



The Gloworm

*My Christmas wish is that you find a fine bug
or two in your Christmas stockings!*

—Dr. John



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The Biochemistry, Molecular Biology, Entomology, & Plant Pathology Department Extension Newsletter

October - December 2018

Christmas Holiday Activities

Start a Christmas Tree Arthropod Collection. Visit different tree vendors and inspect their trees. Many trees today have been treated so find out and record what they used and look it up.

You can add to this collection every year. Use the location where the tree was harvested for the locator label. You may find: aphids, praying mantis oothecas, bark beetles, spiders, mites, pine needle scale, sawflies, adelgids (white blobs on stems), lady bug beetle larvae (they will be dining on other pests!), of course bag worms, and more.

A non-insect but fun activity - Take your younger brothers and sisters on a winter night hike. Take a bag of wintergreen lifesavers (must use the sugar variety). In a dark place turn off your flashlights, give each a lifesaver and have them watch in each other's mouth as they crunch it. Watch for the beautiful blue sparks. The sparks come from the binding energy in the sugar crystals and is colored blue by the wintergreen oil. Enjoy!

Camp Registration is Now Open

ALERT - Camp Will Fill Very Fast Again This Year!

Many campers have already contacted us wanting to know when registration will open and the parents of campers who did not get in last year are already contacting us ready to sign up. This is the newsletter in which we first publicly announce the dates and publish the required forms. We do this before the Christmas holidays since many parents and grandparents give young entomologists a trip to camp as Christmas presents.

Over the years we have enjoyed watching many campers grow into incredible entomologists. It is fun to meet people at the Entomological Society of America's (ESA) conference who have former campers studying at their universities, and bumping into campers we did not expect to see at ESA is always an exciting and enjoyable reunion.

We are already working on the agenda and have at least two activities we have not used in 3 to 4 years and two new ones. Aquatics got rained out last year so it is back on the agenda. Would you enjoy being trained as a Bug Chef?

Important

Extension Agents and Entomologists

We are looking for camp staff for 2019 summer's camp. Responsibilities could include teaching an entomological skill, driving a van, chaperoning the dorm, assisting with meals or other. We hope participating Extension agents and other volunteers will learn 4-H entomological skills including pinning and collecting and participate in all sessions and activities. We have also enjoyed having entomologists from many other universities participate and they have even conducted Bug & Plant Camp at other universities! Meals and lodging are also covered for staff. Call or email Dr. John.



Peggy & John Guyton make Gingerbread Houses each Christmas for charities and special individuals. This buggy house will go to an individual who has helped with Bug & Plant Camps over several years.

The Christmas Spider by Breanna Lyle

It was Christmas Eve. The small house had been thoroughly cleaned, and the tree had been decorated. The children were nestled into bed, and were dreaming of the exciting morning that was to come. Even the little spider that lived in the house had moved to the attic so that everything would be just right when Santa Claus arrived to bring the children their presents.

The light from the fireplace was casting a beautiful glow on the room, and the spider was sitting quietly in the attic. Before long, he heard the sounds of the adults turning in for the night. He peered through the attic floor, but couldn't see the tree very well. Spiders have very poor eyesight, despite their many eyes. Oh, but the spider wanted to see the beautiful Christmas tree. He had never seen one before, and it seemed so beautiful.

He decided, after much thought, that he would go down and take a quick look. It wouldn't take long, and he'd be really careful. No one would ever even know he was there. Without making a sound, the small spider scuttled through a crack in the floor, and dropped down on his web next to the tree. Sure enough, the tree was as beautiful as he had imagined that it would be. Delicate ornaments hung from every branch, reflecting the light of the fireplace.

He wandered all over, looking at everything. He turned, ready to go back to the attic, when he noticed that the tree was covered with webs. He hadn't realized it, but as he was walking around he had been laying down a drag line. A drag line is a piece of web that spiders use to ensure that they won't fall down and get hurt.

The little spider was devastated. He sat there trying to figure out a way to fix the tree when a noise came from the chimney. The spider turned around and saw the form of Santa Claus standing next to the tree. The spider started crying. The tree had been so beautiful, and now Santa was seeing it covered with webs. The little spider thought that now the whole night was ruined.

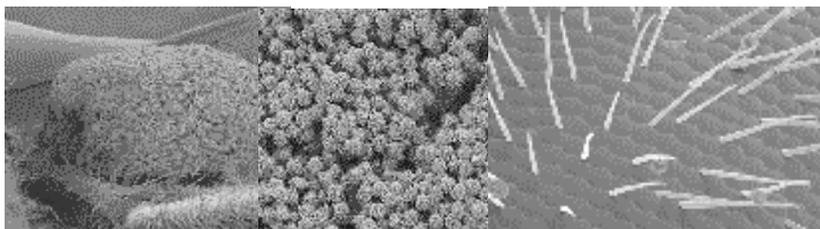
To his surprise, though, Santa didn't look upset at all seeing the webs left by the little spider. He smiled and asked the spider, "What's wrong, little one? Why do you seem so sad?" to which the spider replied, "I wanted to see the beautiful Christmas tree, but I ruined it with my webs. I'm sad because I ruined it." Santa laughed. With a wink, and a little magic, he touched the web left by the little spider. A light grew from the web, and it turned a lovely silver color. Instead of ruining the tree, or hiding its beauty, the webs now made it even more beautiful!

From that night on, the little spider found a new passion, using his webs to make the Christmas trees even more beautiful. To this day, we still find the little spiders influence, in the form of tinsel, which we still wrap around our Christmas trees. Some people even leave small spider sculptures in their trees, in honor of the little spider.

It is Time to Revisit the Electron Microscopes During Camp

Thinking about what a super powerful camera might tell us is exciting. The images to the right may answer several questions: Is the pollen pocket a pouch (it is actually hairs the pollen is packed around); What does goldenrod pollen look like (spikey balls); and do bees get pollen in their eyes? (yes).

We are looking for ideas or questions to explore using the electron microscope at camp next summer.



Goldenrod Pollen on bee's hind leg

Enlargement of Pollen

Pollen on bee's eyes (small spheres)

Sawyer Scheid's Insect Collection Won Grand Champion at the County Fair and Merit at the State Fair

I am so proud of Sawyer Scheid, even if I have to share some of the credit with Dr. Tom Turpin! Sawyer proposed the firefly for Indiana's insect and was invited to the bill signing!

Sawyer is active in Indiana 4-H and Dr. Turpin and I have worked many events at the Entomological Society of America Conferences and are good friends. He claims he is coming to camp some day and that will be an exciting event! Dr. Turpin is a great advocate for 4-H and he gave Sawyer a Purdue T-shirt to wear at our camp! I sent Tom a bug camp t-shirt by Sawyer. Sawyer's email to me follows.

I hope you and Ms. Peggy are doing well. I just watched an ESPN story about MSU insect zoo and museum. It made me think about you and Bug Camp. I just wanted to update you with my 4-H and entomology progress for this year. This year my insect collection won Grand Champion at the County Fair and Merit at the State Fair. I also completed a Computer project that won Grand Champion and Merit too. I made QR codes for my entomology collection due to people not being able to read the labels. I also linked the code with the insect's information on Bugguide.net. It was a great way to incorporate technology and entomology. I also had a QR code for a video that I made about my collection on YouTube. Check it out! <https://m.youtube.com/watch?v=6vCtBG78XwU&t=2s>

The most exciting news was that I won Outstanding JR. 4-Her of the year!!! I won \$500. Now I can pay my own way for Bug and Plant Camp. Please email me when registration starts! Can't wait for camp!! – Sawyer Scheid



Camper Stepp Goins Presents at the Entomological Society of America in Vancouver!

Stepp attended his first Entomological Society of America Education and Outreach Committee (EOC) meeting in Denver (2017) and while participating as a visitor at the ESA EOC meeting he was elected as a member. This year Stepp presented his first professional paper at the EOC's Symposium. His presentation was well received and reminded us of what our mission is about! As the youngest workshop leader in the room his presentation was instructional – and his vitae is alive!

It is always enjoyable to get to know the parents of our young entomologists and meeting Mr. Charles (Chuck) Robert, Stepp's grandfather, was truly enjoyable. I have enjoyed watching one of our granddaughters win awards for gymnastics, and recognized Mr. Robert's pride in describing his grandson's interest and achievements. My grandfather encouraged my experimenting with grasshoppers.



Tarantulas May Soon be Off the Menu in Cambodia

In striving to reduce a neophyte's anxiety before allowing them to hold one of our tarantulas I often remind them we have a few additional rules concerning handling. I casually and smilingly suggest, "you cannot drop or throw the spider, you may not clap your hands, and you may not eat the tarantula – you know they do that in some countries." And, the humor seems to have somewhat of a relaxing effect.

Tarantulas have been small part of the Cambodian diet for generations, and are thought to possess medicinal qualities. However, they became an important diet staple in rural Cambodia along with rats and scorpions as a starvation food during the Khmer Rouge of the late 1970s when the Maoists forced many people into rural areas hoping to create an agrarian utopia.

Rapid expansion of the cities following the fall of the Khmer Rough in 1979 and Tarantulas on the menu in cities have become a huge tourist attraction. Plate fulls of fried tarantulas are popular with locals but are not for everyone. However, many will try one for a photo-op!

The growth of rubber plantations, cashew nut trees farms and timber operations are causing rapid deforestation in the rural areas where tarantulas are native. With the loss of 20% of its forest in the last 20 years Spiderville, or the Cambodian town of Skun's, spider markets will soon be empty and the town will need a new mascot and moniker. The increasing tarantula prices for the busloads of tourists who want the experience of eating a tarantula have not dissuaded the tourists or slowed the tarantulas' impending extinction.

I may modify my rules for holding our tarantulas to suggest their scarcity from deforestation and overeating is a good reason to not eat our "Ambassadors." "Please do not drop our tarantula because they are delicate and that could kill her, don't clap in excitement while holding her, and please do not eat her, crickets are more abundant, and deforestation is destroying tarantulas' habitats and they are becoming rare!"

Original source: The South China Morning Post: Tarantula Treats may go Off Menu as Stocks Run Low.

MSU Bug and Plant Camp Registration Form 2019

2019 Bug & Plant Camp Dates: **June 9-13, 2019**



Please print

Camper Name: _____

Camper's Age: ____ Birth Date _____ Gender: ____ Camper's E-mail: _____ and Cell Phone: _____

It is not our practice to contact campers without parental knowledge and consent, and we will only call their phone in an emergency. We will send them our email newsletter, the Gloworm, since we use it to prepare them for camp and after reinforcing what they have learned. Parents will also receive the Gloworm.

Can you swim? _____ **Allergies:** _____

(Foods (nuts, shellfish, etc.), poisonous plants and bee & wasp stings that require an EpiPen), etc.

Accommodations needed as the result of a disability: _____

Roommate Preference: _____ (if known; otherwise we will use our best judgement matching age or experience)

School Name: _____ Grade: (completed) _____

Parents or Guardians: _____ Email: _____

Address: _____ City: _____ State: ____ Zip: _____

Home phone: (____) _____ Parents Cell Phone: (____) _____, (____) _____

Emergency Contact Name _____ and Phone Number: (____) _____

Other than parents, if parents are not available.

I am interested in Continuing Education Credits (for teachers) Circle: Yes No

Have you been to one of our Entomology Camps before? Circle: Yes No Which Years? Year(s): _____

Parent's or guardian's signature: _____ Date: _____

T-shirt size (all shirts are adult sizes): Small, Medium, Large, XL, Other _____

Please include a clear, sharp, high resolution photo (head shot) for use on the name badge with this application. It can be emailed (j.guyton@msstate.edu) and is required before the application process is completed.

Please also attach a paragraph by the camper about their experience with insects and other arthropods and related interests (research, rearing, collecting, Boy Scout Insect Study Merit Badge, etc.).

Camp fees: \$450.00; Down payment of \$225.00 is required with registration.

Completed forms, photo & photo release, health certificate and down payment are required to reserve a spot. Forms are available on our website, from Dr. Guyton or county Extension Service offices in Mississippi. Mail to Dr. John Guyton (Camp Director), Box 9775, Entomology, Mississippi State, MS 39762; or e-mail to j.guyton@msstate.edu or Peggy Guyton bugcampmama@gmail.com Phone 662-325-3482.

If you have questions, we welcome your call or email.

If you are not already receiving the Gloworm, our newsletter, it should start immediately. We use it to help campers prepare for the experience.

Entomology Camp Health History & Authorization Form 2019



Please print clearly

Camper Name: _____ Age: __ Birth Date: _____ Gender: __ Campers Cell #: _____

Parents/Legal Guardians: _____ Cell # 1: _____

Cell # 2: _____

Home Address: _____ City _____ State __ Zip _____

Where can parents/guardians be reached during camp, or event, if not at above address and phone numbers?

Relatives or friends authorized to act in camper's behalf in case of emergency if parents/guardians cannot be reached:

Name: _____ Cell #: _____ Name: _____ Cell #: _____

In the event I cannot be reached in an emergency, I hereby give permission to the physician selected by the camp director or medic to secure proper treatment for, hospitalize, order injections, anesthesia and surgery for my child named above should it be deemed necessary. The camp director has a prescription for adult and youth EpiPens for camp emergencies and they are readily available. I authorize the Camp Director, medic or other staff to administer an EpiPen injection for life threatening allergic reactions.

Parent or Legal Guardian

Date

If camper has been exposed to any communicable disease within two weeks before attending an entomology camp, please explain fully in a note to the Director. You may use space on the back of this form or extra pages.

Name and emergency phone number(s) of family physician: _____

Medications: _____; Depression or behavior issues (circle): Yes No

Allergies (food or medicine), medical conditions, disabilities and special needs (use additional sheets in necessary):

(asthma or hay fever, ear infections, thyroid disease, Parkinson's, high blood pressure and/or heart disease, convulsions or seizures, poison ivy/oak, penicillin, sulfa, other drugs, food, etc.)

Stings hurt and often there is localized swelling. An allergic reaction to a sting refers to a life-threatening reaction (anaphylaxis) or severe swelling.

Have you ever been stung by bees, ants, wasps, etc.? _____, Which? _____

Did you have an anaphylactic reaction (difficulty breathing or swallowing, severe itching of the eyes, abdominal pain, vomiting, hives, diarrhea, etc.)? _____, What treatment was required? _____
_____ Did you go to a clinic or hospital? _____

Was an EpiPen administered? ____ Do you carry an EpiPen? ____ Do you have any known heart diseases or cardiac problems? _____ Please describe: _____

Diabetes? ____ Circle: Type 1 or Type 2. Usual hypoglycemia treatment _____
Do you regularly check your blood glucose level? ____ Do you use/carry glucose tablets? ____ Circle the following answers. Do you use diabetes pills or insulin? If insulin, do you use a pump or injections (pen or syringe)?

Diabetes dietary modifications or restrictions: _____

Shell fish, peanut or other allergies? _____ Please List _____

List activities to be encouraged _____ or restricted _____

__ Non Swimmer, __ Beginner Swimmer, __ Experienced Swimmer, __ Lifeguard

Immunization Record (Last Year Administered)

DPT (diphtheria, pertussis and tetanus) _____ Chicken Pox _____
MMR (Measles, Mumps, Rubella) _____ Hepatitis A or B _____
Polio _____ Exemption to Immunizations (form required)
Flu _____

Date of most recent physical exam _____

Give dates/details of recent operations or serious injuries _____

Other diseases or details of above _____

Are there any other medical, behavior, etc. issues we should be aware of? _____

If you are bringing medications to the camp, or event, with you, make sure your name is on them and that the Director is advised of the directions for administration. That information should accompany this form.

ATTACH A COPY OF the front and back of current FAMILY MEDICAL INSURANCE card.

Notes:

The information on this form is correct. _____
Parent or guardian, Date Family physician (optional), Date

Questions should be directed to

Dr. John Guyton, Box 9775, Miss State, MS 39762

j.guyton@msstate.edu, 662-325-3482 office or 228-324-4233 cell; Peggy Guyton bugcampmama@gmail.com or 228-324-3136.

MSU Entomology Camp Photograph Release 2019



Camper's or Staff Member's Name / Date

I permit Mississippi State University Extension Service and John Guyton to photograph my child and/or me and use those photographs for educational and publicity purposes. I release Mississippi State University, the Mississippi State University Extension Service, J. Guyton and other staff from any claims that might arise from use of these photographs.

Signature of Subject (if 18 or over) and Parent/Guardian (if subject is under 18)

If subject is under 18, a parent or guardian must write the child's name as the subject and grant permission by signing on the appropriate line.

Dr. John Guyton | Box 9775, Miss State, MS 39762
j.guyton@msstate.edu
662-325-3482

Peggy Guyton
bugcampmama@gmail.com
228-324-3136 (cell)

Where Have All the Bugs Gone?

This has become a recurring theme for me and during the Vancouver ESA conference bug camper Stepp Goins brought up the fact that insects' populations are crashing and suggested a camp activity to address this problem. This morning I read a feature article titled *The Insect Apocalypse is Here What does it mean for the rest of life on Earth?* from the New York Times Magazine. Brooke Jarvis did an absolutely incredible job of describing the apocalypse of which I have been aware for a while. This is a critically important article for entomologists to read: <https://www.nytimes.com/2018/11/27/magazine/insect-apocalypse.html>

During my summers in the 1970s' as a college student I spent some time in the Mississippi Delta surveying rice fields to mark contours that would become dikes using a Laser Plane generator and a Massey Ferguson tractor dragging a single plow point. On several summer evenings just after dark I drove through dense swarms of fireflies that required using the windshield wipers. While these were not common they were, for me, enjoyable. It was reminiscent of driving into a snow flurry when the flakes appear to be coming directly at you. This resulted in a thick glowing yellow line tracing the sweep zone of the windshield wipers! A friend who lives in the delta recently said he hasn't seen fireflies this plentiful in decades.

In 2010 during Bug & Plant Camp Dr. Richard Brown and I were sitting on the lab benches in Clay Lyle and I mentioned having not seen any bumblebees in campers' collections for a number of years. He commented as a Lepidopterist he would not have noticed this, but that it was an interesting observation.

Bumblebees represented one of my first painful encounters with an insect. Like most children insects were fascinating to me. While playing in my grandmother's flower gardens I proudly closed a purple althea bloom around a bumblebee and was in the process of bragging to my grandmother when it earned its escape by stinging me. My grandmother liked the bumblebees for their pollination services and my grandfather introduced me to carpenter bees that he did not like for their practice of boring into the wood of his hothouse!

Our campers frequently ask how to differentiate bumblebees and carpenter bees and I started watching campers' collections to see that they had one of each, which was easy to do in the 1990s. By 2010 I had not seen a bumblebee in a camper's collections for 4 or 5 years, but plenty carpenter bees. They remain rare today.

During the time we lived on the Mississippi Gulf Coast (1995-2006) we thought we may have observed a decline in the size of love bug swarms, albeit that may have been hopeful thinking.

The last time we had to clean our windshield because of bug strikes was about 5 years ago and so unusual we took a picture of the windshield. These were huge beetles and were so damaged they were difficult to identify! This is that photo.



Readers of the Glowworm might enjoy selecting several insects to use for long term monitoring. It could be nocturnal insects that are attracted to a sheet in your back yard, bugs you regularly find in your yard or wasp nests on out buildings. I know there are groups of campers that enjoy getting together to go on collecting trips. You might enjoy conducting an annual count at a location at which you enjoy collecting. A city park, State or National Wildlife Refuge, or a National Seashore may be good choices. Remember some of these require special collecting permits.

We conducted Bug and Plant Camp on the Gulf Coast one year and wanted to collect on a barrier island. We filed the required paperwork but were only allowed to collect, identify and release. When I filed our report with the Gulf Islands National Seashore I learned we conducted the first survey of insects on the island and they were delighted with our report! We used the opportunity to impress on campers the importance of ethics in collecting.

We have a Special Use Permit with the Noxubee National Wildlife Refuge that allows Bug and Plant Campers to collect on the refuge during camp. We have a second permit that enables Breanna to collect spiders there year-round. Of course, they are interested in what we collect so we collect this information as to what was collected on the refuge from campers, compile the numbers and make an annual report.

Follow us on the Glowworm Facebook Page:

https://www.facebook.com/groups/152705468254309/445330672325119/?notif t=group_activity

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



Dr. John Guyton, Editor
j.guyton@msstate.edu
662-325-3482

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