



## The glowworm



1 March 2005

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It's time to get busy, butterflies have already been spotted flying. We've also seen moths and beetles around the porch lights on the warm nights. Collectors get your jars charged and get out there to get those additions you have been missing. I began February's letter with some 4-H reminders and will do that again with this *Gloworm*.

1. Linnaean Games Questions are due for the 2005 contests. Teams should submit questions as soon as possible to get them in the OFFICIAL Linnaean Question Book. We have added the **Practical Entomologist**, by Rick Imes as an additional resource for questions. We'll also still use the 4-H Entomology Manual. Anybody may submit questions and it is to the advantage of Linnaean Teams to send in more than the 25 minimum. It is our intention to publish the official Linnaean Question Booklet before March 15 and distribute it to all participants for 2005.
2. The new WEB pages for 2004 Entomology participants are up and you are invited to check them out at [http://msucare.com/4h\\_Youth/4hentomology/index.html](http://msucare.com/4h_Youth/4hentomology/index.html). Please note there are opportunities, for a number of contests were uncontested in 2004. If you're scratching for an idea for a visual presentation, contact me and I'll help you with an idea.
3. Camp dates have been set and a form is attached to this letter. It's not too early to get your registration in. A number of folks have, already. Note to teachers: we will give Continuing Education Units for camp!
4. Begin now to work on your insect collections. Remember static collections are not acceptable for contests, get the twillers and the broken specimens replaced and be sure to replenish your pest strips and moth balls. Display boxes and pins are available through the MSU Entomology Department. We'll accept email requests for pins and send them out to you with a bill. Pins are \$5 per package of 100.

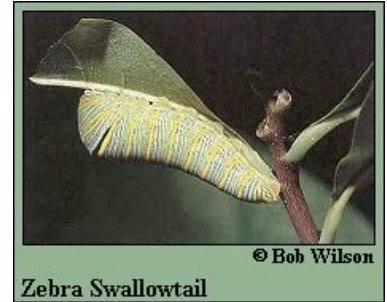
**Question to ponder: Besides food, what benefit do zebra swallowtails get from pawpaw leaves?**



### Zebra Swallowtails

Pawpaw is the sole host plant for the zebra swallowtail butterfly. In nature, plants in the pawpaw family group contain antifeedants which discourage critters from eating the plants. Pawpaws are seldom found with leaf damage. Even the netted pawpaw (*Asimina reticulata* Shuttleworth ex Chapman

pictured at left) growing in a pasture, was left ungrazed when everything else had been eaten by cattle. But the pawpaws serve as the only hosts (larval food) for the zebra swallowtail. The caterpillars are hump-backed, pale green with pale blue, yellow, and black rings running over top of the body. On the back, the first abdominal segment has a thickened black ring followed by a yellow ring. Subsequent abdominal segments have an anterior yellow ring followed by 2 to 3 pale green to white rings that end at about level of spiracles—these are edged with black in some individuals. Black occasionally predominates. The head is small and is held beneath. Caterpillars can be found on pawpaw from May through November, usually on young leaves. There can be as many as 3 or more generations per year in the South and as many as 2 in the North.



© Bob Wilson  
Zebra Swallowtail



male (spring form) ©Lori M. Wilson  
Zebra Swallowtail

Adult males fly into the understory near host plants to find females. Females lay single green eggs on lower leaves of pawpaw plants. Caterpillars live and feed on the underside of these leaves, then pupate and hibernate there. The Zebra Swallowtail seeks moisture from sand and nectar from flowers including blueberry, blackberry, lilac, redbud, viper's bugloss, verbena, dogbane, and common milkweed. They commonly seek understory in moist low woodlands near swamps and rivers. Adults fly to nectar plants in open fields and brushy areas. Most of the *Eurytides* butterflies are found in the tropics but the zebra swallowtail is found as far north

as Michigan and New York. The butterfly survives where its major host, *Asimina triloba* [ah sim' i na tri low' ba], grows. In the southern states, the butterfly also uses the other species of pawpaws. It was once believed that pawpaw leaves were fibrous, watery, and had little nutrition. Zebra swallowtail larvae were thought adapted to a plant with little food value. But the discovery of acetogenins changed that perspective. Researchers tested tissue samples of both the larvae and the adult butterflies. The tissues were found to contain acetogenins and this probably serves as a chemical defense against predators like birds. So, like monarchs, zebra swallowtails are protected from predation because they 'taste bad' to birds and other predators.



©Paul A. Opler  
Zebra Swallowtail

©Paul A. Opler

Pictures and information for this *Gloworm* were obtained from USGS - <http://www.npwrc.usgs.gov/index.htm> and from Killer Plants <http://www.killerplants.com/renfields-garden>

If you have suggestions for features for future issues or a contribution, send it in, we'll do our best to include it, especially if it has 'buggy value!'

Happy Buggin'

Michael R. Williams, PhD  
Extension Entomologist

## The American Beekeeping Federation, Inc.

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## Congratulations

***Daniel Snyder***

***2005 winner***

***Mississippi Bee Essay State Contest***



<b><i>2nd</i></b>	<b><i>Grace</i></b>	<b><i>Layton</i></b>
<b><i>3rd</i></b>	<b><i>Savannah</i></b>	<b><i>Duckworth</i></b>
<b><i>4th</i></b>	<b><i>Lydia</i></b>	<b><i>Burns</i></b>
<b><i>5th</i></b>	<b><i>Ashley</i></b>	<b><i>Henley</i></b>
<b><i>6th</i></b>	<b><i>Robert</i></b>	<b><i>Raymond</i></b>
<b><i>7th</i></b>	<b><i>Chandon</i></b>	<b><i>Mays</i></b>

Each of the winners this year received a CASH award. This contest is sponsored in Mississippi by the Mississippi Beekeepers Association.

**ATTENTION: YOUNG PEOPLE –  
TEACHERS – PARENTS ALL WHO ARE INTERESTED IN ENTOMOLOGY!!!!**  
THE MISSISSIPPI STATE ENTOMOLOGY DEPARTMENT PRESENTS:  
**Entomology Camp #1 on June 19-23 – Wood Institute - Mathiston**  
**Entomology Camp #2 – July 17-21 - Kings Arrow Ranch –Lumberton**

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 **\$50.00 deposit** to reserve your place to:

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

**5 day Entomology Camp costs : \$150.00**

Charges include room/board, t-shirt and miscellaneous supplies - deposit is not refundable after May 1, 2005 for camp #1 and June 15, 2005 for camp #2, deposit is applied to camp costs.

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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**