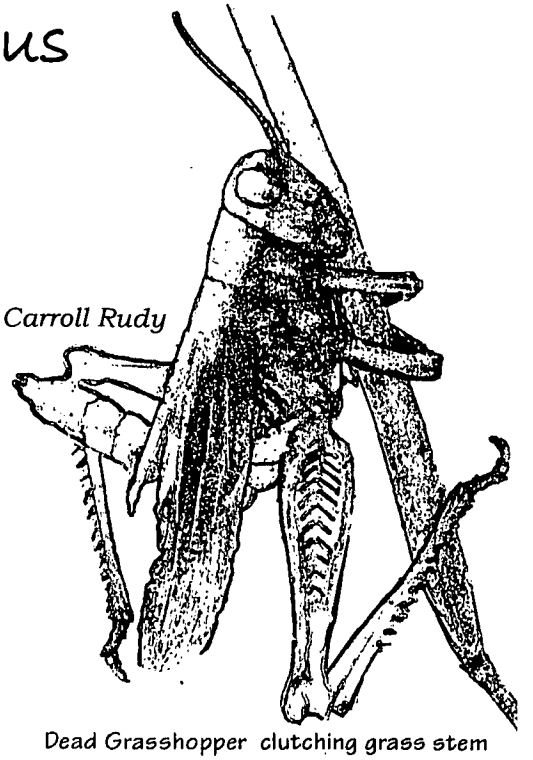
Wisconsin Entomological Society Newsletter

Volume 40, Number 3 **October 2013**

The Mysterious Case of the Grasshopper Mummies

By Carroll Rudy



Dead Grasshopper clutching grass stem

It all started one day when I was collecting grass for my pet Guinea pig's lunch. A Guinea pig's diet mainstays are hay and pellets made of timothy grass, plus assorted fresh greens and vegetables, but during the summer I replace the hay with fresh grasses -- untreated by pesticides of course. The timothy was just starting to bloom. Its tiny cattail-like bloom spikes grow from the tip of a tall stem so they can wave in the breeze, wafting their pollen into the air in the classic wind-pollinated plant fashion.

As I was picking grass stems, I noticed something very peculiar: Each stalk had a grasshopper perched on the top. Grasshoppers are common enough and it's not unusual for them to perch high up on grass stems, but they are supposed to hop away from people. These insects never moved at all. They couldn't move because every one of them was dead. It's strange enough to see hundreds of dead grasshoppers clutching grass stems, but more peculiar still, they all appeared to be the same species and roughly the same age. All the insects were half-grown nymphs about ¾ inch-long. (Nymphs are young insects that look like miniature adults without wings, as opposed to young grub or caterpillar-like insects that undergo a complete metamorphosis.) It appeared that a substantial number of a generation of one grasshopper species had been smitten with a plague! Not only were they dead; they were dried-up mummies of grasshoppers. Each one clutched the stem where it died in a death grip with its four front legs, while the long jumping legs seemed to have lost their grip and gone into useless spasms. So tightly had each grasshopper gripped its perch that it could not be dislodged without breaking off the legs. Rain and wind had not moved them.

Solving nature's mysteries is something I really enjoy, so as soon as possible I was on the Internet seeking an answer to this weird phenomenon. The answer was not difficult to find, for it is well-known among those who study grasshoppers and insect diseases. As I suspected, the culprit was a fungus disease; in this case *Entomophaga grylli*, with a life history similar to the one that compels flies to climb to the highest point on your window before they expire with their tongues glued to the glass by fungal filaments. The grasshopper disease is

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The Wisconsin Entomological Society Newsletter is published three times a year, at irregular intervals. The newsletter 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 for the upcoming newsletter to Les Ferge.

NOTE: Please report any address changes to Les Ferge, 7119 Hubbard Ave., Middleton, WI 53562, email: lesferge@gmail.com

GRASSHOPPERS *from page 1*

commonly called "Summit Disease" because the insects climb to the highest point they can manage on a plant, then clutch the stem as tightly as possible and expire. Why? The fungus takes control of their brains, just as in the flies, and forces them to climb up high so the fungal spores can be caught by the wind and carried afar. In addition, the fungus needs to be exposed to warm sunlight so it can produce spores. The dispersed spores rest in the soil until a future generation of insects of the right species comes into contact with them. To my surprise, there are several species of fungi that cause summit disease, each in a different species of insect, especially ants.

As one would suspect, this fungal disease is one that the agricultural industry would like to utilize, because a few species of grasshoppers are serious pests of crops like soybeans and hay. Experiments are underway, but the disease cannot be cultured artificially, and is dependent on suitable moisture and temperature conditions to be infectious. Such conditions are not always present or dependable, and do not occur during droughts. This year there was the right combination of rain and temperature in my small meadow to produce hundreds of grasshopper mummies all at the same time. I've never seen them before, nor did I see them elsewhere.

A month later I checked the little meadow again and found that nearly all the grass flower spikes had been eaten by deer --grasshoppers and all. A few remained here and there with small fragments of thorax and legs still gripping the dried grass.

An interesting side note to the phenomenon of fungus diseases that can control insects' brains, turning them into little more than living robots, is that scientists are discovering more diseases all the time that take control of their hosts' brains. It even happens in higher animals and possibly even humans. Consider rabies, for instance, that turns some animals vicious so they bite others and spread it. Certain sexually-transmitted diseases make victims try to seek out partners. Consider the common cold and the influenza viruses that make us cough and sneeze even against our will. Recently researchers have found that a disease that commonly infects cats (*Toxoplasma gondii*) spreads to other animals via soil or water contaminated with cat feces. It manipulates the dopamine levels in rats' brains so that they no longer fear cats and actually are attracted to the smell of cat urine. Research is now underway to determine if it affects the human brain in any way. It is the same organism you may have heard of due to warnings that pregnant women should never touch cat litter because the toxoplasma organism causes birth defects in the unborn. Ultimately we will find that it is really microbes that control the world in ways mostly good, even essential, but sometimes bad.

--Creepy-crawlies and weeds are the very foundation of life, the little things that run the earth, cycle and recycle nutrients, create the air and soil. And they do it for free. Without them, the terrestrial ecosystems of the world would collapse within a year,

--Edward O. Wilson

2013 dues notices were sent out in January. Members paid for 2013 or beyond were not billed, and will not receive a dues notice. Remember that your current dues status appears on the newsletter address label after your name. Your prompt attention will be most appreciated.

http://wisentsoc.org/

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Wisconsin Pest Control/Fall

Some things are predictable-- I have been praying for a bug-killing frost since early August. I had set records for the number of samples handled in 2012, so you would think this season should be "slower." It started out that way with lots of rain and cold, but as of today I am only 20 specimens behind last year's total, and if it is a warm fall I could set a new record in the last year of running the diagnostic lab.

No buckets full of crazy southern insects like last year, and a shorter and cooler growing season-- it does not make sense. I had two different pictures this August of **black witch moths** in the Madison area, so some critters did blow up this year.

It was a bad spring for **butterflies** and **bees**. I was at the UW Arboretum during lilac bloom and could not find a bee. There are a number of things that did not show up, and I am blaming last year's drought. Considering how wet the spring was-- the **European earwig** number seemed way down. I had a number of questions about the lack of butterflies and solitary bees in the early summer, and a lot of press on the lack of **monarchs**. The wet spring had to slow down ground-nesting wasps and even help kill off **gypsy moth** caterpillars. We are just starting to see the **yellowjackets** show up at picnics, and I have seen some movement to the west with the **European paper wasp**.

It has been a good year for **dog day cicadas** in Madison. I am still getting pictures of nymphs emerging in early September. A few media people expected a 17-year cicada emergence in Wisconsin with all the press the Eastern Brood II population received. I told them they needed to wait until 2024. I am sure they will not remember that...

I have no explanation -- but I have seen more **bird mite** samples this year than ever before. --And even in the end of August they keep coming in. If they find people, they can leave some nasty bites. If you do an internet search, the top site is called bird mites.org. Terrible nightmare story about how you can never get rid of them-- but it is not close to being true.

It was a good year for a number of species of **black flies** in the SW part of the state, and they caused a lot of mortality on young birds, including bluebirds, purple martins, and swallows. They also caused issues with the nesting whooping cranes again. There were species active into the middle of July.

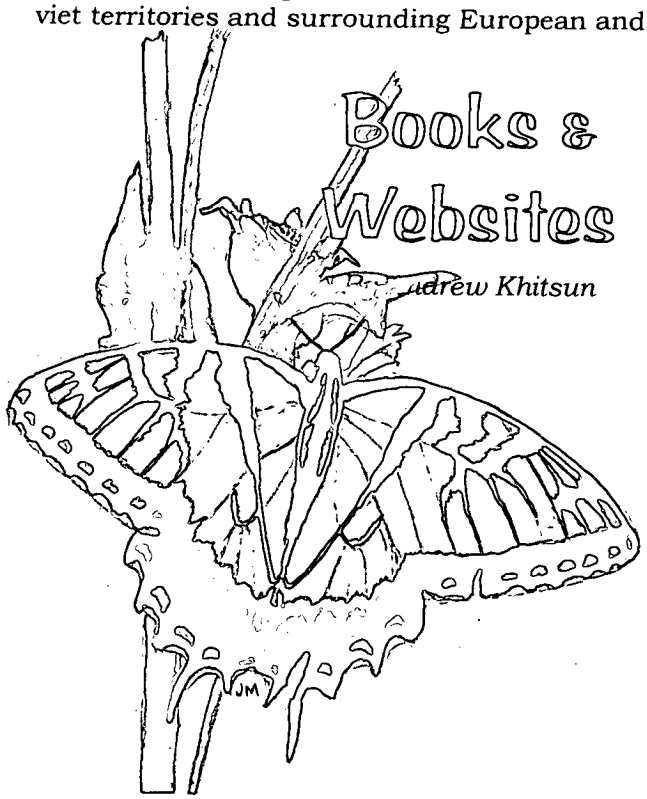
Had some great pictures of a plague of **stag beetles** in the central part of the state, and a large number of Sphingid species showing up. Lots of **Abbott's sphinx** larvae, adult clearwings (**Hemaris thysbe**), adult **Pandorus sphinx**, and a decent number of **white-lined sphinx**. I have seen no larvae of adults of any of the big wild silkworms other than an **imperial moth** image come into the lab.

The **emerald ash borer** showed up in four more counties-- with a big jump with the Superior find-- and we had our first sample of the **European chafer** (scarab beetle) in the state, so the landscape people will stay busy. The best one so far this year was what I think is a picture of a plastic fishing worm found "alive" in a basement in Oshkosh. The person believed it was a rare critter (Onycophora/Panarthropoda) from New Zealand. I asked to see the real thing, but have not seen it yet. We will see if I get a big surprise.

Phil Pellitteri/ UW Insect Diagnostic Lab

The Eat-a-Bug Cookbook by D. Gordon can easily find a home next to your Sushi, Soups, Salads and other culinary writings. Just like those books, this one has all the attributes necessary --recipes, how-tos, photos.

There are plenty of butterfly books out there, to the point that people stop paying attention. But books get better, species lists get updated, and photo quality increases with time, so it's worth your while to take a look at fresh offerings every now and then, like **Butterflies of Indiana** by J. Belth: it claims to be the first for that state. On the other hand, there were several books a few years back, in a series of field guides by J. Daniels, one might consider, if one is interested in the Lepidoptera fauna of states: **Butterflies of Michigan, Butterflies of Carolinas, Butterflies of Georgia, Butterflies of Florida, Butterflies of Ohio**. Of course this is but a small sampling of books in existence on states' Lepidoptera fauna. With sadness, I have to state that Europeans are really into it, and seem to be beating us in this competition: the number of insect books being churned out is just amazing (and I'm envious)! There are beetles and butterflies of every region, country, and place imaginable. For example, author Tshikolovetz and several fellow researchers published a slew of books on Lepidoptera fauna of the former Soviet territories and surrounding European and Asian countries: **Butterflies of Europe and the Mediterranean Area, Butterflies of Caucasus and Transcaucasia, Butterflies of Uzbekistan, Butterflies of Tadzhikistan, Butterflies of Kyrgyzstan** and many others. There is also a series on micromoths of Europe, now onto its sixth volume: Huemer & Karsholt **Microlepidoptera of Europe**. Then there is a **Guide to the Butterflies of the Palearctic Region** by G. Bozano, also on its sixth volume at this time. **Moths of Europe** by P. Leraut are at number three at this time, with more coming. There also is a multi-volume series dealing with separate families, like **Noctuidae Europaea** by M. Fibiger, or **Geometrid Moths of Europe** by A. Hausmann. The list goes on and on -- and I only mentioned a few English-language publications, and only Lepidoptera, just to give you an idea. There is a treasure trove out there. For us not to feel depressed over the issue, **Swallowtail Butterflies of Americas** by H. Tyler is a very informative (albeit very expensive) book. And we have our own wonderful series, like the beetle series produced by S. Carolina's Agriculture & Forestry Research System: **Scarab Beetles of S. Carolina, Leaf & Seed Beetles of S. Carolina, Weevils of S. Carolina, Water Beetles of S. Carolina,** and **Ground Beetles & Wrinkled Bark Beetles of S. Carolina.**



Salticidae of the World at http://salticidae.org/salticid/main.htm is a must-have for anybody interested in spiders -- it has visual keys, searchable database, photos, and more. **Spiders of Arkansas** at http://www.hr-rna.com/RNA/Spiders%20main%20page.htm will make a nice addition to your spider web collection (pun intended). Even though the site is amateurish, it has nice photos and a list of states particular species are found in, including Wisconsin. In addition to already-mentioned-in-this-column Dragonfly Society of Americas, **Worldwide Dragonfly Association** is another body one interested in Odonata might consider joining. It can be found at http://ecoevo.uvigo.es/WDA/ . While on the subject, you might consider subscribing to **Odonatologica**, a journal of the **International Odonatological Foundation** (Societas Internationalis Odonatologica, or S.I.O.), whose page can be found at http://www.odonatologica.com/Web/start.html. And don't forget to visit **International Odonata Research Institute** and **Odonata Information**

BOOKS & WEBSITES *continues on page 5*

The Elusive Strepsiptera

Article and photos by Jordan D. Marché II

Perhaps the most puzzling order of insects is that of the rarely collected Strepsiptera, known as twisted-wing parasites, whose unusual life cycle and adult morphology exhibit extreme sexual dimorphism. Most are parasitic on the aculeate (stinging) hymenoptera, although some are known to affect various orthopterans and homopterans. The largest and seemingly most recently evolved family is the Stylopidae; worldwide, roughly 600 species of Strepsiptera have been named (Grimaldi and Engel, 2005).

In the Stylopidae, females remain larviform throughout their lives and never leave the body of their host. Adult males are free-flying, with large, bulging compound eyes and flabellate (antler-like) antennae. Flight is accomplished by means of the insect's *hind* wings; a trait that is identical to most Coleoptera. The 'forewings' are reduced to knob-like structures that resemble the halteres of flies. Male stylopids live for only a short time and mate with a female through an opening in her cephalothorax, which protrudes from between the tergites (segments) of a bee or wasp's abdomen. After the young reach the first-instar stage (known as triungulins) within the female's brood chamber, they are released en mass and seek out new larval hosts, usually within the wasp's own nest. By secreting one or more enzymes, they are able to 'dissolve' their way into a larval host's body. In the process, they coat themselves with a layer of the host's own cells, thus defeating the wasp's immune system. While acting like endoparasitoids, the developing stylopids do not kill their host although they may impair and possibly neuter it.

Because of these highly specialized physical and behavioral adaptations, strepsipterans have long puzzled entomologists with regards to their correct taxonomic placement. As noted before, certain strong similarities exist within, or at least near to, the order Coleoptera. Larvae of both the family Meloidae (blister beetles) and the Ripiphoridae (wedge-shaped beetles) have active, first-stage instars that are remarkably similar to those of strepsipterans and which also parasitize various genera of bees and wasps. Adult male beetles of the latter family likewise possess flabellate antennae. For these reason, ripiphorids were often considered to be a possible sister-group to the strepsipterans (Falin, 2002). Although somewhat ambiguous, more recent DNA analysis points to a closer association of strepsipterans with the Diptera or true flies, and (controversially) it has been suggested that a reversal in position of the forewings and halteres may have resulted from a homeotic gene mutation (Grimaldi and Engle, 2005, p. 402). Remarkably, fossil strepsipterans (notably adult males) have been discovered in deposits of Burmese amber dating back roughly 100 million years, and possible triungulins have been found in Canadian amber about 75 million years old. The order may thus stretch back in time to near the origins of hymenopterans themselves, but is perhaps derived from still-earlier stem groups existing during the Mesozoic era.

The only dependable way in which to collect strepsipterans is by capturing their hosts and then rearing the males to adulthood. But the timing of such a process remains critical. Here in southern Wisconsin, it appears that the best window of opportunity for doing so occurs from late July to late August. But such a 'window' is inherently a moving one, as demonstrated to me over the past two summers (2012 and 2013). This timing not only depends upon the host's own rate of development but also upon the appearance of the goldenrod flowers that it visits – – both of which are related to seasonal temperature variations and the latter to potential drought. The blooming of goldenrod is the last and perhaps most important floral event of the

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BOOKS & WEBSITES *from page 4*

Network at http://www.iodonata.net/

Wetland Gems is about the most prized Wisconsin wetlands, and can be purchased from Wisconsin Wetland Association at http://wisconsinwetlands.org/gemsbook.htm

STREPSIPTERA *from page 5*

season, as many hymenopterans are dependent upon it for storage of pollen and/or nectar which enables a colony to survive through the winter months.

During the summer of 2012, I began to make a concerted effort to find such a parasitized wasp, once the goldenrod began to bloom and wasps began to visit it. Because of the extremely mild winter preceding that season, many species of insects were appearing about 2 -3 weeks earlier than normal. Complicating matters was the extensive drought that settled over the area starting in June and lasting through much of July. This largely stopped the development of goldenrod and delayed it from flowering until moisture resumed in late July and early August. As a result, I did not find a parasitized wasp (a female *Polistes fuscatus*) until 2 August. But while it had contained the pupal cases of five male strepsipterans, all had previously hatched and were empty when it was collected.

The year 2013, however, was in many ways the reverse of 2012. The prolonged, cold and wet spring, and persistently cooler and wetter early summer months, meant that insects were appearing about 1-2 weeks later than normal. In southern Wisconsin, hardly any goldenrod had bloomed before the first of August, and almost no paper wasps were seen before that same date. This situation proved beneficial to me, however, as I was out of the state for about the first two weeks of the month. When I returned, I was pleased to find that the goldenrod was only nearing its peak blooming period. Despite the previous year's experience, I was optimistic that parasitized wasps containing strepsipterans might yet be found.

Fig. 1. Abdomen of Polistes dominula, showing female strepsipteran and empty male pupal case. Photo by J. Marché.

Fig. 2. Abdomen of Polistes fuscatus, showing pupal cases of two male strepsipterans. Photo by J. Marché.

At the Town of Oregon Park, on 23 August, I captured a female European Paper Wasp (*Polistes dominula*) that contained one female strepsipteran but also the empty pupal case of a male (Fig. 1). I began to wonder if I had in fact missed their emergence for the second year in a row. But on the next day (24 August) at the same site, I captured a female *P. fuscatus* that had two unopened male pupal cases in its abdomen (Fig. 2). This wasp was put into a container holding a fresh goldenrod stalk for food and a fine mesh inner ceiling so as to prevent any possible escape from the parasites. The following day, on goldenrod in our own prairie garden, I caught another *P. fuscatus* that contained one female strepsipteran and also one opened male pupal case.

On 26 August, both of the male strepsipterans emerged from their wasp's pupal cases and almost immediately began to fly inside the container. I was fortunate to observe the second one as it was finishing its emergence. They are roughly about the size of a fruit fly (*Drosophila*

STREPSIPTERA *continues on page 7*

STREPSIPTERA *from page 6*

Fig. 3. Unidentified strepsipteran. Photo by J. Marché.

sp.) and are agile flyers, able to hover as they sought the light coming from beyond. So as not to lose either one, the container was then put into the freezer, and the specimens mounted afterwards (Fig. 3). Their exact identity has not yet been determined, although they have four-segmented tarsi without claws. Their antennae contain but two branches (and seeming four segments each). The wasp from which the two males emerged, on closer inspection, had carried a total of six male pupal cases! I was fortunate, therefore, because the other four had previously hatched, perhaps only days earlier. In turn, the wasps containing the female strepsipterans have been mounted in a normal fashion; no attempt has been made to extract the remainder of the female's body from inside that of the wasp.

So, would you like to try and find strepsipterans on your own? If so, then I would venture to add that, during a 'normal' year, in southern Wisconsin, the period from 1 to 15 August is the most probable 'window of opportunity'. While not overly difficult, the process nonetheless requires much patience and diligence. I have not kept any statistics on the rate of success, but would estimate that you'll probably need to examine at least 50-100 paper wasps, at close range, before finding one that is parasitized. The native wasp, *P. fuscatus*, is one of the strepsipteran's most widely utilized hosts, and the easier of the two principal species to examine. In my experience, *P. fuscatus* is more 'laid back' and you can more readily approach it without disturbing its activities. However, its numbers/abundance seem to have declined significantly over the past decade or so, and it is much less common than before. The introduced wasp, *P. dominula*, has instead become the dominant (or more abundant) species of that genus. It is a more 'hyperactive' species, whose movements are generally quicker and that is much more easily frightened away by a close approach. This makes it a more difficult subject for study at close range, especially when the goldenrod is waving back and forth in the wind. What is needed (for either species) is to make a quick inspection of the wasp's abdomen, to check for any kind of bulge or irregularity (e.g., a 'jagged edge) that indicates the presence of a male pupal case. A dorsal-to-posterior view of the abdomen is best but cannot always be achieved. *If the prospect of looking down the business end of a wasp's abdomen at close range does not particularly appeal to you, then you may wish to consider another type of collecting.* But for the record, I have not been stung by a single bee or wasp while engaged in this activity. Wasps of either species are much more afraid of you and will suddenly take off if they feel threatened. Once a parasitized wasp has been located, it must be captured using a standard aerial net and transferred to a container where it can remain alive for further study/observation. Putting the container in the refrigerator for an hour or so will then let you briefly examine the wasp to confirm if it is indeed parasitized. Upon warming back up, it will resume its usual activities.

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Wisconsin Entomological Society Officers

President: Kyle Johnson
Graduate Student,
UW-Madison
1630 Linden Dr.
Madison, WI 53706
kejohnson4@wisc.edu

Vice-President: Patrick (PJ) Liesch
UW-Madison
1630 Linden Dr.
Room 246
Madison, WI 53706
pliesch@wisc.edu

Secretary-Treasurer: Les Ferge
7119 Hubbard Ave.
Middleton, WI 53562-3231
ferge@gmail.com

Newsletter Editor:

Thank you for all your help in putting the newsletter together! This is my last issue; a new editor is needed for 2014.
jm

STREPSIPTERA *from page 7*

By the technique above, it is probably impossible to spot a wasp that contains only a female strepsipteran. The tiny bulge that is made by its projection from the wasp's abdomen is essentially too small to be noticed except through a hand lens with a stationary (e.g., chilled) specimen. Marshall (2006, p. 380) has thoroughly documented the occurrence of parasitism within the potter wasp, *Ancistrocerus adibatus*, although I have never confirmed such an observation. Other wasps in the family Vespidae, e.g., *Vespula* spp., can probably be safely ignored, both from the lower incidence of parasitism and the difficulty of trying to observe a pupal case projecting from their much bulkier abdomens. Sphecid wasps too may occasionally be parasitized, but the probability of a successful capture is again reduced by their lower abundance. The hairiness of most bees makes them a poor subject for this kind of investigation.

While hunting for parasitized paper wasps on goldenrod, you are certain to encounter a number of other insects that will tend to get in the way and interfere with your observations (by offering plenty of visual distractions). These will include bumblebees (chiefly *Bombus impatiens*), honeybees (*Apis mellifera*), soldier beetles (*Chauliognathus pennsylvanicus*) whose black-and-yellow abdomens somewhat resemble those of wasps, bald-faced hornets (*Dolichovespula maculata*) and great black wasps (*Sphex pensylvanicus*) cruising through but seldom alighting. You'll also see your share of yellowjackets (*Vespula* spp.), along with a variety of flies, such as the tachinid, *Archytas apicifer* (having a metallic blue abdomen), and the syrphids *Eristalis tenax* (a honeybee mimic) and *E. dimidiata*. You may also encounter the cerambycid locust borer, *Megacyllene robiniae*, another wasp mimic. These insects will certainly expand your knowledge of the late summer insect fauna.

As always, a certain element of chance and luck is involved. But with persistence, you may at last find a wasp containing the desired parasite. Good luck, and let us hear from you if you do!

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A Further Note on *Anthidium oblongatum*

Jordan D. Marché II

On 3 July 2013, a single specimen of the introduced wool-carder bee, *Anthidium oblongatum* (Illiger), was captured on yellow hawkweed at the abandoned Leathem and Smith Quarry at Sturgeon Bay, Door County, Wisconsin. This voucher specimen has been donated to the Wisconsin Insect Research Collection (WIRC). Its occurrence provides additional evidence that this species is now widely established in Wisconsin, although it continues to remain very uncommon to rare. No additional specimens were seen or collected by the author, through the blooming of the goldenrod this autumn in southern Wisconsin. In turn, the bee's appearance in early summer significantly broadens the potential time frame during which the species may be found in the process of seeking pollen or nectar. Further records of this species' occurrence within the state should be reported.

Editor Needed for the WES Newsletter

Please contact Les Ferge (lesferge@gmail.com)

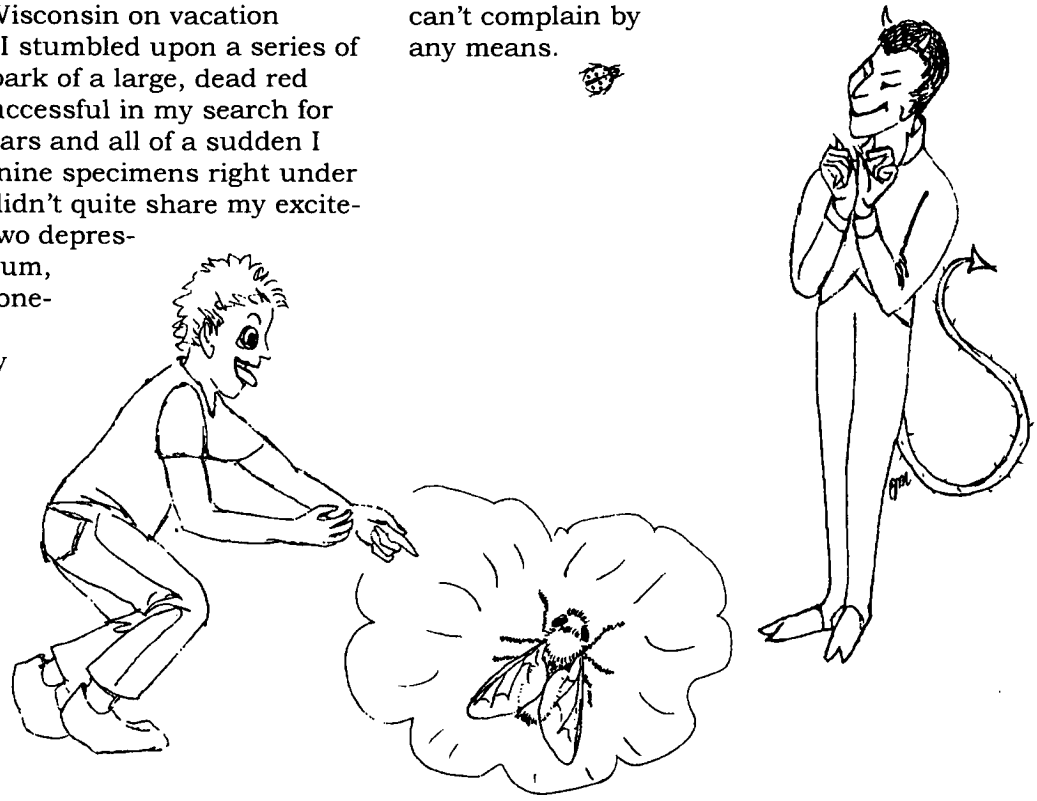
Those elusive taxa and a little bit of luck!

By PJ Liesch

Everyone has a wish list of insects that always seem to elude them. As Kyle Johnson well knows, Boreids (Snow Scorpionflies) are one group that seems to scurry under the leaf litter whenever I approach. Like many other entomologists, Ice/Rock Crawlers (Grylloblattidae) are another group on my wish list. I had even climbed up to the volcanic crater at the top of Lassen Peak in the Cascades looking for them last summer without luck. (*To make up for it, there were plenty of other odd creatures up in that volcanic crater, but that's another story. . .*) Nevertheless, every once in a blue moon you get lucky and find a critter you've been looking for. I must have earned some good karma with the bug-gods, because I've found two groups from my wish list in less than a week this September.

While in northern Wisconsin on vacation around Labor Day, I stumbled upon a series of Pythids under the bark of a large, dead red pine. I'd been unsuccessful in my search for adult Pythids for years and all of a sudden I had about eight or nine specimens right under my nose. My wife didn't quite share my excitement about those two depressions on the pronotum, but I was thrilled nonetheless. I haven't had a chance to key the adults out to species yet, but the metallic sheen has me leaning towards *Pytho planus*.

The other recent find from my wish list really made my day. After working outside all day in the 90°+ temps we've had recently, I wandered into a storage shed at one of the Agricultural Research Stations on the west side of Madison. At first I assumed I was delirious from the heat because there was a dead but perfectly intact adult bot fly (Oestridae: *Cuterebra sp.*) sitting on the counter. The situation just seemed too good to be true. I figured that if this had been one of Gary Larson's *The Far Side* cartoons, it most likely would have been titled "The Entomologist's Dilemma" and would have featured the devil standing nearby asking to strike a deal. Lo and behold, my brain hadn't been addled by the heat, and there really was a perfect adult bot fly specimen sitting on the counter just asking to be picked up. I haven't rescued any stranded kittens from trees or stopped any runaway freight trains lately so I'm still not sure what I had done to deserve such luck. All that I can say is that I can't complain by any means.



Wisconsin Entomological Society

Les Ferge
7119 Hubbard Ave.,
Middleton, WI 53562

Address Services Requested

Fall Meeting

Saturday, Nov. 2
Noon-4 pm

Russell Labs 170
UW-Madison

Join us for a day of insect fun! Lunch will be provided around noon, followed by our annual photo salon (enter up to five pictures). Bring extra pictures, specimens, and stories to share highlights of the past field season. Alternate date if necessary: Nov. 23.

PARKING NOTE: Please park in Lot 40 on the UW-Madison campus. The lot 36 Ramp (the Steenbock Ramp) that we've used in the past now has an access gate to regulate parking, and they may charge to park on the weekends. The Lot 40 parking lot is free on the weekends, and is just across the street from Russell Labs. It surrounds the stock pavilion where the "IRC West" (Lepidoptera and Hillsenhoff collections) is located. To help everyone find Lot 40, go to: http://maps.wisc.edu/ where you can search for "Lot 40" in the search box.