

The Maine Entomologist

A FORUM FOR STUDENTS, PROFESSIONALS & AMATEURS IN THE PINE TREE STATE

Volume 7, Number 4, November 2003



Season's Greetings From the President







The extended mild and colorful fall in southern Maine has been accompanied by much insect activity providing great opportunities to add a few new specimens, sketches or observations to your collections. I hope that you have had as great a season as I have and that you will share with us some of your field experiences through upcoming issues of *The Maine Entomologist*, at our winter workshop or by email. As the MES continues to grow we need to keep alive the fun of sharing with others, members and non-members alike, the joy of our field ramblings and those exciting new finds. In addition to our regular field events and winter workshop, members had a great opportunity this past year to learn from each other and from the experts at our joint meetings with the AES in Bar Harbor in June and the VES in VT in July. Many of our members also participated in one way or another in making the Bug Maine-ia at the State Museum in September a whopping success for more than 1100 school children! Learning and sharing—that's what it's all about. And at our annual meeting, through a variety of decisions, we committed ourselves to continue this forward momentum. For the first time three committees were appointed to deal with issues such as our upcoming winter workshop, our 2004 June meeting downeast, and our calendar for 2005. Bug Maine-ia will also be a feature again in September and needs strong MES support. We have another busy but exciting schedule of things to do over the next year. So let's join together to make 2004 an even more exciting year afield. In closing I want to again thank all of you who contributed to my wonderful retirement gift of a binocular microscope. I may have left state service but I am still in the "bug" business. I love to hear from all of you and to be challenged on occasion with those tough ID's.

Don't forget our extra special (a surprise extra photo is included) calendar for 2004 when making out your gift lists!

Best wishes to you all for a great holiday season.

-Dick Dearborn

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Winter Workshop



On Saturday, January 17, 2004, the Maine Entomological Society will hold its second annual Winter Workshop at the Science Building of the University of Southern Maine at 96 Falmouth Street, Portland, Maine from 9:30-3:30 (bring a lunch). The workshop is open to all MES members and non-members and a small entrance fee may be charged to help cover the costs involved. This year the workshop will feature displays of entomology related materials and activities as well as a program of presentations. To make this format a success we need volunteers from our membership to agree to set up tables displaying their particular skills, equipment, collections, etc. or to give a presentation. Examples of tables could include displays of fishing flies to imitate insects, insect art or literature, identification of certain groups of insects with keys and specimens, field notes, etc. For more information, directions, or to register for the workshop please contact Chuck Peters at (207) 926-4806 or chuckp@prexar.com.

In the case of inclement weather, contact Chuck Peters by 8:00am on January 17th for confirmation.

Dedication of Edith Patch Hall

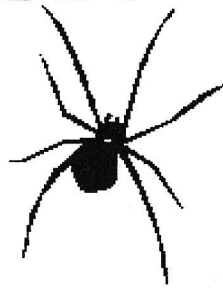
On October 4th, Edith Patch Hall, a new apartment style student residence, was dedicated on the University of Maine campus at Orono. Among the speakers at the ceremony were President Peter Hoff, Vice President for Student Affairs Richard Chapman, and Instructor in Education Mary Bird, who represented the Friends of Dr. Edith Marion Patch. Mary is in the final stages of preparing her doctoral dissertation for Harvard University on aspects of Patch's work as an educator. She ended her talk with a poem written by Dr. Patch almost exactly 100 years ago. The poem is called "First Autumn in Maine." A manuscript copy of this poem in the Fogler Library Special Collections, has on it a brief note added by Dr. Patch in 1940. Patch wrote as follows:

"In Maine the fall of 1903 was so warm and gracious that violets, wild strawberries and many other plants blossomed in October – a mingled season of spring flowers and autumn leaves. That was my first fall in Maine and I spent peaceful solitary hours becoming acquainted with an outdoors so unlike those Minnesota places I loved."

The poem reflects Edith Patch's youth and her classical education. At its end, it reflects the sense of anxious, yet inspired expectation with which she anticipated her pioneering position as the University of Maine's first woman scientist.

-Cassie Gibbs

Note: The fund raising campaign in support of the renovation of the Edith Patch House, "Braeside," is underway and more news of this effort will be available soon.



Seven Things to Do with a Spider

On July 24th, at ten minutes before noon, I noticed a wasp of the Family Pompilidae at the window of my front storm door. It was perched on the horizontal ledge of molding, and it was crouched over a spider. The Pompilids are all spider hunters, and we have many around the cabin, including the MES mascot *Dipogon sayi*. Several times this summer, I have found them indoors and have to take them outside again.

This spider hunter on my front door was just over a half-inch in length, solid black with wings of a violet iridescence. I did not kill it for identification but since it was right against the glass of my outside door, I took a lens from the window and looked at the wasp from the inside out, as it were. I could actually see the transverse suture of the mesopleuron, like a furrow or crimp, which is a family characteristic. Here are the activities that I watched the spider hunter perform:

1) She "antennated" the spider's body. That is, she touched the carcass of the spider all over with her antennae. The spider's body was about as long as the wasp itself, but it was minus the legs, which the Pompilids bite off, before bringing it into the nest site. This probably makes it easier to maneuver. The cephalothorax was light tan and the abdomen slightly more grayish, and oval, not spherical.

2) At one point, she actually had her antennae under the body of the spider.

3) She also used her palps to touch the body all over.

4) She then used her mandible to scrape the body all over. She did not seem to chew or puncture it. It was as if she were cleaning or smoothing the body.

5) She made a showy effort of cleaning her hind legs and antennae while standing over the body of the spider.

6) She gripped the spider carcass by the spinnerets for a while. A few times she turned around, so that half the time she was head-to-head with the body, and then at other times head-to-spinneret.

7) She made several crouching or squatting moves over the spider, as if to test the best position for grabbing it under takeoff.

After ten minutes, she was still manipulating the spider. I went away for about four or five minutes, and when I returned, she was gone. She had finally dragged or flown off with the carcass. It was overcast, a warm and humid morning, at about 75 degrees Fahrenheit and 82 percent relative humidity. I had noticed Pompilid wasps being quite active around the cabin in the past several days. I guess it was good spider hunting time!

-Monica Russo

The Maine Entomologist Goes Digital

Beginning with the February 2004 issue, we will be making *The Maine Entomologist* available to members via e-mail in PDF format. The software needed to open PDF documents is available to download for free from www.adobe.com. Just click on the "Get Adobe Reader" button. The resolution on graphics will be better when viewed electronically and you'll also receive your issue sooner since it doesn't have to travel via postal mail (or wait until your editors have the chance to collate, fold, stamp, and address 140 newsletters). If you are interested in receiving the newsletter electronically, please send an e-mail to naturbuf@gwi.net and let us know whether you would like to continue receiving a hard copy as well.

The Cozy Relationship Between A Wood Fungus And Two Wasps

The drama begins as follows: the female horntail wasp, *Tremex columba*, drills eggs into a species of deciduous wood, often beech. The eggs pick up spores of the wood fungus *Cerrena uniclor*. These spores are stored in her ovipositor. The mycelium from the germinating spores contains an extra-cellular enzyme that helps break down the cellulose on which the larvae feed. There is also evidence that the saliva of the larvae also helps in the pre-digestion.

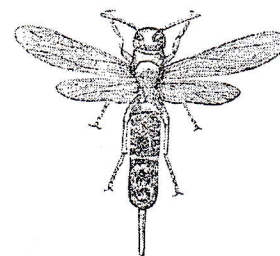
The spores are stored in a larval pouch called mycetangia and are squeezed out during the larval period. Since these spores, called oideas, are asexual, they proliferate rapidly and produce an abundance of mycelium. When the larvae pupate, the spores become part of the pupa. When the female wasp emerges, the spores, by some magic, become part of the egg sac. So we see an amazing symbiotic relationship between an insect and a basidiomycete or white rot fungus.

How does the ichneumonid parasitic wasp, *Megarhyssa*, become involved?

The \$128 question is how does the female wasp find the horntail larvae tunneling deep in the dead wood? The fungus forms conspicuous sporocarps that resembles woody *Polyporus versicolor* (turkeytail) on the dead wood. The fungus produces a pheromone that lures the female wasp to the area. The female begins drilling into the wood with its flexible ovipositor.

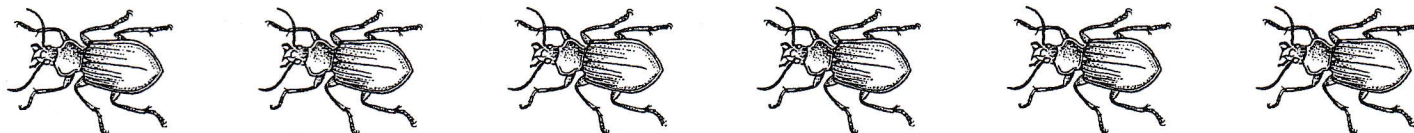
When the *Megarhyssa* larvae hatch they parasitize the horntail larvae in the tunnels. Fantastic and remarkable!

I have photographed the drama of the emergence and drilling of the wasp five times. Each time I have seen 5 to 6 females and 40 to 50 males. Males do a circular mating dance that is phenomenal!



Tremex columba.

-Sam Ristich



Bug Maine-ia A Success

On Wednesday, September 24th, MES members joined with other bug enthusiasts to present a fascinating program to 1,146 children, ranging from grades kindergarten to eighth, among 18 school systems at the Maine State Museum in Augusta. Buses came from as far away as Lee, Maine. Even 10 Home Schooling groups joined with the public schools to learn how to enjoy insects and their relatives in this first ever "Bug Maine-ia" event.

Children viewed such creatures as a live bird-eating spider, scorpions, hissing cockroaches, and scarab beetles in an insect zoo presented by Tony Sohns. Three MES members were as excited as any second grader to scurry off to a dark storage room with a live scorpion and a flashlight to see the scorpion literally glow in the dark. I found out that these critters are hunted at night with a flashlight. Now I know why!

Two little woolly bear caterpillars must have walked many miles from one child's hand to another. One young lady carried her woolly bear in a large plastic container full of vegetation, on the school bus, to have its red segments counted at the Woolly Bear Weather Forecasting table. A sign on the container said "Fluffy!"

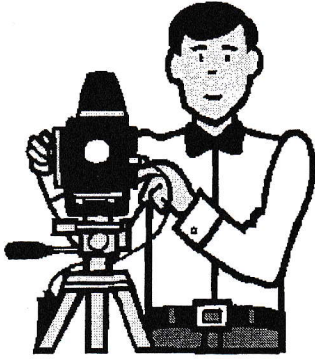
There were tables representing many aspects of entomology scattered throughout the museum. The film "Microcosmos" was set on constant replay. An insect collecting and identification station was set up on the lawn behind the museum.

Another MES member, Karen Hopkins, had a fascinating display on forensic entomology, by the display on "bones" on a lower level of the museum. Thanks to one of our cats, Karen also had a bottle displaying what carrion beetles and fly maggots can do to a corpse.

Fifteen MES members were very pleased to be able to participate in some capacity to help make this event a great success. Because this program was such a smash hit, not only with the school children, but with their teachers and parents as well, there are plans to do "Bug Maine-ia" again next year on Thursday, September, 23, 2004.

-Marj Dearborn

A Collecting Story



A few years ago, your editors were taking a short respite in the White Mountain National Forest. The scenery was, of course, spectacular. Waking to the view of Mt. Pierce over the taste of strong tea and hiking under the Frankenstein Cliffs and Arethusa Falls proved bracing, as wind

threaded through the dark conifers on the opposite side of Crawford Notch. The highlight of this short romp was the pink lady slipper that grew along the trails. After meager lunches of dates, nuts, and cheese, their aroma, so similar to decaying flesh, was, well, not invigorating.

But I digress a little, for, you see decaying flesh takes up the central theme to this piece. Later in the weekend, we were driving through Bear Notch Road from Bartlett, NH to the Kancamangus Highway. As we passed many of the scenic view rest stops, the Pemigewasset Wilderness beckoned.

Until I saw the rabbit in the rest area.

Not any rabbit mind you, but a snowshoe hare, *Lepus americanus*. And the poor chap was lying expired on the side of the road (or sleeping, but I doubted that!). With a cry of excitement, I slammed on the brakes and veered into the parking area while Laura peeled herself off of the dashboard.

A few words about roadkill. The collection of it is an uncommon yet strangely fascinating exercise in hand-eye coordination, driving skill, and stamina (alas for the faint of stomach). And stealth, which is important for reasons that will become obvious.

The hare was just getting stiff and the drying blood still had a vibrant red color so it was not dead long. But my hope was borne out! Ticks still on the carcass! Great (bushels?) of them! Laura, fascinated with the beast for the obscure reason of using the creature as an anatomy lesson, was digging out her camera. I plied off the engorged ticks, probably *Haemophysalis leporispalustris*, and stuffed them into vials with wild abandon. And no, I did not fill out a Forest Service collection permit ahead of time. I heard the faint clicks of Laura's camera and the wind of the mountains but not the sound of the minivan filled with tourists from Japan.

They piled out and began to talk amongst themselves while Laura and I exchanged glances and silently agreed to continue examining the hare, hoping they would not notice us. Hah!

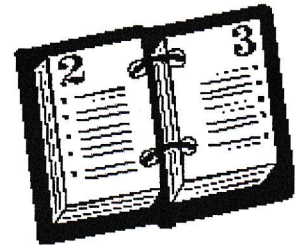
As the tourists scanned the view of the Pemi Wilderness with cameras and camcorders, conversation stopped when we swung into view. Camera shutters stopped clicking. The silence was audible. So were the whispers among them that followed. We looked up and I raised a gloved hand in greeting, not realizing it was a little bloody. Laura looked a trifle embarrassed and realized she had forgotten something (anything!) back at the car and left me with my dead bunny, my ticks, and gory hands. I remembered the vain cries of Lady Macbeth about damned spots and immediately sympathized with the poor woman.

Still staring at us, they slowly, gingerly filed back into the van. After all, sudden moves may startle a wild beast. The van took off like a rocket, spraying gravel and sand and I called out a warning about moose but it was to no avail. They were gone. I had always heard the Japanese were very polite but these circumstances were a bit awkward.

But we did have our rabbit and the knowledge that somewhere over the Pacific, there is a home movie with us as the unusual stars. We have, since then, only collected roadkill under the cover of darkness.

-Chuck Lubelczyk

Mark Your Calendars! Events for 2004



A tentative schedule for 2004 has been created. The following events are planned:

Saturday, January 17. Winter Workshop, USM Portland Campus (see page one of this issue for details).

Saturday, May 22. Field event in York County.

June 12 – 15. A field event/workshop in Hancock County – specific dates to be determined.

Saturday & Sunday, July 24 – 25. Joint meeting with the Vermont Entomological Society Groton, VT.

Saturday, September 18. MES Annual Meeting and collecting event in New Gloucester, ME at Chuck Peter's home. This is a bit earlier than usual for the annual meeting but, hopefully, the weather will allow for collecting opportunities before the meeting begins.

Thursday, September 23. Bug Maine-ia school event at the Maine State Museum in Augusta.

The 2003 Annual Meeting

The annual Maine Entomological Society meeting was held on October 13th at the Mt. Vernon home of Dick and Marj Dearborn. With the beautiful, sunny foliage as a background, how could any outdoor chicken barbecue fail to set the tone for the day?

As noon approached and members arrived with various goodies in hand, the kitchen side table became slowly covered with a nice variety of tasty additions to the main course, Dick's famous "Cornell Chicken." As Chef Chuck Peters brought in the first batch, the various conversations gave way to an eating and sampling period.

After lunch, the members sat down to discuss the various items on the agenda. MES President Dick Dearborn and Treasurer Edie King gave reports. Newsletter Editor Laura Lubelczyk, who announced the winning photos for the 2004 calendars among the fifty plus submitted, followed these. A committee was formed composed of Gail Everett and Dana Michaud to expedite the calendar process next year. Anyone interested in helping with the 2005 calendar should contact Dick Dearborn.

The nomination and voting of officers proceeded quickly as all current officers agreed to stay on for at least one more year. However, 2004 will be the last year as Treasurer for Edie King and Newsletter Editors Laura and Chuck Lubelczyk. Anyone interested in taking these positions in 2005 should contact a member of the MES board.

Next on the agenda was various dates for 2004 workshops and meetings. The 2004 annual meeting was moved from October to September 18 to the home of Chuck Peters in New Gloucester. Chuck also presented initial details about the proposed winter workshop in January at the University of Southern Maine in Portland. Tentative dates were also set for field trips, including a possible bio-blitz geared toward Lepidoptera in Acadia National Park in June. A committee including Charlene Donahue, Andrei Alyokhin, Gail Everett, and Richard Hildreth will see to permits, costs, dates and scope of MES involvement.

Before members departed, Laura brought out the finalists' photos for the 2004 calendar to confirm a few last minute identifications of the species. Accuracy is important when producing an insect calendar. It speaks of quality, and judging by the photos this year, will be a sign of a well-done and reasonably priced product!

-Dana Michaud

Research Notes

Chase, J. M. & Knight, T.M. 2003. Drought-induced mosquito outbreaks in wetlands. *Ecology Letters*: 6 (11), 1017-1024.

The authors hypothesize that mosquitoes should show population outbreaks after drought years. Specifically, they suggest that in permanent wetlands, predators limit mosquito abundance, as opposed to temporary wetlands where competitors that are well adapted to predictable drying, limit mosquito abundance. However, in semi-permanent wetlands that dry only during drought years, mosquito predators and competitors are eliminated and must recolonize following a drought, and the abundance of wetland mosquitoes can skyrocket.

Kleinhenz, M., B. Bujok, S. Fuchs and J. Tautz. 2003. Hot bees in empty broodnest cells: heating from within. *J. Exp. Biol.* 206: 4217-4231.

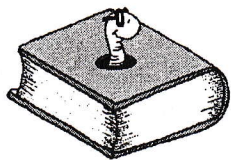
Honeybee colonies maintain brood nest temperatures of 33^o-36^oC. Investigators examined brood nest thermoregulation in individual worker bees and the transfer of heat from workers to the brood. They report on an additional, newly observed heating strategy where heating bees enter empty cells between sealed brood cells and remain there motionless for periods of up to 45 min. Bees staying still inside empty cells for several minutes have previously been considered to be 'resting bees.' They found, however, that the heating bees are distinguished from the resting bees not only by their higher body temperatures but also by the continuous, rapid respiratory movements of their abdomens.



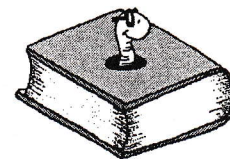
**Online
Aquatic
Invert
Key
Available**

An electronic field guide to aquatic invertebrates is available online. It is a web-based key to macroinvertebrates of small streams of eastern Massachusetts, although most of the subjects can be found throughout New England. The key includes more than 100 genera from 70 families of mayfly, stonefly, caddisfly, and dragonfly larvae, as well as crustaceans. While the key only identifies to genus, it does link to a database that provides species information for North America.

It can be found at <http://efg.cs.umb.edu/streams/streamsKey>



BOOK REVIEWS



Discovering Moths – Nighttime Jewels in Your Own Backyard.

By John Himmelman

Published by Down East Books in 2002

What a pleasant surprise it was when I discovered this book as I scanned the nature section at Barnes & Noble this past summer. While I often find treasures that I hadn't heard about, to find a book that was not only a fun read but an excellent anecdotal account of one man's voyage through the world of moths, those that I could find in my backyard, was great! Because the author is a writer, photographer, and illustrator he conveys his enthusiasm directly to the reader and the balance of the artwork to a storyline keeps you transfixed. The creatures he is talking about and the methods he uses to study them relate directly to the amateur in all of us. The photos are superb and not posed. Most species could occur in Maine. In eleven chapters, John covers biology, rearing and collecting techniques, nomenclature, discussion of different families, a little history of Lepidopterology and a discussion of the "to kill or not to kill" controversy to mention a few topics. He ends with a glossary and a short list of references. I have been collecting, identifying and cataloguing moths as well as other insect for about 50 years and I thoroughly enjoyed the book. It is neither an identification guide nor exhaustive history book and it should not be taken as such. Those working with amateurs of any age will find this an essential addition to their library. I found very little to criticize but I would have like to have seen a few more references and probably the most frustrating part of the book was the difficulty of bringing common and scientific names together. The index has most but not all of them. If you have Charles Covell's book you are OK but many do not. And here too John refers to the possibility of a reissue of this great field guide but when and where? Still John must be commended for this great addition to a meager set of resource books on moths. Buy it – read it - you'll certainly enjoy it.

More information can be found at the author's website at www.connecticutmoths.com.

-Dick Dearborn

A Field Guide to the Dragonflies and Damselflies of Massachusetts

By Blair Nikula, Jennifer L. Loose, and Matthew R. Burne

Published by the Natural Heritage and Endangered Species Program, Massachusetts Division of Fisheries and Wildlife in 2003.

In the last two to three years, quite a number of excellent new books about North American odonates have appeared; this is one of the best overall and the most useful for people in New England.

This is a true field guide, 6"x 8" with a metal spiral binding, printed on high quality glossy paper with sturdy laminated covers. All 166 species of odonates found in Massachusetts are included and illustrated (while Massachusetts has some southern species not yet found in Maine and Maine some northern species not found in Massachusetts, the majority of Maine species are described in this book).

Each species is shown (almost always both males and females are illustrated) with a high quality color photograph. Most of the photographs were taken by Blair Nikula, who is well known for fine odonate images that have appeared in several books and other publications. There are usually two photographs per page resulting in images about 2 ½ inches by 3 ½ inches, big enough to clearly show many useful details. Besides the photographs of each species, there are some excellent drawings by Matthew Burne which show many special details important for identification such as thoracic stripes of the various *Aeshna* darners or terminal appendages of the *Enallagma* damselflies.

A phenology diagram showing the full adult flight period is given for each species. Each plate has a handy scale bar showing the actual size (average body length) of the species. Most of the text is devoted to description of useful diagnostic features and comparison with similar species.

To order this book, send a check or money order of \$20 (includes postage) made out to Natural Heritage and Endangered Species Fund, Massachusetts Division of Fisheries and Wildlife, 1 Rabbit Hill Road, Westborough, MA 01581.

-Richard W. Hildreth

Oak Forest Ecosystems: Ecology and Management for Wildlife

Edited by William J. McShea and William Healy
Published by Johns Hopkins Univ Press in 2002

Arguably the most ecologically important trees in the forests of North America since the decline of the American chestnut, oaks affect every level of the forest system. Their dense canopies shade the forest floor, their fruit provide nourishment for animals ranging from invertebrates to bears, and their ecology is intertwined with land use patterns that are seemingly in decline. This volume, edited by a veteran of the US Forest Service (Healy) and a researcher from the Smithsonian Institute (McShea), should find an audience in anyone interested in the processes of ecosystem management and landscape change.

This book brings together the many threads of oak ecology. Although subtitled, "Ecology and Management for Wildlife," the text covers far more than a squirrel's love for acorns. Although many chapters deal with the importance of oaks to vertebrates such as turkey and deer, there are chapters devoted to the interactions between arthropods and oaks in North America. Chapters 6 and 7 are titled respectively "Native Diseases and Insects That Impact Oaks" and "Gypsy Moths and Forest Dynamics." A later chapter written by Richard Ostfeld delves into the ecological web of oaks, mice, and deer ticks.

Also of interest in this book were the processes that allowed oaks to dominate the forests of North America. A lack of a natural cycle of fire, for instance, has caused the replacement of fire-resistant oaks by faster growing red maples. Although once considered a swamp species, the red maple is fast encroaching on forest stands where oaks have matured and died.

I would recommend this book to anyone interested in the ecology of our forests and one of our most important plants.

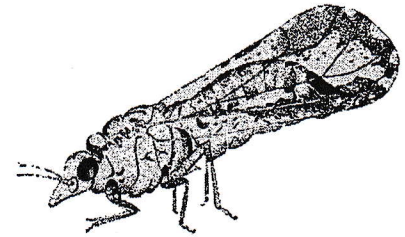
-Chuck Lubelczyk

Some Ornamental Pests In 2003

Naturalists may be familiar with the intricate winding mines of the aspen leafminer (*Phyllocnistis populiella*) in leaves of quaking aspen. This past summer, magnolia at many scattered locations showed leafmining caused by the related magnolia leafminer (*Phyllocnistis magnoliella*). Damage to new growth was minor, but did detract from the appearance of trees. Yet another *Phyllocnistis* species, the citrus leafminer (*P. citrella*), showed up from time to time on ornamental citrus from Florida. The citrus leafminer is an Asian species first found in Florida in 1993 and which first started showing up in Maine in 1995. In Florida, this pest apparently has a new generation every three weeks.

Another new find on ornamental citrus in Maine in 2003 was the Asiatic citrus psyllid (*Diaphorina citri*). This insect was first found in Florida in 1998 and has become widespread throughout that state.

Psyllid feeding causes curled, distorted leaves and sticky honeydew with resulting black sooty mold. Wings of the little adults are attractively marked with brown and white waxy filaments extruded by the nymphs which are visible in piles on infested plants. The infested plants found in Maine were destroyed.



Diaphorina citri. Image courtesy of University of Florida.

A rhododendron leafminer (*Lyonetia latistrigella*), which started showing up in Maine in 1996, was found at many locations last season. The tiny adults of this attractively marked Lyonetiid moth can easily be reared from infested foliage.

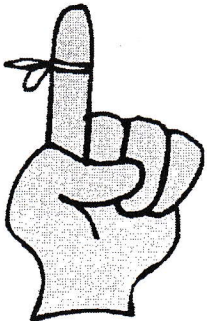
Leafmining is evident on flushes of new growth throughout the summer. Damage may appear as marginal leaf blotches on small-leaved rhododendrons or as narrow, winding mines which cut across the leaf tips on large-leaved rhododendrons (with resulting yellowing and browning of the leaf tissue beyond the mines).

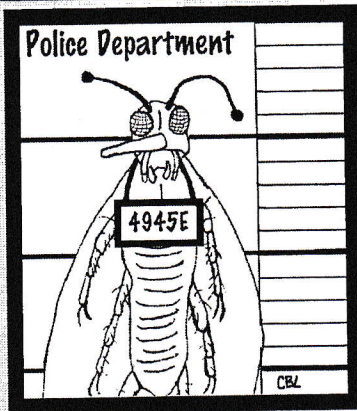
-Dick Folsom

REMINDER:

DON'T FORGET TO RENEW YOUR MEMBERSHIP!

Please check the year in the upper right hand corner of your mailing label. If it reads 2003, it's time to renew your membership. MES memberships run on a calendar year and if you don't renew soon, you may miss the next issue of *The Maine Entomologist*. Dues are \$10 per year, or \$15 for two years. Make checks payable to Maine Entomological Society and mail to: Mrs. Edie King, Treasurer, at 7 Salem Street, Waterville, ME 04901. Don't delay- renew your membership today!





The Bug Mug Shot: The Harris Checkerspot Butterfly

Order: Lepidoptera (Butterflies and Moths)

Family: Nymphalidae (Brush-footed Butterflies)

This is the largest family of butterflies, with approximately 5000 species, of which 220 occur in North America. They are called brush-footed because the first pair of legs on the adult is reduced in size and hairy, resembling a brush. (Other families of butterflies may have reduced forelegs also, but they are not brushy). They are

held up close to the body and can easily be overlooked by the casual observer. The reason for this adaptation is not known.

Species: *Chlosyne harrisii* (Scudder, 1864)

In the very diverse family Nymphalidae, the Harris Checkerspot is typical in size, coloration, and habits. It is widespread in the northeastern quarter of the United States and southern Canada.

Description: Adults are medium-sized, with a wingspan of 30 to 41 mm. Males are slightly smaller than females. The upper side of the wings has a crisscross orange and black pattern, but the underside of the hindwings richly illustrates the name "checkerspot," with definite rows of alternating orange and silver, black-bordered squares. Although the upperside pattern is similar to a few other butterflies, the underside is quite distinctive. The larvae are orange with black marbling and rows of short black, branching spines.

Primary Habitat: Wet meadows and ditches where the host plant, flat-topped white aster (*Aster umbellatus*) grows. In its restriction to a single foodplant the Harris Checkerspot is potentially vulnerable, but at least in Maine *A. umbellatus* is quite common and widespread.

Life History: The eggs are laid in rectangular groups of several dozen on the undersides of the leaves of the host plant, sometimes with a second "story" on top of the first. For the first one or two instars the caterpillars feed communally in a silk nest, eating all but the midribs of the leaves and tending to work their way down from the tender upper leaves to the older, presumably less appetizing ones at the bottom of the plant.

In early August as the asters are preparing to bud, while still quite small the caterpillars stop feeding and enter diapause until the following May. Although the aster plants look rather ragged immediately after the caterpillars' diapause, they quickly recover and bloom spectacularly through the late summer, and regrow in the spring with no sign of injury.

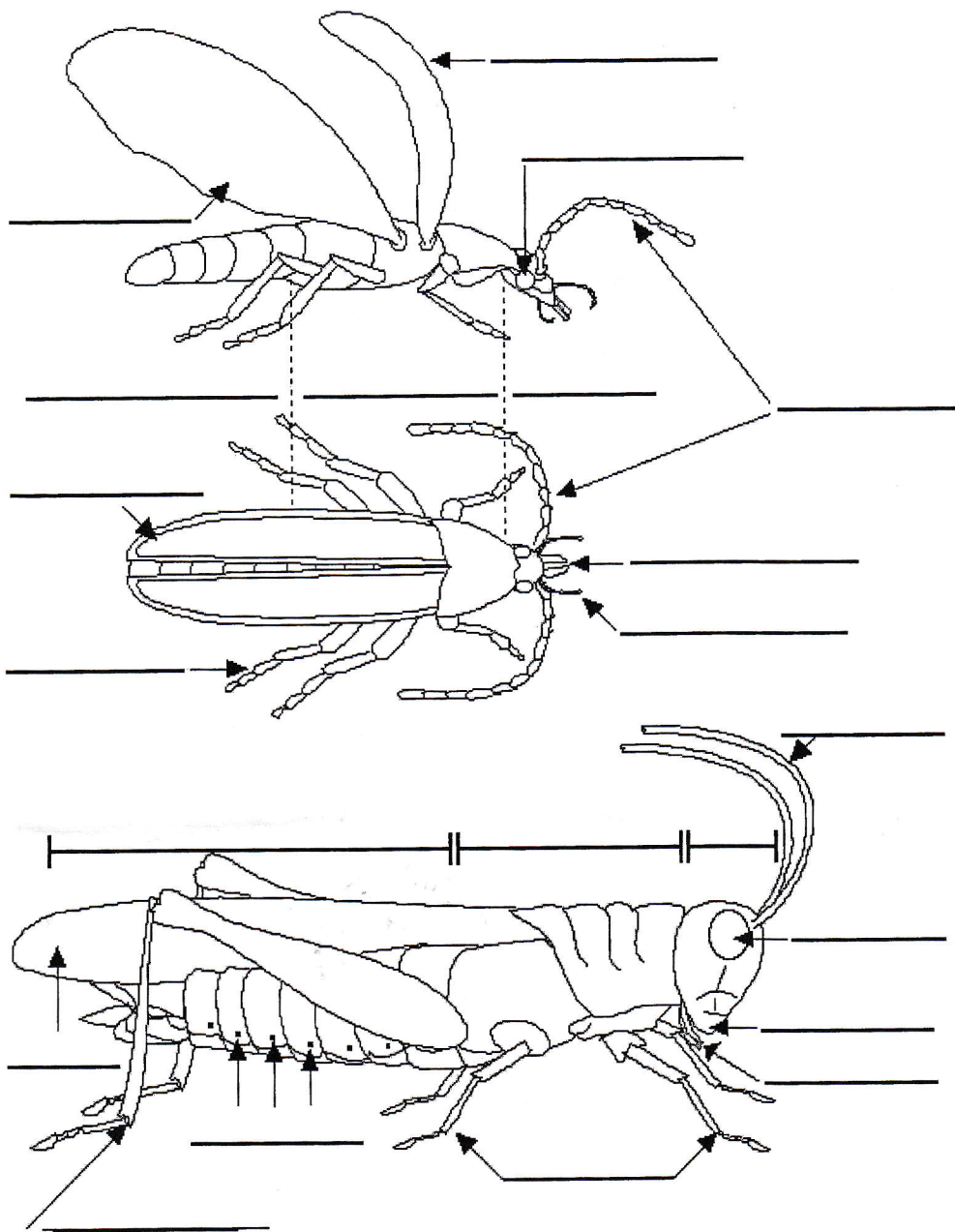
In mid- to late May, the caterpillars reappear on the rapidly growing plants. Although they still tend to feed in groups, they no longer make nests, and as they become bigger, there are fewer of them on each plant. The chrysalis, often attached to a non-host plant, is a beautiful creation with orange and dark brown markings on a creamy white background. Emergence occurs in mid-June.

Notes: These butterflies live in colonies. The adults are moderately territorial, though not as aggressive as some of the crescents, and are not strong fliers. The males will, however, investigate any moving object that is their own chestnut-orange color, no matter what size it is.



Chlosyne harrisii.
Photo by Fred Goodwin.

Read the definitions to the right, and then see if you can label the parts in the diagrams of the beetle and grasshopper below. This activity is from *EnchantedLearning.com*.



BEETLE ANATOMY VOCABULARY

- abdomen** - the segmented tail area of a beetle that contains the heart, reproductive organs, and most of the digestive system
- antenna** - like all insects, beetles have 2 segmented antennae
- compound eye** - a faceted eye made up of many hexagonal lenses
- elytron** - (plural elytra) elytra are hardened fore wings that protect the longer hind wings
- head** - the head is at the front end of the beetle's body and is the location of the brain, the two compound eyes, the mouth parts, the pharynx (the start of the digestive system), and the points of attachment of its two antennae.
- hind wing** - beetles have two hind wings, used for flying (or swimming). These long wings can be folded under the elytra when not in use
- legs** - like all insects, beetles have 6 jointed legs
- mandibles** - the jaws
- maxillary palps** - long, segmented mouth parts that grasp the food
- thorax** - the middle area of the beetle's body where the legs and wings are attached

GRASSHOPPER ANATOMY VOCABULARY

- abdomen** - the segmented tail area of a grasshopper, which contains the heart, reproductive organs, and most of the digestive system
- antennae** - like all insects, grasshoppers have 2 segmented antennae that sense touch and odors
- compound eye** - grasshoppers have 2 faceted eyes made up of many hexagonal lenses
- head** - the head is at the front end of the grasshopper's body and is the location of the brain, the two compound eyes, the mouth parts, and the points of attachment of its two antennae.
- jumping legs** - the long, hindmost pair of the grasshopper's six legs
- mandibles** - the jaws, located near the tip of the head, by the palps; the jaws crush the food
- palps** - long, segmented mouth parts (under the jaws) that grasp the food
- spiracles** - a series of holes located along both sides of the abdomen; they are used for breathing
- thorax** - the middle area of the grasshopper's body - where the legs and wings are attached
- walking legs** - the four, short front legs that are used for walking
- wings** - grasshoppers have two long wings, used for flying.

MES Calendars and T-shirts Make Great Gifts!

We have T-shirts available in natural, light grey, or white. We also have long sleeve shirts in natural and sweatshirts in light grey. T's are priced at \$11, long sleeve shirts are \$15, and sweatshirts are \$19 plus shipping and handling. Contact Laura Lubelczyk at (207) 324-2849 or naturbuf@gwi.net about a shirt order.

The MES calendar, featuring our insect photography contest winners is also available in time for the holidays. Calendars are \$12 plus shipping and handling. To order calendars, contact Dick Dearborn at (207) 293-2288 or modear@prexar.com. **In order to guarantee delivery before Christmas, orders must be placed by December 10.**

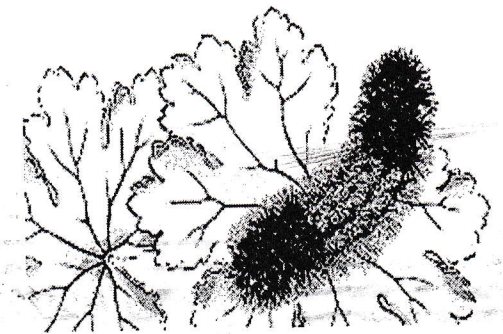
Woolly Bear Weather Forecast

Those familiar, fuzzy, red & black-banded caterpillars, larvae of the Isabella tiger moth (*Pyrrharctia isabella*) have been the subjects of weather predicting folklore for more than a century. The story is that when the red band makes up more than one third of the color, the upcoming winter will be milder, while less than one third foretells a harsher winter. Snowfall amounts seem to be irrelevant. Even though this method may lack scientific justification, it's fun. The results are now in for the upcoming season; woolly bear caterpillars were very common this fall and the results of this year's survey predict a milder than normal winter!

The following are the results of our survey taken in Kennebec County since the winter of 1997-1998:

- * Normal = 4.33 red segments on average, based on 13 segments per caterpillar
- * 1997-1998 = 4.73 red segments on average, mild winter predicted.
- * 1998-1999 = 5.03 red segments on average, milder winter predicted.
- * 1999-2000 = 4.30 red segments on average, slightly colder than normal winter predicted.
- * 2000-2001 = 5.14 red segments on average, noticeably milder winter predicted.
- * 2001-2002 = 3.79 red segments on average, a good old-fashioned winter predicted.
- * 2002-2003 = 4.25 red segments on average, slightly colder than normal winter predicted.
- * 2003-2004 = 4.74 red segments on average, milder than normal winter predicted.

-Dick Dearborn

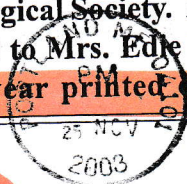


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