, I was skeptical that everything would work out but the closer we got to camp the greater my realization that they were coming! They stepped in and went to work leading sessions, answered questions, and enjoyed discussions with campers and colleagues alike. It is really enjoyable to work with colleagues with

common experiences, who enjoy working with youth and others who share our interest in insects and other arthropods. They particularly enjoyed their conversations with so many campers with extensive backgrounds in entomology!

STEMbugs: The 2015 Entomological Foundation's Educator Workshop

The Entomological Foundation is hosting an Educator's Workshop in conjunction with the ESA Annual Meeting. For a *very* nominal fee of just \$10, educators will be provided with Six 1-hour educational sessions on using insects in the classroom and hands-on learning projects (all participants can choose two).

- A certificate of attendance that shows 4 CEU hours of education
- Free boxed lunch with a lunchtime learning session on climate change and the monarch butterfly.
- A parking voucher to validate your parking at the Minneapolis Convention Center on the day of the workshop.
- Excellent guidance on taking your "lessons learned" back to the classroom and into the hands of your children.



Educational Sessions

Applying today's science lessons to the classroom (all ages), by Dr. Tom Turpin, Purdue Univ.

What can you learn about insects from Jell-O? (target grades 1-6), by Dr. Tanja McKay, AR State

Entomology curriculum resources for your classroom (target grades 1-6), by Dr. Andrine Shufan, OK State Univ.

Pollination Station: The way of the hive (target grades 6-8), by Dr. Rebecca Baldwin, Univ. of FL

It's Alive! Using live insects in the classroom (target grades 6-8), by Dr. John Guyton, MS State Univ.

What's in your yard? Exploring backyard fauna and flora (target grades 9-12), by Dr. Marianne Shockley, Univ. of GA

Citizen science: Beneficial insects (target grades 9-12), by Dr. Doug Golick, Ms. Erin Ingram, and Mr. TJ Prochaska (ESA's Student & Early Professional Committee)

Editor's note: I realize this is not an option for most teachers and readers of *The Gloworm*. however, we do have a number of readers in the Minneapolis area. I am looking forward to assisting with this event for the first time!

Insect Added to "Diseased Insect Collection" by Camper by Dr. John Guyton

Our Insect Disease Specialist is always looking for new examples of diseased insects and this year camper Corran Hall found one. Amanda Lawrence, or "Dr. Bug" as she is often called, teaches the insect diseases session during Bug and Plant Camp and was delighted to receive an example of the fungus *Harmonia axyridis* on a ladybug that she did not have in her collection! Go Corran!



Bug & Plant Camp Photos by Dr. John Guyton





For those who receive a hard copy of *The Gloworm*, the photos in the archives are in color.

Visit *The Gloworm* archives at <http://msucares.com/newsletters/pests/gloworm/index.html>.



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