Wisconsin Entomological Society Newsletter

Volume 33, Number 3 October 2006

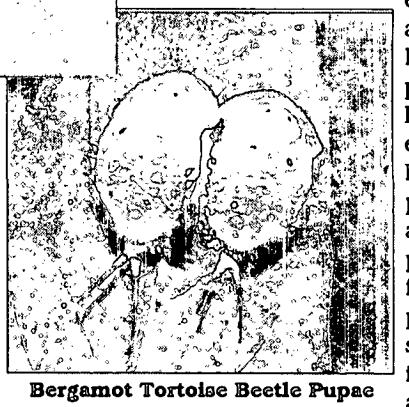
I CAN'T BELIEVE I ATE A BUG!

by Jane Mingari

While reading a book, I came across an anecdote that I had to share. It was about a guy named William Buckland. On a trip to Rome, Buckland visited a holy place and was told that a spot on the floor was the liquefying blood of a martyr. Buckland dropped to his knees. He licked the spot. No, he said: it was bat urine.

The day I told my co-worker, Jean, this tale also happened to be the day of my great Frustration: I found my old buddies, the Bergamot Tortoise Beetles (*Physonota unipunctata*), and it was "bugging" me once again that the little black larvae insisted on living in a tight flock on the plant, while their slightly older yellow siblings tended to wander, solitary. Why the devil do they behave this way?

Bergamot Tortoise Beetle
(*Physonota unipunctata*)
Photos: Carroll Rudy



Bergamot Tortoise Beetle Pupae

I think I was holding a little leaf, with its complement of larvae, up before my face, as I showed them to Jean and described their behavior with the poop they carried on the fork of their tail. I thought I would experiment by scraping the poop off to see how a predatory bug treated them. But it wasn't really what I wanted. What I really wanted was to--"...eat them," Jean suggested, deadpan. This was so far from what I'd been thinking, and so far from what I'd ever consider doing, that I was left speechless.

I do know a person who tastes bugs. His name is Bob. One of his jokes is that he likes his butterflies lightly grilled, meaning: stuck to the front of a car, fresh. The visual on this always filled me with horror, which was probably the part Bob enjoyed most about it. I know that people have, historically, eaten insects. Many insects provided ancient peoples with fat and protein. We still eat insects, accidentally, in things like cornmeal. And in spite of repulsion, I bravely ate my obligatory Ledge View Goldenrod Fly larva (I strongly advise you do this on a frigid winter day, when they're crunchy). Yeah, that was probably the first step in a downward spiral to tasting other bugs, deliberately, but I'm still grossed out, still drawing the line. Regarding the little Bergamot Tortoise Beetle larvae, what I really wanted was to have the knowledge, skills, and complex vaporized-molecule-absorption spectroanalysis equipment of an organic chemist, so that I could test the larvae for bergamot terpenes. These terpenes

Please see, **BEETLES**, *Page 4*

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

INSECT BOOKS AND WEBSITES

by Andrew Khitsun

Since the last newsletter, several new books about insects hit the bookshelves in stores.

100 Caterpillars by J. Miller and others offers amazing high-resolution photos from Costa-Rica. Very detailed and informative ***Carpenter Ants of the United States & Canada*** by L. Hansen & J. Klotz continues Cornell Series in Arthropod Biology, comprised of (mentioned in the last newsletter) a book on Tiger Beetles, ***The Tent Caterpillars*** by T. Fitzgerald, ***The Wild Silk Moths of North America*** by P. Tuskes and others, ***Army Ants*** by W. Gotwald, ***Katydids & Bush-Crickets*** by D. Gwynne and ***Solitary Wasps*** by K. O'Neill. For those generally fascinated with insects ***Secret Weapons: Defenses of Insects, Spiders, Scorpions, and Other Many-Legged Creatures*** by T. Eisner and others serves up a bunch of interesting facts. For you Bumblebee enthusiasts, ***The Natural History of Bumblebees*** by C. Kearns & J. Thomson offers photo ID (albeit low-resolution) of most US species.

On the website front, I'd like to introduce several sites dealing in detail with particular families or genera of butterflies:

Agrias (Nymphalidae) at
http://home.att.net/~agrias/,
Colias (Pieridae) at
http://kotisivu.dnainternet.net/laihoju/cow/
Delias (Pieridae) at **http://www.delias-butterflies.co.uk/**
Parides (Papilionidae) at
http://homepage1.nifty.com/parides/
Heliconidae at
http://helicons.chez-alice.fr/Introduction.htm
Birdwings (Papilionidae) at **http://www.nagypal.net/**
Papilionidae at **http://home.att.net/~bret69/index.htm**

WISCONSIN ENTOMOLOGICAL SOCIETY FALL MEETING

Saturday, November 11, 2006, 1:00 P.M.
Russell Labs
UW-Madison Campus
See map on Page 8

AGENDA

General Meeting: 1:00 – 4:00 P.M.

PRESENTATIONS

A show of slides by Les Ferge, with brief stories to embellish each of them,

Karl Legler will talk briefly with slides of his favorite dragonflies. He will also sing some cicada songs for us!

Andrew Williams will discuss the tachinid flies reared from milkweed specialist Lepidoptera of Wisconsin.

ANNUAL PHOTO SALON

Bring five of your favorite slides for this popular event or send digital images to Andrew Williams at awilliam@facstaff.wisc.edu (yes, the "s" is omitted from Andrew's email address by courtesy of the university).

ELECTION of OFFICERS

INSECT IDENTIFICATION

THE ATTACK OF THE MONARCH SHE-MONSTER

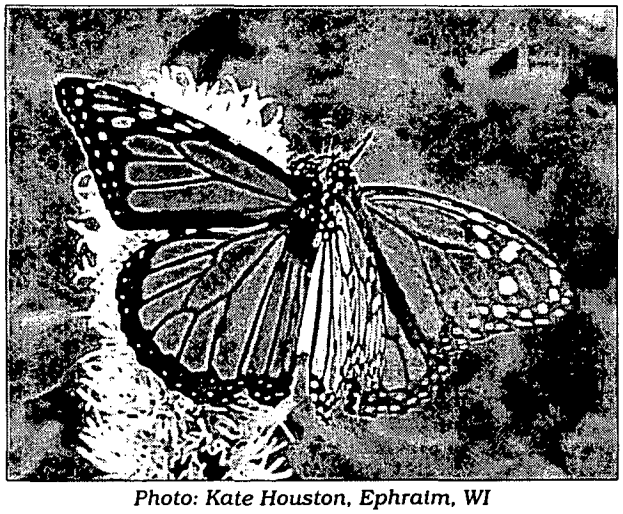


Photo: Kate Houston, Ephraim, WI

"This male Monarch eclosed about mid-morning on Friday, June 21, 2006. I put him outside a few hours later and he was still in the same place Saturday morning. About 3:30 that afternoon, I moved him to the flowerbed where he might find nectar, since I thought perhaps he couldn't fly (not uncommon this summer). Within ten minutes he was rather vigorously 'assaulted' by this desperate, and quite bedraggled-looking, female! After, what looked like some frantic wing flapping on his part (see photo), she finally finished and flew off, but not too far away. Apparently the experience was enough to convince him to fly after all. He lit out in the opposite direction, and quickly disappeared! She was still flitting about the yard.

"That aggressive Monarch *she-monster* came back and attacked another newly released male. It took her twenty minutes or less to appear after I put him out...she must have been REALLY desperate! No wonder she looked so tattered! I'd call her a hussy if I were not a feminist! I was beginning to feel like a porno film-maker!"

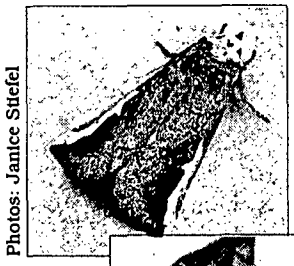
—Kate Houston

NEWS FROM THE DIAGNOSTIC LAB

by Phil Pellitteri

As the 2006 insect season winds down, I will try to summarize the year. With wonders of e-mail and digital pictures I have seen processionary caterpillars from Greece and mole crickets from Iraq. Digital images now account for 34% of my total sample load.

The very dry weather in much of the northern part of the State continues to put stress on many woody plants so bark beetles, cerambycids and metallic wood borers are involved with a lot of the decline and death in pines, oaks, birches, cedars and hickory. We still have not found the Emerald Ash Borer in the state, but it is getting close—and I have had at least two close calls with other species of *Agrilus*.



Photos: Janice Stiefel

Orange-Humped Mapleworm adult & larva

I was in shock this June when a digital image from Duluth of a hedge of Burning Bush was totally defoliated by the Euonymus Caterpillar (*Yponomeuta cagnagella*). This European invader is susceptible to cold winter weather (overwinters as 1st instar larvae) and I have never seen it north of the Wisconsin Dells until this year. The shrub hedge had no leaves and the webbing made it look like those fake spider webs they use for Halloween.

The European Paper-wasp (*Polistes dominulus*) has moved into the southern part of the State. This species looks like a Vespid Yellow Jacket and forages heavily on caterpillars. I have seen reports out of Colorado of it being hard to find any Lepidoptera larvae in late summer once the wasps become well established. I hope this is not the case here.

Among new records, the Cottony Ash Psyllid (*Psyllopsis discrepans*) causing crinkled distorted growth on Black and Manchurian Ash. It was found for the first time in the State on a tree in Hudson, Wisconsin. Information on Cotton Ash Psyllid at http://www.extension.umn.edu/yardandgarden/YGLNews/YGLN-Nov0105.html. An odd case this year has been of Pill Bug defoliation of a Petunia bed in Milwaukee. I have never seen them do much of any damage to plants, except in this one setting. They would eat all of the green tissue and flowers and leave behind stripped woody stems. As I learned long ago: "*Never say never to anything in biology.*"

We have had a number of reports of maple defoliation in the northern part of the state by the Orange-humped Mapleworm (*Symmerita leucitys*). The adult of this handsome Notodontid should be common in light traps next season.

We will be having an emergence in 2007 of the 17-Year Cicada brood in Southeastern Wisconsin. It will be a great teachable moment when we have the general public's attention for a few moments. It will be my last chance to be involved with the media frenzy. I will leave it up to the next diagnostician to deal with the 2024 emergence.

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

ATTENTION

Wisconsin Entomological Society dues notices for 2007 will be mailed to members in December.

WITH A MONARCH'S GRACE

by Patty Dreier

With a Monarch's grace...
let me grow to love my own ugliness.

as I go through life's metamorphoses,

let me wear my boldly-colored cloak without fear.

Let me brave the ride as the fragrances of life

and prevailing winds guide me.

Let me speak volumes without whispering a word.

With a Monarch's grace...
let me accept that it's right to rest when dewdrops are heavy,

trusting that I will know when it is time for lift-off.

Let me learn to appreciate life's colorful sweetness,

taking time for long drinks of the bounty.

Let me handle daily zigs and zags with elegance—

no matter how strong the winds.

Let me gather with friends when it feels instinctively right to do so.

With a Monarch's grace...
Let me trust my internal compass for direction.

Let me chase a dream as high as it takes to catch it and...

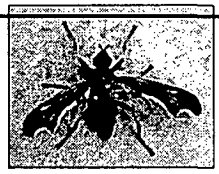
let me become all I am capable of becoming,

as a gentle being in the gardens of this earth.

© 2006 Patty Dreier

Patty is the president and CEO of EarthWonders, LLC. She teaches workshops on lessons from nature.
earthwonders@charter.net
Patty's website is:
www.earthwonders.net

Answer to June 2006 MYSTERY INSECT



Waved Light Fly
(*Pyrgota undata*)

There were four correct answers. Thank you to all who participated!

Ron Huber, Minneapolis, MN
"The mystery bug appears to be one of the "Light Flies," family Pyrgotidae, and looks like the commonest of our five species, *Pyrgota undata*. I was amazed to read what Curran (1965:268) had to say about pyrgotids: "They are nocturnal and *P. undata Wiedemann* has been observed ovipositing on adult June beetles during flight. The flies select the soft part of the abdomen beneath the opened elytra in order to lay their eggs...." All of this is done in the dark! It makes you wonder if the flies actually have night vision, or home-in on the buzzing sound of the scarab wings, or have some pheromonal cue ? It also makes one wonder how the "observer" recorded this - with infrared cameras or ?"

Gene Drecktrah, Oshkosh, WI
"The mystery insect is a pyrgotid (Diptera: Pyrgotida). Although I lack any good dipteran keys, I'm fairly sure the genus is *Pyrgota* and I think the one shown is probably *Pyrgota undata* Wiedemann. The UW Oshkosh collection has eight pyrgotid specimens of which seven are *P. undata* (two from Waushara Co., two from Oconto Co., one from Winnebago Co., one from Dane Co.). According to the literature, the pyrgotids parasitize adult scarabaeids and are most active at night."

Herbert Grimek, Madison, WI
"The mystery insect is *Pyrgota undata*. When I was much younger, I sometimes kept June beetles as pets. Occasionally, I would find one of these flies in the cage. I also have seen *P. undata* at lights."

Kurt Kaiser, Sheboygan, WI
"The Mystery Insect is *Pyrgota undata*."

BEETLES, *from Page 1*

include alcohols that are known to irritate insects (though obviously not tortoise beetles).

My theory was that the younger guys are indeed black as a warning color, and that because of a lack of terpene accumulation in their young bodies, they flock to present terpene-strong feces to the face of a predator. Whereas, perhaps the older larvae have a greater accumulation of the terpenes in their bodies, and so don't need to flock. But the older larvae have no apparent warning coloration (which is generally black and yellow, black and red, or black and orange). Regrettably, nobody could help me with this chemistry dilemma.

In the meantime, I tried my predatory bug experiment with the Wild Bergamot (*Monarda fistulosa*) and the beetle larvae. At first it looked promising: stuck in the same jar with a branch of bergamot and the larvae, the Orange-spined Stinkbug nymph (*Podisus maculiventris*) appeared to stay as far away from them as he could. But was this really avoidance behavior? Was it due to the bergamot terpenes?

I rubbed a bergamot leaf on a piece of paper inside a Petri dish and put the bug in there. Would he walk only on the clean center and avoid the surrounding rubbings?

He walked on the lid and sides of the dish. When he ventured onto the paper at all, he did a lot of foot-wiping, kind of like we wipe our dirty hands on our pants. He always stopped in the clean area, only to decide to return to the lid and sides. I felt close to a minor victory.

Next morning all my beetle larvae were dead. The cause: the hungry stinkbug's spear-tube mouth. He sucked dry all the subsequent larvae I put in the jar, too. But my fine experiment really bit the dust when I went out searching for more insects for him. As I knelt to inspect leaf undersides, I discovered another orange spined stinkbug nymph... with his spear-tube mouth in a bergamot tortoise beetle pupa.

At that point I still had no answers about those flocking little black larvae, except that the terpenes that are considered insect-repellent don't stop hungry spined stinkbug nymphs. It looked like I was never going to get any answers, either, when a Person Who Wishes to Remain Nameless (PWWRN)—a person with something approaching the audacity of William Buckland —took it upon self to put me out of my misery by testing the bugs, to my awe and horror.

"I tasted the larva poop in your jar," the PWWRN reported. "Wow! Terpenes galore—concentrated. They burn the tongue. Didn't want to try a larva without your permission." Well, you know what happened next. A black stage larva could not be tested (thank heavens!) because they had all molted to yellow stage by then, but the yellow stage had only a mild terpene flavor, not as strong as what you'd taste if you chewed on a bergamot leaf. It seems the defense is in the terpene-strong poop. The little black larvae's behavior is most probably bird-related: a bird who jabbed at a flock would get a mouthful of something like jalapeno. The yellow stage larvae are probably camouflaged by being yellow.

So at last, I have my answer. That's good, because my husband figures I've just poisoned myself.

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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.

THE OLD ELM'S LAST GIFT

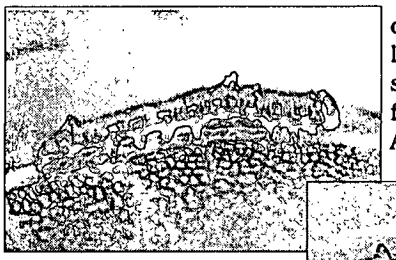
Text and Photos by Janice Stiefel

Rearing caterpillars is not always an easy task. This past summer brought on a few challenges I've never faced before. Generally, there are several host plant choices and the plants are somewhere nearby. Well, this year was different.

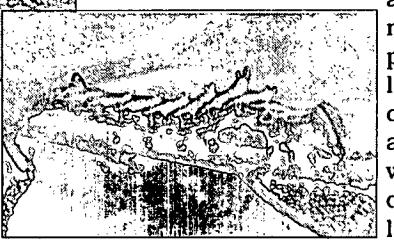
Back in July of '95, when we lived in Sheboygan County, I found my first Double Toothed Prominent Moth and thought it was so beautiful. I often wondered what its larvae looked like. Back then we didn't have any books on the subject of caterpillars and they weren't shown on the Internet either. Even so, whenever I found this moth, I would keep it in a jar hoping it would lay eggs. Of course, I had no idea if I had a male or female, but was always hopeful. We eventually moved to Door County in 2000. but this species never appeared at our light...until June 23, 2003. It was like having an old friend come for a visit. After waiting a few days for any possible eggs, I sent the specimen to Les Ferge, who said this was the first time the moth had been reported from Door County.

Double-Toothed Prominent Moth
Female, wingspan 1-¾ in., 7/1/06
(*Nerice bidentata*)

Surprisingly, we had another visit from this moth on July 11, 2006. This time it was a female and she laid eggs on July 13, 2006! Excitement reigned, because I had recently seen a photo of the larva in the new book, *Caterpillars of Eastern N.A.* by David L. Wagner. It reminded me of a little dinosaur.



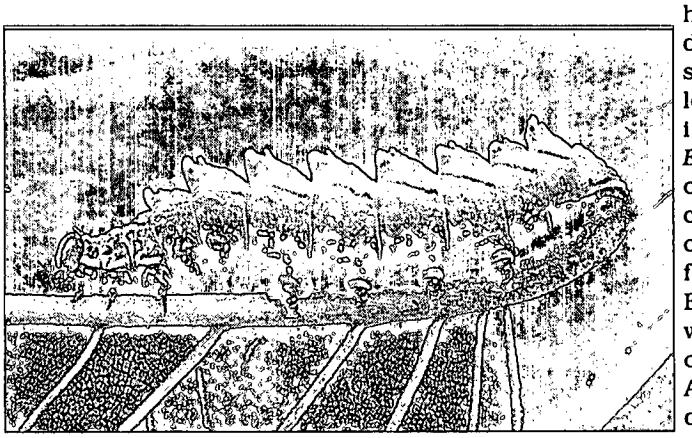
7/24/06, 2nd Instar Larva,
¼ in. long, 7 days old.



7/28/06, 3rd Instar Larva,
⅝ in. long, 11 days old.

Checking my resources, I discovered that the only host plant for this species is Elm (*Ulmus*). We have no species of Elm on our property (that we know of), so I called the experts all over Door County. None of them knew of any Elms either. Usually moth eggs take about six to eight days to hatch; fifty eggs hatched in four days on July 17, 2006. Now, I really had to scramble to find food for them. Thinking I had plenty of time, I had not called our very knowledgeable Door County naturalist, Roy Lukes of Egg Harbor. When I contacted him that morning, he said there was an old broken down American Elm (*Ulmus americana*) along a country road near his house. This was a 30-mile round trip for us, but we had no choice. Thinking ahead, we realized that every time we needed leaves for the fifty larvae, we'd have to make that long trip. So, we bought a hybrid American Elm from a nursery in Sturgeon Bay, who said the leaves had not been sprayed. Unfortunately, the native American Elm is no longer available because of the problem with Dutch Elm Disease.

Has anyone actually bought a tree for caterpillars? I doubt it. Immediately upon arriving home, I washed the leaves and put ten larvae on a cutting of five leaves. The next morning, all ten caterpillars were dead. That was a huge disappointment. What was in those leaves? I wasn't willing to experiment a second time. Then, I was told that any member of the Notodontidae (Prominent) family that eats only Elm, would also eat Aspen, Willow, Sumac, or Birch. I placed five caterpillars on each of those tree leaves. The larvae all died. I now had twenty larvae left, so had to bite-the-bullet and travel the 30 miles for food. The caterpillars grew quite quickly. However, by August 10th several caterpillars had died, one pupated, and there were two left. That morning we made a trip to pick up some more Elm leaves for the two remaining caterpillars. When we arrived at the site, the tree was GONE!! It had been cut down and the remains were laying in the farmer's field. We managed to salvage a few decent leaves. Upon arriving home, one caterpillar had died and the other pupated, so we did not need the leaves after all. Interestingly, *Caterpillars of Eastern N.A.* says the pupa overwinters. Not so, in this case. The two pupae eclosed on 9/4 and 9/6, both were females and both laid eggs. Even though the rest of the world has forgotten the once revered, majestic American Elm, in its final days this one solitary tree provided the life-saving gift of food for some very special caterpillars.



Double-Toothed Prominent Larva
8/3/06, 5th instar, 1½ in. long, 17 days old.
The coarsely toothed dorsum matches the toothed leaf pattern of the American Elm—a miraculous camouflage.

© 2006 Janice Stiefel

In a visit to England, a tour guide is pointing to a spot where lepidopterists have sugared for moths for 400 years. This is in the "New Forest" (now quite old) in Southern England.

Photo: Ann Swengel

INNOVATIVE MANAGEMENT HELPS BUTTERFLIES

by Ann Swengel

Imagine a place where volunteers survey hundreds of sites weekly for butterflies and conduct systematic night-trapping for moths. Scott Swengel and I marveled at that and so much more when we attended the 5th International Symposium on Conserving Lepidoptera at Southampton University in England in April 2005. On the other hand, imagine a landscape more than one and a half times the size of Wisconsin but supporting six times the human population density of Wisconsin, with only about 60 species of butterflies. The land has been plowed and forests harvested for centuries. They also have the same problems with succession and non-native species, and some of those non-natives are ours! How fortunate we are in Wisconsin to have never-plowed vegetation and even some never-logged forests.

In Jeremy Thomas' keynote address, he reported that British butterflies show sooner and faster declines than their vascular plants and birds, also covered by comprehensive datasets. While it has often been said that butterflies are valuable indicator species, this was statistical proof that they truly are "canaries in the coal mine." The question is whether we're listening to what butterflies are saying. Long-term monitoring is the clearest way they can speak to us.

But long-term monitoring may sound about as fun as eating spinach or walking a treadmill. It's for the good but who wants to do it? After all, monitoring is repetitious—surveying the same old sites year after year the same old way each time. What usually grabs the headlines is new and experimental, even if it's not long-term or conclusive. But butterflies vary so much in abundance annually that each year is new and unpredictable, like the explosive return migration of Monarchs we saw in northwestern Wisconsin last Spring, even in peat bogs!

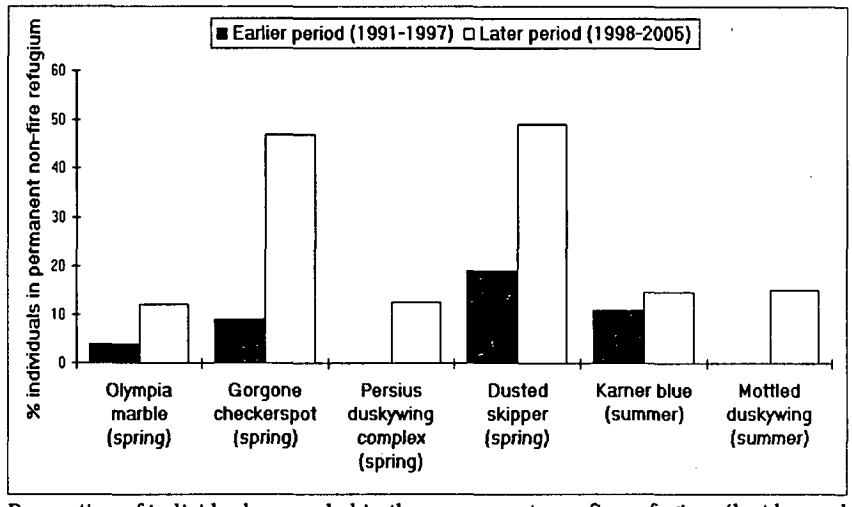
In the inspiring and intimidating milieu of this conference, we presented our findings on population monitoring of habitat-specialist butterflies in Wisconsin prairies and pine barrens. As reported here first (see "Good News for Regal Fritillaries" in June 2004), Regal Fritillaries were steadily declining during the 1990s at Muralt Bluff Prairie (62 acres, Green County), after core habitat for this magnificent butterfly was last burned in 1991. But then this 7 acres of core habitat became a "permanent non-fire refugium." This means the unit was kept unburned through cycle after cycle of rotational fire management elsewhere in the site, not just temporarily unburned for a single year or a single rotation.

After the population nadir in 1998 (only one individual seen despite three surveys), the regals at Muralt Bluff rebounded strongly, with survey totals from 2003 through this year at or higher than our previous highest count (in 1990). This nail-biting decline and remarkable recovery illustrate what a difference a refugium can make—and not having one, too. Over the years, brush-cutting in the refugium as well as other parts of the site has also been beneficial.

Less dramatic trends but more consistently secure Regal Fritillary populations occur at the other main sites in Wisconsin (Barneveld Prairie, Buena Vista Grassland, Hogback, Thomson Preserve). All these sites have substantial never-fire-managed areas.

Unfortunately, the refugium at Muralt Bluff was not a core area for Ottoe skipper, which concentrated on the north end of the site, still in fire management. We have not recorded this species at Muralt Bluff since 1997.

Please see, **SURVEYS**, *Page 7*



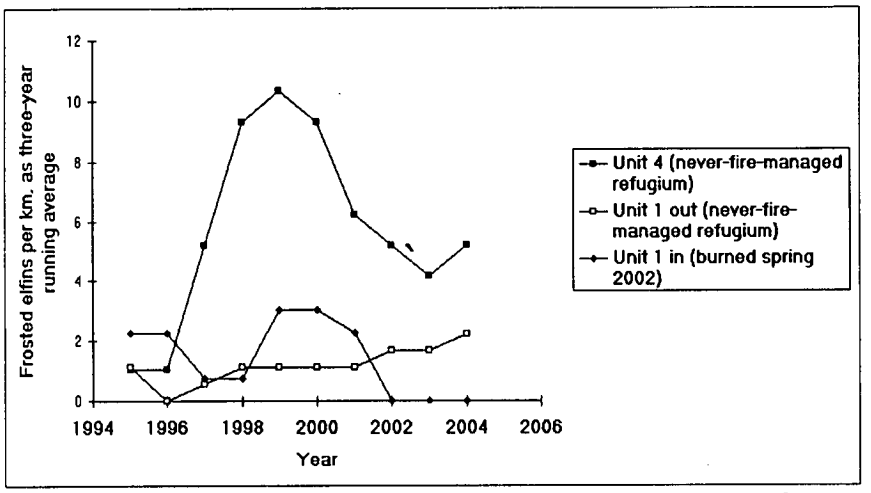
Proportion of individuals recorded in the permanent non-fire refugium (last burned in 1988), out of total individuals recorded there and in fire-managed sites on the same day each year at Crex Meadows (Burnett County). No Persius Duskywings or Mottled Duskywings were recorded in the refugium in the earlier period. Spring: 17 May-13 June in 1994-95, 1999-2000, and 2002-2004; summer: 20-31 July in 1991-2005 at the refugium and 14 comparison units; 4 units are missing 1996 data due to inclement weather.

SURVEYS, *from Page 4*

Crex Meadows (about 30,000 acres in Burnett County) had a permanent non-fire refugium designated in the "corner unit" (34 acres) during the 1990s as a conservation measure for the Federally-listed Karner blue. Last burned in 1988, this refugium was selected not only because it supported two listed species (also the Phlox Moth, State-listed as endangered) and other specialist butterflies but also because it was readily excludable from fire (since the perimeter road abuts its north and east sides) and had less encroachment by brush and non-native plants. While the Karner Blue has benefited from this refugium, other butterflies have shown even more dramatic relative increases there (see bar chart).

Bauer-Brockway Pine Barren (Jackson County) is entirely inside the perimeter of a >17,000 acre wildfire in 1977 but within 0.3-0.7 miles of this perimeter. Once the firebreak was installed in our survey unit 1 in spring 2001, we divided our survey route into "in" the fire-managed area (22 acres) and "out" of the fire-managed area (10 acres). Only for Frosted Elfins had we kept detailed location information for each individual observed in unit 1 before this burn, so we could only analyze individuals of this species observed "in" vs. "out" of the fire-managed area both before and after fire management occurred. Hand-cutting of pines occurred in unit 1 "in" and "out" and in the other never-fire-managed refugium (our survey unit 4, 37 acres).

As the line graph shows, designating never-fire-managed areas has effectively conserved Frosted Elfins at Bauer-Brockway. From 2002 through 2006, we found no Frosted Elfins in the fire-managed area, while we continued to find normal numbers in the refugia.



Line graph: Frosted Elfin population indices (individuals per kilometer of survey route) in Bauer-Brockway Barrens (Jackson County), as three-year running averages, to damp out annual fluctuations in abundance. Annual peak counts in 1994-2005 occurred 2 May-12 June.

Habitat-restricted insects elsewhere also like habitat stability. Kamal Gandhi and colleagues reported in *Biological Conservation* (2001: pages 131-141) that fire skips within the perimeter of the most recent wildfire in an area of Canadian boreal forest contained trees averaging 180 years old (up to 300+ years old) -- older than the mature unburned forest (72 years old) surrounding this fire. A glacial relict beetle was associated only with these fire skips. Martin Fellendorf and colleagues reported in *Journal of Insect Conservation* (2004: pages 311-322) that two populations of a native ground-nesting bee had catastrophic declines after river flooding, even though the species is native to flood plains and flooding is often viewed as a beneficial conservation practice. Localized insects have discovered complexity in the landscape that we humans can overlook, such as locations in a boreal forest that consistently don't burn in wildfires. These pockets of remarkable stability need to be conserved as much as the more dynamic parts of ecosystems.

We are very grateful to the Wisconsin land regulators and managers in the U.S. Fish and Wildlife Service, DNR, Green County Conservation League, Jackson County Forest, and The Nature Conservancy who are conserving Wisconsin Lepidoptera with the management stability of permanent non-fire refugia: Tim Beyer, Cathy Bleser, Nancy Braker, Cathy Carnes, Mike Engel, Pete Engman, Gary Felder, Randy Hoffman, Jim Keir, Kathy Kirk, Gene Kohlmeyer, Paul Kooiker, Dave Lentz, Steve Richter, Jon Schweitzer, Ed Vlach, and Jim Zahasky. We also greatly appreciate funding for parts of our research from the Lois Almon Small Grants Research Program, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Jed Bromfield and Henya Rachmiel, and Drs. William and Elsa Boyce.

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MYSTERY INSECT

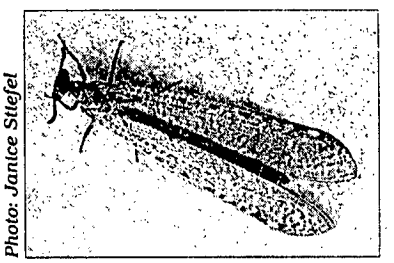

Photo: Janice Stiefel

Can you identify it?

This is a female with a wingspan of 3 in., It came to a black light and laid eggs. Rearing these insects are a challenge because they are predators and need a ready supply of prey. As an adult, not much is known about them. Send your answer to the editor. Winners will be announced in the next newsletter.

Wisconsin Entomological Society

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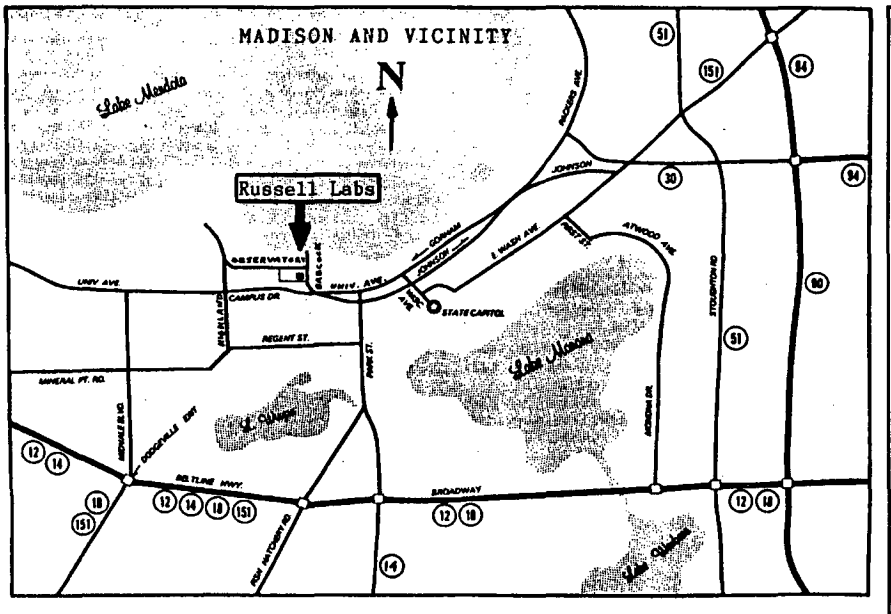
Address Services Requested



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