The gloworm

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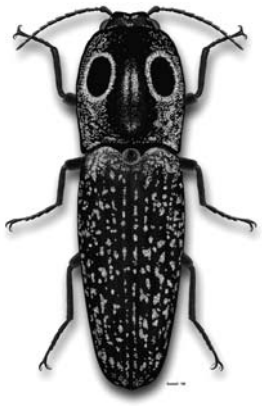
Former Campers Please Report In

Hey former campers who are also Gloworm readers!! We are developing an article for publication in our Midsouth Entomologist Journal and want to feature some who have been to camp, enjoyed and learned from it, and have now moved on to `other' things. For example, we know of a few who are in college now, some even in entomology. There are others who are doing other exciting things, like military. We'd like to hear from you to know what you are doing. If you have a special memory of `bug camp' send it to us. What science fair, Science Olympiads, entomology presentations, Bee essay winners, etc. have you participated in so we can mention these too. You can email "John Guyton" <jguyton@cfr.msstate.edu> or snail mail - Gloworm, Box 9775, Mississippi State, MS 39762. Either way - just do it! We'll even take notes from proud moms who want to brag on their bug chasing kids! - Dr. Mike

Guess What We Are Putting on Your T-Shirts this Summer.

If you guessed an “elater” we need you on a Linnaean games team! It seems we always find some click beetles at camp – and no one is complaining that we collect them. This year Dan Kennell, one of Dr. Collison’s students and now a middle school teacher in New Mexico, suggested he would be interested in working on our t-shirt design so we gave him the black light (yes, that was a cheesy entomological play on the green light)! And, he designed our elater t-shirt logo for this summer.



There are several hundred species in the US (maybe three thousand worldwide – ohhhh and the colors of the tropical elaters are said to be almost worth the trip to see them). A specialty collection of these Coleopterans may be quite an “eye” full. If their eye spots don’t spook you into avoiding them you may have noticed and even enjoyed feeling their powerful “snap” or click when holding one. Look for their real eyes sunk in a little notch on the front of their heads. I can just imagine a bird’s surprise when it clicks in their beak - no we are not

suggesting you try this at home... Click beetles are fun to have in camp and we will have more cages for live insects this summer. Click beetles were once sold at Coney Island, NY, as novelties much like the insect larva-powered jumping beans. Click beetles are all the rage in woman's fashion jewelry in some countries and more desirable than Madagascan hissing cockroaches bespeckled with jewels and attached with dental wax and gold chains! The Elater's larvae, known as wire worms are a serious agriculture pests and since they live in the soil they find roots tasty. – Dr. John

History of Bugs in Battles

Earlier this month, I attended the Southeastern Branch of the Entomological Society meeting and heard an interesting talk on the history of military entomology by Dr. Richard N. Johnson, Executive Director of the Armed Forces Pest Management Board. This is a summary of that talk - Enjoy. D. W. Held

Bugs in battles dates back to 2000 B.C. when a rash of plagues influenced the outcomes of the battles between the Egyptians and Hittites. Alexander the Great's (ca. 300 B.C.) armies struggled with mosquito-vectored malaria and possibly typhoid as they expanded the boundaries of the Greek empire. Yellow fever also vectored by mosquitoes killed 80% of Napolean's army during the Haiti revolution. This defeat is considered a catalyst in brokering the Louisiana Purchase in 1803. The Louisiana Purchase added portions of 15 states to the U.S. at a cost of only 3 cents per acre. In addition to disease vectors, the U.S. Civil War brought the first allegation of bio-terrorism in wartime, and documentation of the impact of stored product pests on supplies of stored food. The bio-terrorism claim was that northern troops introduced Harlequin bugs (important pest of vegetable crops) to the south. These and other examples of Entomology during the Civil War are summarized in an article from 1997 in the American Entomologist by G. Miller.

Medical entomology did not emerge as a field of study until the late 1800's. IN these cases, medical doctors and not entomologists were working out the factors influencing transmission of human disease. In the late 1800's and the early 1900's, important life cycle and transmission information was discovered. Walter Reed, namesake of the medical hospital in the Washington DC area, was among those early pioneers in the field. Reed worked on the life cycle of yellow fever and it vector *Aedes aegypti*. Increased awareness of insect-vectored diseases prompted an increase in entomology courses in American colleges and Universities.

The next milestone in wartime entomology came during WWII. Before WWII there were 16 military entomologists dealing with civilian and military issues. This increased to 400 persons by the end of the war. Also during this time, the military began contracting with the USDA to develop repellents for soldiers in the field. DEET, a common repellent still used today, developed out of this partnership. This period also

brought about research by the U.S. and the Japanese on insects for bioterrorism. Many advances in insect rearing were made during this period. The Japanese had a specific unit (731) which researched mass rearing fleas for use against enemy troops. The U.S. government also investigated these same types of mass rearing of disease vectors. There was, however, no record of insects being used as agents of bioterrorism by either side.

Today in Jacksonville, FL, the navy has a center where application technology and efficacy can be evaluated. This facility is one of the components of the U.S. Armed Forces Pest Management Board. This board was chartered in 1956 and has representatives from all branches of the U.S. military.

Bees, a Time Tested Tactical Weapon

Cyrus the Younger, driven by jealously of his brother's ascension to the Persian throne around 400 BC, hired 10,000 Greek mercenaries and began a march to Babylon. Cyrus was killed in a battle ending his sibling rivalry. In mercenaries worst case scenario, they realized that even if they escaped with their life from their encounters with a population defending their homeland, they may not get paid! Xenophon, a disciple of Socrates, brought along to record Cyrus' victory, was elected leader of the retreat. While camping on the shore of the Black Sea licking their wounds, the Greeks began to forage for food and discovered honey that apparently was made the nectar of the *Rhododendron* a poisonous plant with poisonous nectar. Xenophon recorded that the Greek mercenaries came down with mad honey disease and degenerated into a sad dizzy, weak, purging and vomiting army.

In another ancient (first century BC) déjà vu, a Roman army, led by Pompeii the Great, against the Heptakometes in Asia Minor, discovered a cache of honey in a mountain pass. Not remembering history, these hardened looters ate their fill and soon thereafter while battling Montezuma and vomiting were attacked by the Heptakomete defenders. Seems the Heptakomete were well versed in chemical warfare and knew the honey produced during that time of the year was made from Rhododendrons and Azaleas contained alkaloids that are toxic to human but not bees!

My personal favorite was the Romans catapulting bee hives into the ranks or fortifications of their enemy! Having irritated bees by opening their hives on slightly overcast days I can only imagine their fury of having their home hurled through the air only to crash land! Bees were extensively used tactical weapons long before John Wayne movie, *Rio Lobo*, depicted Confederate soldiers skillfully using hornets to rid the gold train of union troops.

Vergil, the Roman poet Vergil is believed to have protected his valuables by storing them in beehives. Nuns in Beyenburg (Beetown) Germany foiled some bandits, set on plundering their convent, by releasing their bees. There are stories of beekeepers who have tipped over hives and remained calm while others, who had not been to bug camp and learned the nature of bees, ran and received bee labels, or identifying welts, facilitating their arrest.

Most recently, the honey exported to the US by Chinese has come under careful scrutiny. Chinese honey has been adulterated with a potentially life-threatening antibiotic and sugar! This follows warning that imported seafood from China had been deemed unfit for human consumption, the recall of toys, fireworks and electrical products!

The moral of this story is to eat only locally produced honey supporting the local economy and your good health! - Dr. John

We want to train wasps to seek out target scents during camp and experiment with defensive chemicals - maybe this is the summer!

We still have space for teachers for the Lepidopterist Society Meeting.

Bob Brzuszek, in Landscape Architecture, provided the following cartoon.


Meet us at Bug Camp
2008 4-H Entomology Camp
Mississippi State University
We will keep the black-lights on for you!

Typical Camp Experiences

- Insect collecting
- Night collecting
- How to pin insects
- Learn how to identify your insects
- Learn how collections are arranged
- Orienteering and Geocaching with GPS
- Edible & poisonous plants
- Insects photography
- Plant - Insect interaction hikes
- Aquatic Insects
- Insect nutrition - join the I Ate a Bug Club!
- Pine beetles
- Career discussions
- Tour of bee hive
- Linnaean Games
- Entomological Arts and Crafts
- Edible wild plants (in season)
- Honey tasting

What is an Intergenerational Camp?

Intergenerational camps provide parents and other adults, including teachers, the opportunity to join us. Many parents enjoy participating in organized activities with their children, and we offer teachers Continuing Education Units (CEUs).

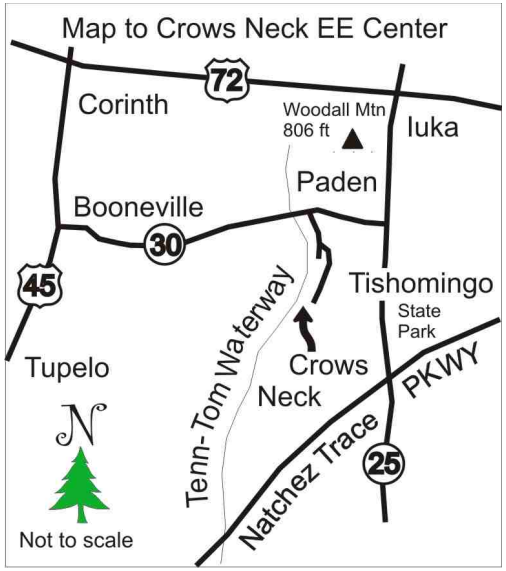
Sponsoring Departments:
Entomology and Plant Pathology
Wildlife and Fisheries &
MSU Extension Service

Photographs from last summer can be found on the Internet at http://bugcamp.org/

MSU Entomology Camps

June 15 - 19, 2008
Crows Neck EE Center
&
July 13-17, 2008
location to be announced

An Intergenerational Opportunity, consider making this a family vacation



Check-in begins at 2:00 Sunday Afternoon at the Crows Neck Environmental Center in Tishomingo County, MS (See Map)
Camp is over at 1:00 PM Thursday

For Additional Information Contact

Dr. David Held at david.held@msstate.edu; 228-388-4710
or Dr. John Guyton
jguyton@cfr.msstate.edu; 662-325-3482

Note: The minimum age for unaccompanied youth is 10 and there is no age limit for parents and teachers.

What does it Cost?

Bug Camp cost **$225 per person** and includes:

- an intensive entomological experience
- a camp t-shirt
- lodging and meals
- a spreading board and kill jars
- a subscription to the Gloworm

Entomology Camp Registration ☐ June 15 - 19, 2008 or ☐ July 13-17, 2008

Name: _____ Email _____

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

Telephone _____ Age:____ G Female G Male Can you Swim? G Yes G No

Roommate Preference_____ Allergies_____
If there are other things we need to know about your son or daughter of if they have special needs please attach a description to this application.
G I need an insect box $30.00 G I need ___ packs of pins at $5.00/pack of 100
G Teachers check box for CEUs (additional fee required)

T-shirt size: G Small G Medium G Large G XL G Other ____
Note: All shirts are adult sizes.
A **copy of this form is required for each camper**. A health certificate and conduct form are also required.
Mail application along with a **$60.00 deposit** (not refundable after May 1, 2008), payable to MSU Entomology Department, to: MSU Entomology Department, Box 9775, Mississippi State, MS 39762.