



The glowworm

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Happy New Year

2006 has begun like a warm spring week. If it stays this balmy we'll see trees budding and butterflies flying. I'm still bringing my jacket to work, because it can change quite quickly. We begin our 14th year of the *Gloworm* with this issue. I'd like to express my thanks to you for the encouragement and suggestions you've given over that time. The idea to do this newsletter grew out of a trip to Rock Eagle in which the adult volunteers from a number of states requested more information on insects and entomological projects. It has been a fun run! I am retiring as Extension Entomologist as of 31 January 2006 and while I plan to continue to do 'buggy' things, including the *Gloworm*, it may take other forms in the future! You're all invited to the 'exit party' at 2PM January 31, at the Clay Lyle Entomology Building, Mississippi State.

We'll begin this year once more with some reminders! Bee Essay Contest submissions are due NOW! **The Mississippi deadline is January 15.** I will accept them until the 20th, after which essays will be given to the judges. Title of the essay is **Honey bees in Art and Culture.** Rules for the contest may be seen at http://msucare.com/4h>Youth/4hentomology/bee_essay_contest.html.

Camp Dates have been set for 2006. The first camp will be at Wall Doxey State Park, near Holly Springs June 18-22 2006. Second camp will be on July 16-20 in Newton County. A registration form is up on the WEB and is included in this mailing.

The 4-H Entomology Art Exhibition was well received and the more than 50 exhibits were great. We also had some nice participation in the poetry contributions for December. I challenge you to begin now preparing for those events in 2006.

As with former *Glowworms*, I thought it might be good to begin the year with some interesting facts on bees, especially honey bees.

Honey bees are an introduced species in the new world. Colonists brought them to the US as early as 1621. Native American records prove that honey bees are foreign to lands north of Mexico. During the westward expansion, the bees arrived before the colonists and northeastern tribes referred to them as "white man's flies." They also dubbed the mysterious white clover (*Trifolium repens*) that appeared alongside the bees "white man's foot." Since that time they have carved a niche for themselves in the landscape of the Americas. Bumblebees were probably the most proficient pollinators before the arrival of the honey bees.

All bees, including solitary and eusocial species and adult honey bees eat pollen, nectar and occasionally honeydew produced by aphids and other species of Homoptera. They store pollen and nectar (in the form of honey) in their nests for future use. Pollen is their source of proteins, fats, vitamins, and minerals, all essential to growth and development. Nectar is a source of sugars which they use for energy.

Bees feed their young (larvae) on a material called 'bee milk.' It's secreted by glands in the heads of workers who are less than 18 days old. The young workers eat large amounts of pollen which is the main source of the milk. The queens are egg laying machines. The queen lays eggs in empty cells in the hive. Workers regulate the egg laying by the number of cells made available to the queen. When the queen lays unfertilized eggs they develop into drones. Fertilized eggs develop into workers and queens. The sex of the bees is also manipulated by the workers by the size of the cells available for laying. A larva which is destined to become a queen is fed royal jelly. Royal jelly is bee's milk which is fortified by liberal amounts of sugar (honey). This causes the larva to grow larger which in turn stimulates the secretion of a hormone enabling the larva to become a queen. There are no special qualities in royal jelly for humans, except that it is nutritious.

Karl von Frisch, an Austrian entomologist, discovered that bees communicate by doing a 'waggle dance' which gives directions to food sources for fellow bees. They discovered that the bees not only give direction and distance to the source, but also indicate quality and quantity of the source. The scent of the pollen or nectar also lets the other bees know the identity of the flowers to which they must go. Other scientists then used the 'waggle dance' to communicate with bees using a small robot. A peppermint-scented robot bee was inserted into a hive where it performed its waggle dance. Bees then followed the directions to a container of peppermint-scented sugar water.

Happy Buggin'

Michael R. Williams, PhD
Extension Entomologist

**ATTENTION: YOUNG PEOPLE –
TEACHERS – PARENTS ALL WHO ARE INTERESTED IN ENTOMOLOGY!!!!**
THE MISSISSIPPI STATE ENTOMOLOGY DEPARTMENT PRESENTS:
Entomology Camp #1 on June 18-22 – Wall Doxey State Park, Holly Springs
Entomology Camp #2 – July 16-20 –Newton County

This camp is for **adults and youth** (over age 10) who want to learn about insects from experts. The camp will be taught by professors from the Entomology Department at Mississippi State, and will be educational and fun!!!!

- _ Learn how to collect, identify, and preserve insects!
- _ Learn about unique critters you've never seen, yet they live all around you!
- _ Make an insect collection with help from the experts!

Adults are encouraged to enroll for the camp!!! Out of state campers are also welcome!!!!
Enrollment is limited and will be on a first come basis.

Mail individual applications along with **\$60.00 deposit** to reserve your place to:

Entomology Camp
MSU Entomology Department
Box 9775
Mississippi State, MS 39762

5 day Entomology Camp costs: \$160.00

Charges include room/board, t-shirt and miscellaneous supplies - deposit is not refundable after May 1, 2006 for camp #1 and June 15, 2006 for camp #2, deposit is applied to camp costs.

I will be attending CAMP Session #_____. Indicate 1 or 2, please!

Indicate t-shirt size: Small _____ Medium _____ Large _____ XL _____ Other _____
All shirt sizes are measured in adult sizes, the vendor does not handle children's sizes

Name: _____

Address: _____ City: _____

State: _____ Zip: _____ County: _____ Age: _____ Gender: _____

Telephone _____ email _____

email address is very helpful in quick communication

4-H rules and guidelines apply.

Please submit a **separate copy of this form for each camper** - be sure to indicate the session the camper will be attending.

Certification of health is required - so camp physicals are in order

2006 4-H Entomology Calendar

15 January – Bee Essay is due

(absolute deadline for reception of essays is January 20)

15 March – Linnaean Questions

Question booklets will be released for games preparation

April – May County contests

Insect collections

Visual Presentations

Judging and Id

Linnaean Games

30 May – 1 June – 4-H Congress

Insect collections

Visual Presentations

Judging and Id

Linnaean Games

13 – 16 June Project Achievement Days

Insect collections

Visual Presentations

Judging and Id

Linnaean Games

18-22 June Entomology Camp

Wall Doxey State Park

15 July Linnaean Superbowl

Jackson Horse Show

16 – 20 July Entomology Camp

Newton County