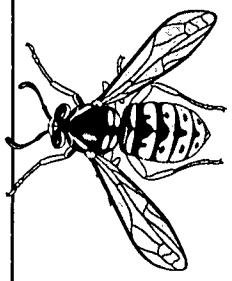
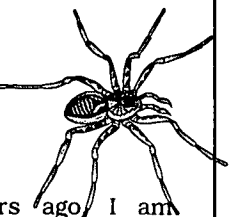
Wisconsin Entomological Society Newsletter

Volume 32, Number 3 **October 2005**



NEWS FROM THE DIAGNOSTIC LAB

by Phil Pellitteri



I know we still have a few weeks of insect activity left, but I can already declare this year as a much buggier year than last year...more butterflies, more wasps and lots more Boxelder Bugs. The small red and black Boxelder Bug nymphs were crawling on everything for most of the summer. I think they were really feeding on the abundant Silver Maple seeds that littered the ground. Without rain to promote the natural *Beauvaria* Fungus Disease there will be buckets of adults invading homes this fall. Early indications are that Asian Lady Beetle numbers will also be up from last year.

I had a specimen of the Gulf Coast Tick (*Amblyomma maculatum*) show up in a back yard in Chilton, Wisconsin. They are normally found within 100 miles of the ocean but recently have been found established as close as Kansas. Either this is an odd case of global warming or a tick that was hitchhiking on the wrong bird. The biggest "trophy " so far this year was a Banded Alder Borer that was sent in from the state of Washington. It is a stunning Cerambycid beetle. Somebody found it in a barn and wanted to make sure it was not a foreign invader. For a photo, see my highlights section at http://www.entomology.wisc.edu/diaglab/05hilite/08_10.html.

The big news of the summer was the finding of two populations of Brown Recluse Spiders (*Loxosceles reclusa*)—one in Madison and one in Janesville—during the same week. The only other site I knew of is a population in a building in Racine. A number of spiders were found at each site. No, this is not the end of the world—and we still look at these as isolated populations and not evidence of them taking over the state or moving out of their normal range. Dr. Rick Vetter, who is a Recluse expert has some very interesting data on these spiders. There are as many cases of Brown Recluse bites reported in states that DO NOT HAVE the spiders as in the states that do have them, which means something else is going on and there are many incorrect diagnostics. He also had a family from Kansas who found over 2,000 Recluse Spiders in their home over a six month time and nobody was bitten. I still stand by my theory that we are not in the normal range of this spider, but I can no longer discount their activity in the state.

I had my first recorded case of Old House Borer (*Hylotrupes bajulus*) in the state this year. This is the only Cerambycid that is capable of re-infesting wood beams. The beetle is found in the Carolinas and nearby states (and in Europe) but is not normally found west of Indiana. The home was in the Oshkosh area and was made from logs that had been shipped from the east coast 15 years ago. I am constantly reminded of how things will always change over time. The oddest case that I thought was critter caused but was not, came from a garage in Madison. The owner was finding ⅛ to ¼ in. powder accumulating on the car each day. I suspected Powderpost Beetle but it seemed like too much frass. When the sample came in, it was very fine dust but was reddish brown in color and no bugs. Turns

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In This Issue...

The Wisconsin Entomological Society Newsletter is published three times a year, at irregular intervals. It is provided to encourage and facilitate the exchange of information by the membership, and to keep the members informed of the activities of the organization. Members are strongly encouraged to contribute items for inclusion in the newsletter. Please send all news items, notes, new or interesting insect records, season summaries, and research requests to the editor:

Janice Stiefel, 2125 Grove Road, Bailey's Harbor, WI 54202, (920) 839-9796, e-mail: jstiefel@itol.com

NOTE: Please report any address changes to Les Ferge, 7119 Hubbard Ave., Middleton, WI 53562. e-mail: ferge@netzero.net

Letters to the Editor...

Ed Daub
Madison, WI

At the last WES meeting, I remember the occasions for duels among us to specify the species of insects pictured on a screen before us. Thus, I was struck by the following comment from an entomologist in the *Introduction to the TREASURY OF BIRDLORE*. It was quoted there as a critique of the tendency among biologists to interpret the behavior of birds in mechano-morphic terms. However, it might also be pertinent for us as we pursue skills in taxonomy.

"We should all be happier if we were less completely obsessed by problems and somewhat more accessible to the aesthetic and emotional appeal of our materials, and it is doubtful whether at the end, the growth of biological science would be appreciably retarded. It quite saddens me to think that when I cross the Styx, I may find myself among so many biologists, condemned to keep on trying to solve problems, and that Pluto, or whoever is in charge there now, may condemn me to sit forever trying to identify specimens from my own specific and generic diagnoses while the amateur entomologists who have not been damned professors are permitted to roam at will among the fragrant asphodels of Elysian meadows, netting gorgeous ghostly butterflies until the end of time."

Ed says he's a pilgrim from the physical sciences somewhat lost in the insect world.

Andrew Khitsun
Madison, WI

I'd like to suggest a few interesting books and web sites for *WES Newsletter* readers. For those who follow Bernard D'Abrera's works, *Butterflies of the World* is now complete. Currently, the author is revising his *Butterflies of the Afrotropical Region*, which was originally issued as one volume; second of three volumes of revised edition has been released, unfortunately carrying astronomical price tag beyond the means of most people.

Interesting book exists for beetle fans: *Northeastern Longhorned beetles (Coleoptera:Cerambycidae)* by Douglas Yanega claims to cover ALL longhorns of that region, complete with color photos.

For those interested in unusual insects, two-volume *Fulgoridae: Illustrated Catalogue of the American (Vol 1) & Asiatic & Australian (Vol 2) Fauna* by Thierry Porion covers lanternflies.

As far as web sites go, in addition to well-known sites *Butterflies of North America* http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/bflyusa.htm

Moths of North America http://www.npwrc.usgs.gov/resource/distr/lepid/moths/mothsusa.htm,

USGS maintains sites *Dragonflies and Damselflies of the United States* http://www.npwrc.usgs.gov/resource/distr/insects/dfly/dflyusa.htm and *Tiger Beetles of the United States* http://www.npwrc.usgs.gov/resource/distr/insects/tigb/tigbusa.htm, as well as sites that correspond to most of the free titles mentioned in the June 2005 newsletter. If you didn't get any of those books because supplies ended, enter book name in the search engine and you'll get web version of it!

WISCONSIN ENTOMOLOGICAL SOCIETY FALL MEETING

Saturday, October, 15. 2005, 1:00 P.M.
Russell Labs
UW-Madison Campus
(See map on Page 8)

AGENDA
General Meeting 1:00 - 4:00 P.M.

PRESENTATIONS
2005...A Year of Surprises!
Phil Pellitteri

Wisconsin Survey of Peatland Lepidoptera
Kyle Johnson

ANNUAL PHOTO SALON
Bring five of your favorite slides for this popular event or send digital photos to Megan Hyslop at mjhyslop@students.wisc.edu

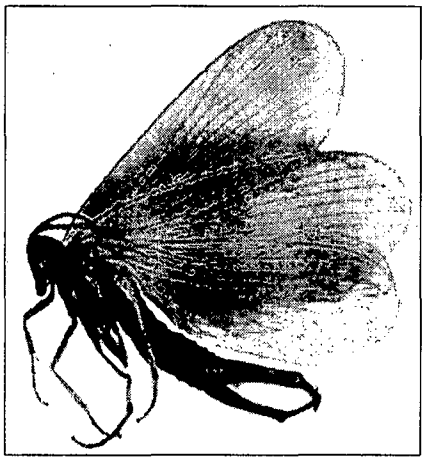
ELECTION OF OFFICERS

INSECT IDENTIFICATION & SHARING

COOKIES & REFRESHMENTS

Attention!

Wisconsin Entomological Society dues notices for 2006 will be mailed to members in December.



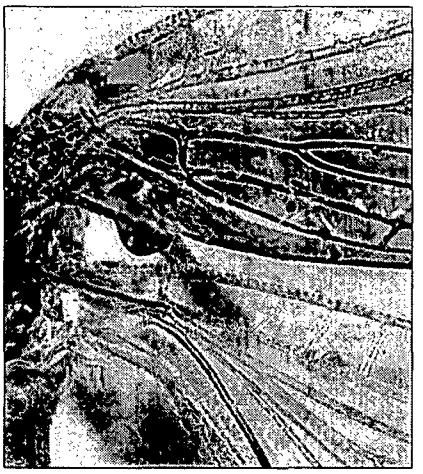
Side view of male Earwigfly (females do not have large "claspers" at tip of abdomen) Photo: Steve Krauth.

Neither Fly Nor Earwig: Earwigflies in Wisconsin

by James C. Dunford and Steven J. Krauth

Wisconsin is home to one of North America's most enigmatic insects, *Merope tuber*, or more commonly the "Earwigfly." While many have not had the great opportunity to see one alive (in fact you may have never even heard of such a beast), this unique insect is one of only two members of the Family Meropeidae worldwide. Occurring sporadically throughout most of the eastern portions of the United States and Southeastern Canada, the only other known family member occurs in western Australia. Since being first described by Edward Newman in 1838, its infrequent presence at various light sources (candles back in Mr. Newman's day) or under an overturned stone both surprised and delighted those lucky few who had the chance to catch a glimpse of one. First impressions can be misleading, and at first glance people have remarked that this insect looks similar to a fully winged earwig, unusual caddisfly, scuttling cockroach, or maybe a scale-less moth. In truth, it is actually a member of the relatively small, ancient Order Mecoptera (its more renowned relatives being the scorpionflies).

Until recent years, the Earwigfly was thought to be relatively rare. In fact, it was more likely rarely collected, and since first being taken from Trenton Falls, New York, distribution records have been expanding west and south. Since its discovery (and this note is no exception), a compendium of notes and observations on the Earwigfly has appeared in the literature. Collecting methods (i.e. light traps, Malaise traps, sticky traps) and associated biodiversity surveys have improved our understanding of just where this insect exists but, to date, we still know very little as to what this insect does and what its larval form looks like or where it occurs.



Close up of jugum or "tuber" at base of forewing. Photo: David Serrano (University of Florida).

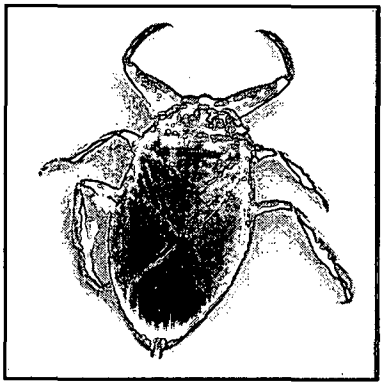
The Earwigfly is largely restricted to eastern deciduous forests with an intermittent stream or water source nearby. The name, *tuber*, is derived from the distinct bump or jugum located at the base of each forewing along the hind margin. The juga are serrated and rubbed against a serrated thorax to allow the Earwigfly to stridulate. This behavior is hypothesized to be a potential defense mechanism, a way to communicate with the opposite sex, or used in the spacing of individuals occurring in aggregations. Male Earwigflies are known for having large clasper-like genitalia, resembling the cerci of an Earwig. The Earwigfly's overall flattened appearance suggests that they are geophilic, and probably spend much of their time close to the ground.

While other related mecopteran larvae are caterpillar-like in appearance, the Earwigfly larva is entirely unknown. Many entomologists believe its discovery could provide significant insight into the evolutionary relationships of advanced insects. Other mecopteran relatives are known to occur on the surface of the soil in leaf litter as larvae; the Earwigfly larva may exist somewhere in between that niche and the water sources that are often associated with adult collection records—perhaps in partially submerged or rotting logs.

Graduate students in Dr. Daniel Young's lab at the University of Wisconsin–Madison, occasionally encounter numerous adult individuals as they sample for groups related to their own research. "Rare" can no longer accurately describe its occurrence in Wisconsin. However, individuals taken in Wisconsin are interesting indeed. On the average smaller (forewing length ~10 mm) and paler than individuals taken in other parts of Eastern North America, the Wisconsin forms may provide an interesting glimpse at geographical variation at its best (Dr. Young among others will let us have it if we suggest subspecies). For example, individuals occurring in the Great Smoky Mountains are significantly larger and darker than Wisconsin's gossamer forms; while in other North American localities individuals are somewhere between the Great Smoky and Wisconsin forms in size and coloration. Additional life history data and knowledge of larval morphology may shed light on the Earwigfly's relationship to other mecopterans and other holometabolous insect groups; or perhaps even the

Please see, **EARWIGFLY**, *Page 4*

Answers to June 2005 MYSTERY INSECT



Giant Water Bug. Photo: Janice Stiefel.

Thank you to all who participated. All answers received were correct

Carol Czekalski
Weyerhaeuser, WI

Just received your always welcome and interesting newsletter. Your mystery bug sure looks like the Giant Water Bug (*Lethocerus Americanus*). I've seen several at close range in my adult life.

Michelle Dudas, PSG,
Naturalist/Educator
Heard Natural Science Museum and Wildlife Sanctuary
McKinney, TX

Howdy from Texas! The mystery insect is a Giant Water Bug (we call 'em "Toe-Biters" down here), family: Belostomatidae, probably *Lethocerus americanus*, perhaps?). Some species of these "bad boys" have been observed eating fish and birds. I observe them eating small fish and other aquatic invertebrates here in North Texas. They are very interesting in the temporary classroom aquarium! Kids love them. I really enjoy your fine publication! michele32557@aol.com mdudas@heardmuseum.org

Peter W. Messer
Mequon, WI

Mystery Insect in June 2005 WES Newsletter...The photograph and notes fit the genus Lethocerus of the family Belostomatidae (Giant Water Bugs) of the order Hemiptera (true bugs). The three Wisconsin species (not distinguishable from photo) that attain body lengths of "about 2 inches" are *L. uhleri*, *L. griseus*, and *L. americanus*. I believe *L. americanus* is most commonly encountered in Wisconsin.

Gene Drecktrah
Oshkosh, WI

The "mystery insect" is one of the Giant Water Bugs (aka Electric Light Bug), probably *Lethocerus americanus* (Leidy 1847). According to Hilsenhoff [1984. Aquatic Hemiptera of WI., Great Lakes Ent. 17(1)], *L. griseus* is a more southern species and is considered rare in Wisconsin.

Suzy Orth, UW-Extension,
Milwaukee County, Hort Help Line
Milwaukee, WI

Near as I can tell, it's a Giant Waterbug (*Lethocerus americanus*). Interesting that this should be the current mystery critter, as we had two come into our office last month -- the first ever in the 10 years I've been here. In looking for more info about the critters, found some notes of interest in a May 2000 issue of the Minnesota Ext. Yard & Garden Line News. It has us wondering if our much drier than usual spring may be why we're seeing them this year. Also, Minnesota's article mentions one being found inside "wrestling with the cat." Wonder who won?

Tim Dyson
Norwood, Ontario, CANADA

The mystery insect is a Giant Water Bug, a.k.a., Electric Light Bug, a.k.a., Frog Killer, a.k.a., (My own name for them) "Flat Bastard," because they are so flat-looking, and offend me to no end when I see them and their aggressive boldness when I encounter them at the lights while I'm looking for moths. They had almost disappeared and then last night at the light there were no fewer than four. I didn't venture into the grass because often there are more there too. I love insects plenty, but some I just can't get used to without my skin crawling all over my body! EEEEEEK....Flat Bastard, run away, run away, run away!

Carroll Rudy
Chilton, WI

The Mystery Insect is the Toe-biter, a.k.a. Giant Water Bug.

INSECT NEWS, *from Page 1*

out the dust was a type of fungal spores from decaying wood in the garage. The owner had seen mushrooms growing on the wood and with this amount of activity the structure is rotting before her eyes.

The dry spring and hot weather will give us much bigger Yellowjacket populations than last year. The heat got them to start scavenging for food by early August, so it will be a long season. The number of stings is way up in many emergency rooms and it will be hard to eat and drink outdoors until late October. The one nice thing about being an entomologist is I can bring my butterfly net and calmly dispatch any wasp that poses any risk. There are advantages to being a bug person.

Phil is the District Outreach Specialist at the College of Agriculture & Life Sciences, Dept of Entomology, UW-Madison. He is often heard answering insect questions on the radio.

EARWIGFLY, *from Page 3*

"uniqueness" of Wisconsin's Earwigfly. For now, we can be thankful that the Earwigfly treads (and flutters) through Wisconsin forests, and that insects such as this continue to keep us in awe of the often overlooked residents of the world around us.

James Dunford is a Ph.D. candidate at the University of Florida and alumnus of UW-Madison. dunford@ufl.edu

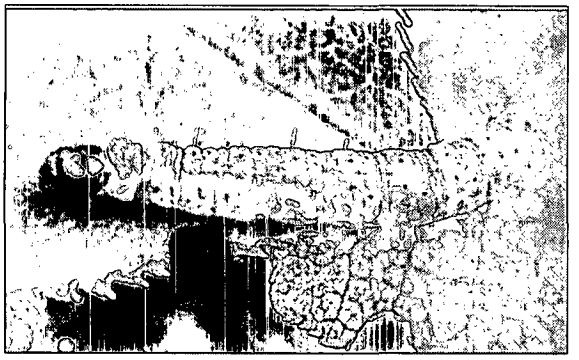
Steven Krauth is curator of the UW-Madison Insect Research Collection. krauth@entomology.wisc.edu

"Teaching a child not to step on a caterpillar is as important to the child as it is the caterpillar."

—Author Unknown

UGLY NEST CATERPILLAR

Article and Photos by Janice Stiefel



Ugly Nest Caterpillar (*Archips cerasivorana*)
5th instar, black head, mustard-yellow body with black spots, 7/8 in. long. 6/13/05

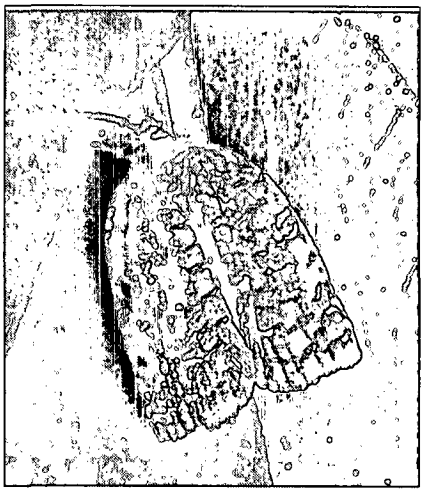
In mid June, as my husband and I were driving along our country roads, we were alarmed at the damage being done to the Choke Cherry shrubs. Assuming they were the Eastern Tent Caterpillars, we didn't think much more about it. However, every succeeding day, the damage got worse. It was then we decided to take a closer look. We discovered that they were not Eastern Tent Caterpillars. In fact, we had never seen anything like them before. An Internet search revealed that they were the Ugly Nest Caterpillar (*Archips cerasivorana*) belonging to the Tortricidae family. Evidently, this is a native species that is widely distributed throughout Canada and the northeastern U.S. It can be plentiful some years and then scarce for long periods.

Leaves of Choke Cherry tied together, forming the web or nest inside. 6/17/05

Females lay their egg masses the previous year on the bark at the base of the host plant. The eggs hatch the next spring in late May or early June. The larvae move to the tip of the plant to form the nucleus of their nest. As they move up the stem, the larvae lay down silk trails. A chemical component of the silk elicits a trail following it. Each strand of silk is stretched slightly before it is attached to a leaf and its axial retraction exerts a miniscule pressure on the leaf, pulling it slightly toward the nest. It is the cumulative force of many such strands of silk spun by groups of caterpillars all spinning at the same time that eventually draws the leaf into the nest. They may also make occasional excursions to other parts of the plant if the original nest site proves unsatisfactory and, in the process, they mark trails which facilitate the gathering of the colony at a new location. The size of the nest is increased as the larvae become larger and often whole Choke Cherry trees are completely covered, which is what was happening here. The larvae complete their growth and develop into the pupal stage in the first two weeks of July. Pupation takes place within the web. Before they eclose, the pupae work their way to the outer wall of the web. There is one generation each year. It is reported to be of little economic importance, except for the unsightly webs on its hosts (which is what we saw along the roadsides). In this way the entire top of a small tree may be tightly bound into a nest (as shown in photo on the left).

Even though we found this species exclusively on Choke Cherry (*Prunus virginiana*) in our area, the following plants are also listed as a host plant: Black Cherry (*Prunus serotina*), Roses (*Rosa*), Hawthorn (*Crataegus*), Trembling Aspen (*Populus tremuloides*), Poplar (*Populus*), and Birch (*Betula*).

Ugly Nest Caterpillar web
6/17/05



Ugly Nest Caterpillar Adult
(*Archips cerasivorana, Fitch, 1856*)
Wingspan: ¾ in.
Wings are dull orange with irregular brownish spots and transverse bluish bands. Eclosed 7/6/05

References:

Forest Pests Website:
http://www.atl.cfs.nrcan.gc.ca/index-e/what-e/science-e/forestconditions-e/forestpestinfo-e/ugly-nestcaterpillar-e.html

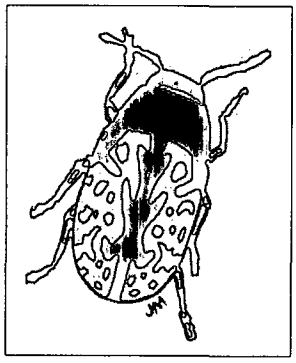
Cortland Edu Website
http://web.cortland.edu/fitzgerald/Archips.html

SUMMER IN THE SHACK

Article and Sketches by Jane Mingari

Odd experience: walking down the dim hallway in the morning, half awake, and glimpsing something black that rises from the floor and flutters ahead. I think it was an Ebony Jewelwing Damselfly. I never would have expected to find that in the house. True, we live in a shack at the moment, its maintenance long neglected by previous owners. There are many bugs that would not surprise me at all in this house. I could even take the blame for some of them.

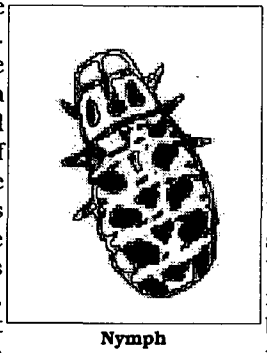
I was impressed with my husband, RW, this summer. A distressing thing had happened in the house: my beautiful gold and black Calligrapha Beetle escaped. And she was still laying eggs. I wondered how RW would take this. This is the man who strenuously objects to dead bugs in his freezer. He took the news surprisingly well. He was more laid back than I would have been, because I have turned into my mother. I used to find it hard to believe that she had ever caught little critters, too, once upon a time. When I, as a kid, came into the house with all my caterpillars crawling on my shirt, she sent me back out the door. The critters had to stay outside. Ironically, this is how I feel today.



Calligrapha Beetle Adult

RW and I have had some gross experiences. Last time we lived in a shack, there were those shocking, fat white grubs in an old carpet. They were weevil larvae. I was stunned to discover that these HUGE larvae had squeezed themselves out of pinhead-sized holes in my acorn collection. But I was not responsible for the black beetles that trooped out of the oven when we turned it on, or for the irreducible billions of cluster flies on the kitchen windows in that place. Still makes my skin crawl just thinking about it. Then my mother in me thinks bugs are OK in the house only if they are contained in jars. And boy do I have bugs in jars. It's a big job remembering to feed them all each day. At the moment, more than a dozen clutter the kitchen countertop —the only safe place in a shack under reconstruction. Though their presence sometimes interferes with RW's dinner preparations, the jars have to stay in plain sight, or I completely forget they exist. We live in chaos and entropy lately, real challenges to the gratification of burning curiosity.

Each year I find bunches of tiny insect eggs on tree leaves. They're shaped like half soda cans, fringed, and racked up as if for a game of billiards. This year some hatched for me. I was thrilled to have little black and orange bugs (aposematic coloring?), possibly stinkbugs. It took awhile for me to realize they were not eating leaves. They ate other bugs. After that they were nothing but trouble: On morning bug hunts to feed them, I always found more insects that I wanted to keep in jars. I couldn't keep up with their appetites. Out they went.*



Nymph

A Calico Pennant Dragonfly experience was interesting: I had to make a containment exception for him—he didn't fit in my jars. I found him in a spider's web, limp but alive. I wanted to know if he'd recover. He spent a week on the countertop, absolutely inert. I learned that spiders can inject a paralyzing neurotoxin that doesn't wear off. With a weird greenish glow in its eyes and flexible dangling limbs, the dragonfly was trapped in living death. So he went into RW's freezer.

The errant Calligrapha Beetle turned up in the middle of the kitchen floor a week after her escape. She declined to eat. Since a fresh daily leaf for her was pointless, she went into RW's freezer. Don't know when I'll be able to find my bug books again, so cold storage seemed like a good idea, at least till I have resources to ID her. (It perplexes me how a man could be mellow about a live beetle loose in his house, yet have a fit about dead bugs in jars in his freezer.)

I still had her eggs, though: They were bright yellow, spindle-shaped, with a pebbly surface. Would they hatch? When? What would the larvae look like? Could I possibly remember to feed them daily and keep them alive? (What if they were so small and peripatetic that they got out the air holes and wandered around the house? Aie!) How long would it be before they pupated? How would they do that? (Oh lord, what if they pupated for months? I'd never remember to keep track of them so long!) The larvae hatched in about six days. I was entertained to find they were checkered, black and white, like something out of *Alice in Wonderland*. They ate random shot holes into basswood leaves, using the tip of their abdomen humorously like an extra leg. After about 20 days of eating, half of the dozen larvae went down into the half-inch of dirt to pupate, while the rest took about 10 days longer. (Why?) (Is the half-inch of dirt under basswood trees filled with pupating Calligrapha Beetles?) It made me wish I'd put far more dirt in the jar, to see how deep they might go. (Weevil larvae want to go very deep. They will die trying, too.)

It took about 15 days before the first half-dozen reappeared as adult beetles in the end of July, little golden works patterned with greenish-black, as if painted in oriental calligraphy. Each design was slightly different, too. I released them into the tree. Now, I am highly tempted to shovel up the dirt beneath the basswood tree, to see

Please see, **THE SHACK**, *Page 7*

THE SHACK, *from Page 6*

what might emerge. What to put it in, though... The criteria are a little restrictive. On the bright side, RW finished off the mustard, so I have a new bug jar coming. I know: the bug jar situation on the countertop is definitely getting out of hand. But the only way I can think of to fix the problem is to put the bugs in RW's freezer.

* I was pleased to find an older version of one of those orange and black bugs later in the summer. It conveniently molted overnight. *Acrosternum hilare*: Green Stinkbug. What a relief. Now I don't have to start all over again with eggs.

Jane is a member of WES and an assistant naturalist at Ledge View Nature Center, Chilton, WI.

WES Membership Dues

Individual Membership
$5.00 per year

Family Membership
$10.00 per year

Sustaining Membership
$15.00 per year

Patron Membership
$25.00 per year

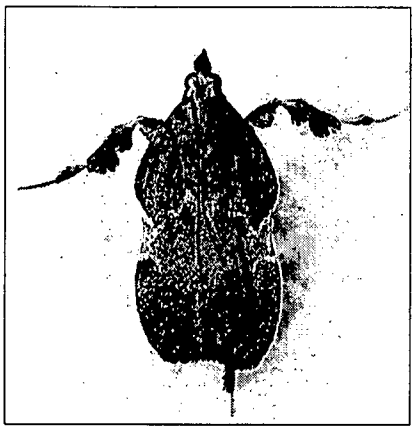
Please make check payable to WES and send to:
Les Ferge
7119 Hubbard Ave.
Middleton, WI 53562-3231.

MYSTERY INSECT

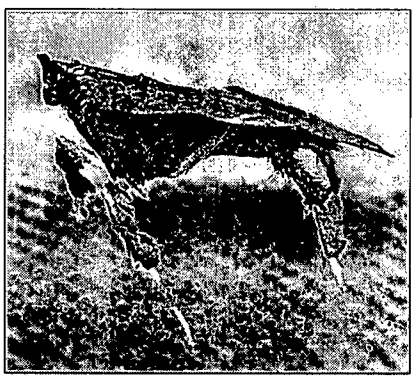
Can you identify it?

The forewing is dull red with gray accenting slight dip at middle of costa. Lines are whitish, usually distinct only at costa. Hindwing is whitish to gray. Wingspan is ½ to ¾ in. Send answers to the editor. Individuals with the correct answer will be announced in the next issue of the WES Newsletter.

Photos: Carroll Rudy, 7/6/05



Dorsal View



Side View

Editor's Note:

For those of you who are interested in moths, you might want to check out the Moth Photographer's Group website: http://mothphotographersgroup.msstate.edu/Plates.shtml

Living moths are on the right side of the plate that comes up and the Collection Specimens (pinned) are on the left side. WES member, Carroll Rudy, and I have placed on this website many of our photos of living moths (adults and larvae) found in Wisconsin. JS

Ladybug Naptime

by Kathy Kennedy Tapp

Sleepy fellow,
stripes of yellow;
now you are my
Cater-pillow!

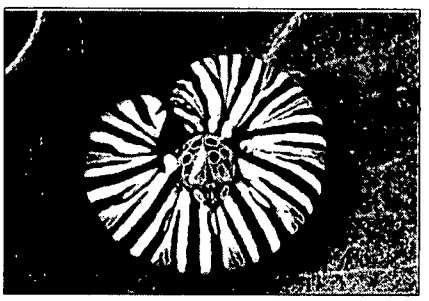


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Photo by Ken Tapp

Submitted by WES members, Kathy and Ken Tapp, of Janesville, WI.

THE END

When the moon shall have faded out from the sky, and the sun shall shine at noonday a full cherry-red, and the seas shall be frozen over, and the ice-cap shall have crept downward to the equator from either pole, and no keels shall cut the waters, nor wheels turn in mills, when all cities shall have long been dead and crumbled into dust, and all life shall be on the very last verge of extinction on this globe; then, on a bit of lichen, growing on the bald rock beside the eternal snows of Panama, shall be seated a tiny insect, preening its antennae in the glow of the worn-out sun, representing the sole survivor of animal life on this our earth, — a melancholy "bug."

—From the last page of *THE MOTH BOOK* by W. J. Holland, originally published in 1903 by Doubleday, Page and Co.

Wisconsin Entomological Society

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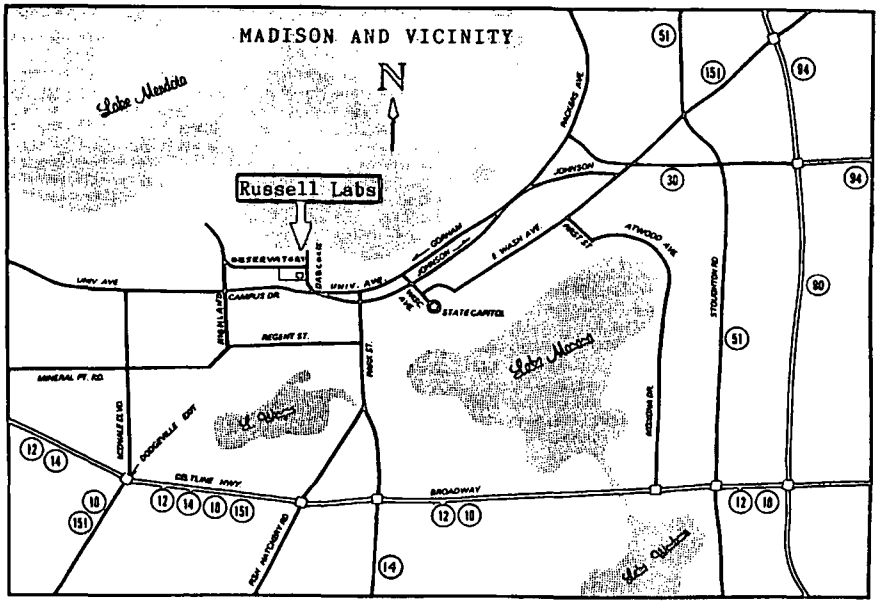
Address Correction Requested



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