

# The Maine Entomologist

A FORUM FOR STUDENTS, PROFESSIONALS & AMATEURS IN THE PINE

Volume 8, Number 4, November 2004



## From the President

With the election over and snow in the air most Mainers' thoughts turn to the holidays, winter sports and staying warm. While it will be some time before gardeners pull out their catalogues for another season, entomologists and other naturalists are already busy identifying and telling about their 2004 discoveries and discussing plans to get back in the field in 2005. For MES members there is always something new and exciting to look forward to and memories to relive on those snowy winter days and nights. There's also our winter workshop on January 15<sup>th</sup>. And for those last minute holiday gifts there is always our own unique MES calendar.

The 2004 field season was a good one even though it started off on a cool, damp note. The only casualty was our York County field trip in May that was a washout. An alternative trip to Tomah Stream that day was a success. Our Schoodic Lepidoptera blitz in June, joint trip to Groton Vermont with the Vermont Entomological Society in July and our Narraguagus excursion in August were all exciting and productive in one way or another. Bug Maine-ia at the State Museum in September was a colossal success.

Our Annual meeting moved up to September at its new location at Chuck Peters' home in New Gloucester. The turnout was good, the food excellent and the Peters home a good place to meet thanks to our gracious hosts Chuck and Ellen Peters. Even though the weather was rather wet, the camara-

derie was excellent and it was voted to return another year with hope for better weather. Our long term Treasurer, Edie King had asked to be relieved so that she could attend to a number of pressing family duties so following some discussion, another Waterville native Dana Michaud agreed to serve as Treasurer for the next year and he was quickly elected. All other officers will remain in their respective positions including Editors Chuck and Laura Lubelczyk. My thanks go to all who have so generously agreed to serve even though all have many other duties to attend to.

I would like to take a moment to give special thanks to Mrs. Edie King who has been our Treasurer since MES formalized its organization beginning in 2001. Edie has seen to our finances for four years through a joint meeting with the AES, two blitzes, three calendars and three dues renewal sessions and managed to keep the books in excellent order. It has not been easy to keep all of us on the straight and narrow in getting our receipts and bills in to her but she has done it. She leaves everything in order for Dana who now faces dues renewal time as his first challenge. Thanks so much for all of your much appreciated efforts, Edie. We still hope to see you at some of our field events. Oh, and Good Luck Dana!

As always we have ambitious plans for 2005. I hope to see many of you at one or more of our events and would love to read of your exploits in *The Maine Entomologist*. In the meantime have a great winter and keep on "Buggin'."

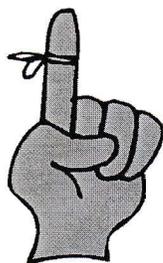
-Dick Dearborn

## 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 2004, 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 \$18 for two years. Make checks payable to Maine Entomological Society and mail to: Mr. Dana Michaud, Treasurer, at 3 Halde Street, Waterville, ME 04901. Don't delay- renew your membership today!



## Inside This Issue:



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## MES Winter Workshop on Insect Identification

The Maine Entomological Society is very pleased to announce its Third Annual Winter Workshop to be held at the Delta Institute of Natural History in Bowdoin, Maine on Jan 15, 2005 from 9:30-3:30 pm. In response to membership requests, this year's topic will be "Insect Identification" and will include sessions led by MES members Dr. Don Chandler on Coleoptera, Dr. Connie Stubbs on Hymenoptera, and Dr. Reginald Webster on Lepidoptera. Each will present an overview of the order with important identification considerations for that particular group, followed by a hands-on identification session in which reference materials and keys will be provided. The sessions will be geared toward the beginner-intermediate level of expertise. Attendees are invited to bring their pinned specimens for the identification sessions. This is your opportunity to get expert help identifying some of the insects you may have in your collection, or help in deciding what references are essential for these groups.

The workshop is open to both MES members and non-members, and registration will be limited to 30. A \$10 registration fee will be charged to help cover expenses. To register please send your name, phone number and e-mail address, along with a check for \$10 made out to the MES to: Chuck Peters, PO. Box 252, New Gloucester, ME 04260. Attendees are asked to bring a bag lunch. If winter weather threatens on the day of the workshop, or for more information contact Chuck Peters at 207-926-4806 or [chuckp@securespeed.net](mailto:chuckp@securespeed.net). Don't pass up this great opportunity to learn ID techniques from some of the most knowledgeable members of the MES!

Directions to the Delta Institute of Natural History: 219 Dead River Road, Bowdoin, Maine:

From Interstate 295 (formerly called 95), take exit 43 (Richmond exit, formerly exit 26). Go west on Route 197 (turn left at end of exit ramp for northbound travel; turn right at end of exit ramp for southbound travel), away from Richmond Village, and drive approximately one mile to the intersection of Rt. 201 at a blinking red light. Drive straight through the intersection (i.e., stay on Rt. 197 west) and travel another mile. At this point, Rt. 197 makes a broad, sweeping curve to the right. Do not follow Rt. 197, rather continue driving straight (by making a left hand turn part way through that curve on Rt. 197) onto Dead River Road. Drive approximately 3 miles to a gravel driveway on the left (219 Dead River Road), the last driveway on the left prior to the Academy Road (which is about 0.2 miles beyond on the right).

## Some Ornamental Pests in 2004

In December 2003, the USDA-APHIS-PPQ issued an alert that pine cone potpourri originating from India had entered the country with live borers in the cones. Retail outlets which had received the product from the distributor were inspected and asked to remove the cones from the sales area to be picked up by the USDA for disposal. We found infested cones at one Maine store (live larvae with frass and a couple of dead adults). The borer was the south asian cerambycid *Chlorophorus strobilicola*. To view a picture of this attractively marked beetle, visit our web site at [www.maine.gov/agriculture/pi/horticulture/plantpests.htm](http://www.maine.gov/agriculture/pi/horticulture/plantpests.htm) and hit pine cone borer.



Another exotic insect, the cuban laurel thrips (*Gynaikothrips ficorum*), has appeared at several garden centers on weeping fig trees (*Ficus benjamina*) from Florida. This large thrips causes young leaves at branch tips to fold upward and pucker, looking like pea pods hanging from the trees. These folded leaves provide shelter for the eggs and young thrips. In many cases, the thrips had been sprayed and were dead, but several inspections turned up live thrips.

A few infestations of magnolia scale (*Neolecanium cornuparvum*) were found on imported magnolia trees. This is one of the largest scale insects in the US at up to 1/2 inch in diameter and is covered with a white waxy bloom. Even a lightly infested tree is a striking sight. Barberry looper (*Coryphista meadii*) seemed to be common this year with some barberry shrubs completely stripped of leaves. The larvae were dark brown with white side stripes. Larvae of the sumac leafroller (*Episimus argutanus*) were seen on ornamental sumac at a few garden centers. The beautiful elderberry borer (*Desmocerus palliatus*) is not often found on young elderberry nursery stock, but I captured a mating pair on July 22nd in Saco. A large metallic green blister beetle (*Lytta* sp.) was collected from *Cladrastis* trees at a garden center in June. A few live specimens of the garden bagworm (*Apterona helix*) were collected off the trunks of trees in a Saco nursery on September 13. This bagworm has previously been known in Maine only from a lumberyard site in Sanford.

-Dick Folsom

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# **Book Review: Locust - The Devastating Rise and Mysterious Disappearance of the Insect That Shaped the American Frontier**

**by Jeffrey A. Lockwood.**

**Published in 2004 by Basic Books.**

When one reaches for a copy of this book, the reader is taken back to a time when the West was untamed and the struggle of Man vs. Nature was the order of the day. Mr. Lockwood, a professor at the University of Wyoming, weaves a tale of both past and present, concerning what must have been one of the greatest insect spectacles to have been seen on earth, the massive swarms of the now-extinct Rocky Mountain locust *Melanopus spretus*. Delving into 1870's history, the author starts by taking the reader to the days of the pioneers when settlers were spreading throughout the western United States, felling forests and cultivating the land. If tornadoes and severe thunderstorms weren't enough, settlers also had to contend with one more threat to their crops – locusts, and lots of them. So severe was the destruction that a locust commission was established to study the problem and to try and find out how to deal with it.

Through Man's ingenuity, poisonous concoctions, locust harvesting machines, and various pest management practices were unleashed against this western plague to combat what must have been a truly amazing sight, swarms of *M. spretus*. Through eyewitness accounts, estimates of swarm size alone would boggle the mind. Covering 198,000 square miles, and an estimated 450 miles long, a swarm of *M. spretus* was estimated to contain 3.5 trillion adults, the largest known locust swarms on earth! One part of a swarm fell into the Great Salt Lake in Utah, only to leave behind a wall of rotting carcasses six feet high and two miles long.

A naturalist, Norman Criddle, a collector of plant and animal specimens in Manitoba Canada collected live specimens of *M. spretus* on July 19, 1902. His dated specimens found their way to the Smithsonian Institute. When Mr. Criddle died in 1933, he was unaware that the Rocky Mountain Locust had vanished forever and that he was the last known documented collector of live *M. spretus* specimens.

Mr Lockwood explores various theories as to why this once feared species became extinct and why few noted its passing, let alone cared. In his search for the answer as to why a species that numbered in the trillions now numbers less than five hundred dead specimens in a half dozen collections. His quest for answers led him to glaciers where he found remains but no live specimens. The only plausible answer to why the Rocky Mountain locust perished lies on the shoulders of the early settlers, who unknowingly destroyed the major original habitat for the locust by logging and cultivation, dooming this species to extinction, likened to our Monarch butterfly's wintering grounds in Mexico.

Today, the West is silent. Gone are the vast herds of buffalo, flocks of Eskimo curlew, and the massive swarms of Rocky Mountain locusts, most pushed to the brink of extinction by Man's ignorance.

It has been a century since Mr. Criddle's specimens of *M. spretus* were collected but Mr. Lockwood's book offers up the hope that somewhere, in some remote mountain habitat, a small population may still exist, waiting to be discovered. Only time will tell.



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, less than one third foretells a harsher winter. Snowfall amounts are 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.

\*2004-2005 = 4.57 red segments on average, milder than normal winter predicted.

-Dana Michaud

-Dick Dearborn

## Maxforce Comes to Maine

A new weapon has been devised in the ever increasing war to control ticks and the diseases they carry – the Maxforce Tick Management System. While the name might imply heavy firepower of the “shock and awe” variety, the premise of the box is quite simple and relatively passive. Basically, small black boxes are placed in the vicinity of residences, usually adjacent to the wooded edges around homes. Within each box, a small wick coated with the chemical fipronil lies above the entrance. Bait within the box attracts the two primary rodent hosts of sub-adult deer ticks *Ixodes scapularis*, white-footed mice and eastern chipmunks. The fipronil coats the animals and presumably kills the ticks feeding on the rodents.



Produced by Bayer Environmental Services (yes, the same Bayer that makes aspirin), these boxes were initially field tested in Connecticut and then at several sites in the northeastern United States with varying degrees of success. The lead study, to be published in an upcoming edition of the *Journal of Medical Entomology*, found that nymphal tick numbers dropped dramatically after two seasons of use and infection in ticks dropped after only one year of use. One apparent problem was that the initial bait (a combination of peanut butter, seeds, and paraffin) contained too much of the latter and was not as attractive to the mice and chipmunks. Later reformulations proved too successful for some New Jersey researchers, the bait was so tasty to rodents that gray squirrels came out of the trees for the bait and chewed their way through the heavy plastic housings of the bait boxes!

The concept of targeting the hosts of ticks to control the ectoparasites is not new. Early studies examined the impact of permethrin on coated cotton nesting material used by mice. Although it was effective in reducing some of the ticks, this “damminix” bait did not control ticks on other host such as chipmunks or squirrels. Other researchers have examined the treatment of white-tailed deer, the host for the reproductive stage of *I. scapularis*, by such compounds as fipronil, amitraz, ivermectin, and entomopathogenic fungi. All have met with some success but all have had detractions as well. The treatment of deer usually involves artificial feeding stations which are now being prohibited by some states because of other wildlife diseases such as bovine tuberculosis and chronic wasting disease.

The real promise of the new Maxforce box is as a part of an integrated approach to manage ticks. For this treatment to be effective many homeowners in an area will have to use the product and it is a long term strategy for controlling ticks. It is however, an alternative to broadcast application of pesticides around homes. Control of hosts should be used in conjunction with habitat modifications such as clearing brush from home grounds, application of acaricidal compounds to pets such as Frontline and Advantix, and personal protection measures such as tick checks and the application of DEET or permethrin products to clothing. Maxforce was recently approved by the EPA and is available from commercial pest control professionals in New England.

-Chuck Lubelczyk

## Bug Maine-ia 2004: A “Funtastic” Event

School children from across the state began pouring through the doors of the State Museum in Augusta as they opened at 9 a.m. on September 23<sup>rd</sup>. Excitement was fever pitch as the school groups moved from one exhibit to another eager to see the wide variety of insects on display. On this one special day each year school children can “rub noses” with professional entomologists or enthusiastic amateurs and learn how a bee-hive works, go on an insect collecting trip in back of the museum, watch a film, hold a woolly bear or just enjoy the numerous other exhibits. Activity remained high until the exhibits began shutting down around 3 p.m.!

On this second annual Bug Maine-ia, 1,267 visitors representing sixty-two schools and home schools had the opportunity to learn from the experts about insects and their role in our lives. Groups came from as far away as Bar Harbor, Orono and Sanford. Attendance in 2004 exceeded that of 2003 by more than 100. Sixteen MES members either had exhibits or helped out at this important event.

Wednesday, September 28<sup>th</sup> has been chosen for Bug Maine-ia 2005. Mark your calendars. We look for an even bigger showing of children both young and old to come and dwell for one day with the world of insects.

-Dick Dearborn

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## Insect Issues: A New Column

I was asked to start an "Insect Issues" section for the newsletter, so this is my first offering. Please feel free to suggest subjects or write an article for inclusion under this heading.

My first offering is actually a review of a new section in the Fall 2004 issue of *American Entomologist* called Instant Symposium. This is a series of short papers on a selected subject. The first Symposium encompasses seven papers on a range of issues concerning Multicolored Asian Lady Beetles *Harmonia axyridis* Pallas (Coleoptera; Coccinellidae).

One paper looked at the Multicolored Asian Lady Beetle (MALB) as a biocontrol agent for a major new exotic pest, the soybean aphid (*Glycine max* L.). This work suggests that predators have a significant role in population suppression of the soybean aphid and the MALB, in particular, plays an important role. The soybean aphid has been tentatively identified in Maine soybean fields and the MALB is positioned to exert pressure on the soybean aphid population to keep it under control.

So, that is the good news on the agricultural front. Two other papers addressed potential problems with this beetle in the field. One concern is that as a predator, the MALB will decimate monarch butterfly populations that are already feeling pressures from a number of different directions. The data is still being analyzed but the MALB could potentially reduce monarch populations to some extent. The second paper investigated the MALB feeding on fruit and people! Lady beetles fed on grapes, apples, and peaches, particularly at wound sites. This was of most concern in wine growing areas as the beetles gave wine an 'off' taste in numbers as low as 1 beetle per bottle. Therefore grapes should be screened for beetles before being processed. The second part of the study investigated reports of the MALB biting people. About a quarter of the beetles tested did indeed bite people and once the skin was broken, would continue to feed at the site. Other beetles would also join in feeding once the skin had been broken. Both males and females bit in about equal numbers.

Experiments on cold tolerance were presented and the conclusion drawn that although temperatures in North America are cold enough to kill the MALB, they are not all dying in the winter. This is because they find shelter in microclimates, such as houses, that protect them from the cold.

This brings us to the last three papers on the MALB impact in urban settings. These researchers looked at how people were dealing with the invasion of interior spaces, what attracted beetles to buildings and potential solutions. People generally vacuumed the beetles once their home had been invaded. Spraying the exterior of the house with a pesticide a week before/after their arrival in conjunction with caulking was more a more effective preventive measure than trapping beetles. The MALB orient to strong contrasting, vertical cues such as shadows that are cast by building features in the afternoon when the beetles fly. Structures near late-season aphid infestations draw large numbers of beetles and topography/air current interaction can have an impact on which buildings are infested. Another study investigated chemical cues attracting the beetles including beetle BO in a quest for repellents, attractants or pheromones to modify the MALB overwintering choices.

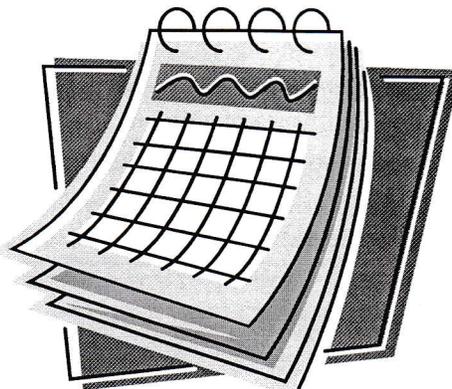
All in all it was an interesting series of papers that expanded my knowledge of Multicolored Asian Lady Beetles. A copy of the *American Entomologist* issue is at my office if anyone would like to stop in and read the article.

-Charlene Donahue

### Newsletter Submissions Due January 15

We're always looking for submissions for future newsletters. Everything from articles to book reviews to illustrations to announcements of interest to entomologists. The deadline for submissions for the February newsletter is January 15. You can send submissions to [naturbuf@awi.net](mailto:naturbuf@awi.net) or mail them to the address on the back of this newsletter. Thank you!

See the August 2003 issue of *The Maine Entomologist* for more information on Multicolored Asian Lady Beetles.



### Order Your MES 2005 Calendar Today!

Calendars make great gifts! Order one for yourself and a few more for your loved ones this holiday season. Calendars are \$15 each if mailed or \$12 each if you can pick them up. To order, contact Dick Dearborn at (207) 293-2288 or [modear@prexar.com](mailto:modear@prexar.com).

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## The Orange-belted Bumble Bee, *Bombus ternarius*, an Important Pollinator in Acadia National Park

Imagine Acadia National Park without flowers. Scary thought! Probably well over 100 plant species in Acadia depend on pollinators for good reproduction. In turn, the fruits of these herbaceous and deciduous plants sustain many birds and mammals. Thank goodness pollinators keep pollinating those flowers!

For the past several years, I have been involved in a research project investigating the effects of invasive plant species on pollinator behavior and native plant reproduction in Acadia. For much of flowering season from early April through October, I have observed and recorded pollinator foraging behavior and fruit set on selected study plants. As a result of my work in Acadia to date, I think that one of the hardest working pollinators in Acadia is the orange-belted or orange-banded bumble bee, *Bombus ternarius*. Like other bumble bee species, I have observed, *B. ternarius* visits flowers even in cold, rainy weather.

*Bombus ternarius*, a common species found throughout the United States and much of Canada, is yellow and orange and thus aptly known as the orange-belted bumble bee. Unlike most northeastern North American species, which are yellow and black, the orange-belt is easily identified, even on the wing. One often hears the orange-belted bumble bee before seeing them. Not surprising, as "*Bombus*" derives from Latin for "booming" or "buzzing" a title that aptly describes the genus. "*Ternarius*" is Latin meaning "consisting of three; as the ternary number was esteemed as a symbol of perfection and held in great veneration" (Dolally English Dictionary - [www.dolally.com](http://www.dolally.com)). To me this describes the orange-belted bumble bee to a T - 3 cheers for the venerable orange-belted bumble bee!

Like the honey bee (*Apis mellifera*) and bumble bees in general, the orange-belted bumble bee is social and has three castes. In relation to other bumble bee species, all castes of *B. ternarius* are small to mid-sized as cited in Lavery and Harder, 1988, a good key for Maine species. Queens are the largest (13-20 mm in length), initiate nest construction and lay eggs. Workers are smaller (5-13mm), are sterile females, and provision the nest throughout the summer. Males are mid-sized (7-16 mm) and obviously mate with queens. The tongue length of the orange-belted among bumble bee species is short (about 5 mm), which at times limits their choice of flowers. However, generally, they climb into flowers with long corollas, if no other forage is readily available. All 3 castes pollinate plants, but the queens and workers contribute overall much more to pollination since they actively collect pollen.

Let us examine the life cycle by starting with queen emergence in the spring. The orange-belted bumble bee queen emerges from hibernation in early spring (late April in some Maine locations). In Acadia my earliest observation of a *B. ternarius* queen was May 7. The queen must satisfy two immediate needs. She must nourish herself on flower nectar and pollen, and she must find a good place to raise a family. Queens spend hour upon hour cruising just above the ground looking for a suitable nest site underground, often settling in an abandoned mouse burrow.

Once the mother queen has found a suitable nest site and starts secreting sufficient wax, she makes a waxen cell in the center of the nesting area. She lays some eggs in this cell. She also makes a waxen "honey pot" for storing nectar. In Maine, generally, from April and into early June, each orange-belted queen forages for nectar and pollen for her own survival and to provision the nest for her young. Her first eggs take three to four days to hatch into worm-like larvae that feed voraciously on stored nectar and pollen. After they become pupae, they develop adult tissue for about 14 days and then emerge as beautiful silvery "callow" worker bumble bees. In two to three days, these workers attain their true adult coloration and their wings harden enough for flight. Workers have been seen as early as May 30 on lowbush blueberry in the Park.

When enough workers are actively provisioning the nest with nectar and pollen, the queen devotes her time to laying and incubating her eggs and defending the nest against intruders. From mid- to late- summer, the queen lays special unfertilized eggs, which develop into males. In Acadia, males are active on flowers beginning in mid-July.

Shortly after males are produced the mother queen switches to producing new queens. Each new queen, after mating, must find a good spot to spend the winter underground. Throughout the winter each queen is dormant in her hibernaculum, a hibernation cell, waiting for spring to start the cycle of nest establishment again.

The workers, males and old mother queen of each colony die by mid-autumn. I have seen males in Acadia until the last asters and autumn dandelion die (at times early November depending on the year). (A disheartening aside- the only *B. ternarius* nest I have found to date in Acadia was near Bear Brook Pond along the side of the road. It was eventually destroyed before male and new queen production by a tractor cutting grass.)

You can help to conserve *B. ternarius* by providing suitable forage. Spring queens are generalists, but prefer leatherleaf,

willow, and blueberry. Workers and males are also generalists, but have a long flight season. Thus planting of nectar and pollen rich plants is recommended (See [www.umext.maine.edu/onlinepubs/htmlpubs/7153.htm](http://www.umext.maine.edu/onlinepubs/htmlpubs/7153.htm) for more information on plantings for conserving native bees in Maine. This web site also has color photos of the 3 *B. ternarius* castes). Also, I have noted gardeners have a tendency to winterize their gardens while some flowers still are present. *Please* don't remove those scruffy looking but still flowering late asters and dandelions from your lawns and flower gardens until they have completely stopped flowering!

An interesting historical note is that O. E. Plath, author of the delightful Bumblebees and Their Ways, characterized the orange-belted bumble bee as *waspish* in disposition. I have not found them to be so while foraging. Plath identified specimens of bumble bees found in the Proctor Collection (1918-1946) now housed at the William Otis Sawtelle Collections and Research Center at the Headquarters of Acadia National Park in Bar Harbor, ME. There are 13 *B. ternarius* in the Proctor Collection with collecting dates ranging from mid-June to late July. It is the most abundant bumble bee species in the collection.

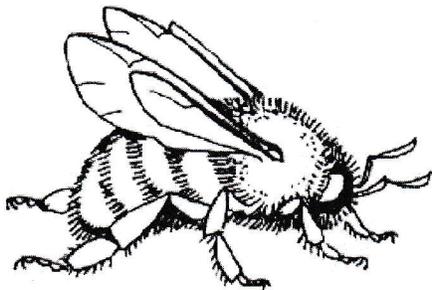
A final aside - if you are interested in learning more about bumble bees, besides Plath's 1934 book, check out The Natural History of Bumble Bees by C. Kearns and J. D. Thomson, which besides being the most recent offering, has numerous excellent references.

We still need to learn much about biology-ecology of *B. ternarius* in Acadia, and in Maine in general. Although one needs a special permit to collect in Acadia, while visiting the Park during the summer, should you sight a newly emerged queen and/or mating, or find a nest please note the date, location, and any other things of interest and email me: [Connie.Stubbs@umit.maine.edu](mailto:Connie.Stubbs@umit.maine.edu). Thanks in advance for any help you can provide.

-Connie Stubbs

References:

T. Lavery and L. Harder, 1988. The Bumble Bees of Eastern Canada. *Can. Ent.* 120: 965-987.



## Winter Insects

All of Maine's 16,000 plus insects are still around somewhere in some form even as the ground and lakes freeze up and the snows descend. While most insects remain snug for the winter, a few hardy species take advantage of the lack of competition to wander forth on milder sunny days throughout the period when the temperature rises above freezing. This includes a number of larvae including our favorite the banded woolly bear, the dusky firefly beetle, moths such as the fallows and pinions (Noctuidae:Cucullinae), unique species such as the wingless crane flies and scorpionflies and even spiders (not insects I realize). A few even harder species such as the winter stoneflies, snowfleas, fall cankerworm and Bruce spanworm often fight the winter winds to mate and reproduce! In the MES newsletter number 1 in March of 1999 I discussed winter insects in some depth. So if you find yourself frustrated and bored on those long winter nights, wait for the thaws, then strap on your snowshoes, grab your collecting bag or sketch pad and go for a walk. Winter insects tend to be slow and easy for even the slowest of us to catch or observe. And if you're even more desperate, you can paw through the snow and dig out some leaf litter and duff and bring it inside in a box to thaw out. You might be surprised to see what emerges!

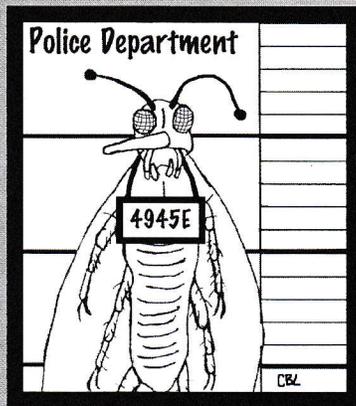
-Dick Dearborn

## A Winter Entomology Project

In the September 2004 issue of *The Maine Entomologist*, I wrote an article reporting a new Maine record of the wasp *Megastigmus aculeatus* whose larvae feed on the seeds of the invasive rose *Rosa multiflora*. Multiflora rose grows along roadsides, hedgerows, and in waste places and is characterized by having long, arching, reddish stems with small thorns. The rose hips are red, and about 5mm in diameter.

I would like to invite all readers in helping determine the range of this wasp in Maine by collecting samples of rose hips during the early winter months. The hips can be placed in a zip-lock bag and left to incubate at room temperature. Be sure to record the location of date and collection, along with the date of emergence. Be patient, emergence may take a month or so, but you may be rewarded with a number of very charming little wasps! In samples I collected last winter I found that the first few wasps to emerge were males (which lack the long, curved ovipositor), but that the number of subsequent females far outnumbered the males. See what you find, send me your results, and I will be happy to publish them here.

-Chuck Peters



## The Bug Mug Shot: Northern Field Cricket

*Order: Orthoptera (Grasshoppers and Crickets). There are roughly 12,500 species in the order worldwide but less than 1,200 in North America and less than 100 species in Maine. Species diversity in Orthoptera is most pronounced in warm climates. The taxonomic arrangement of species included in this order is still somewhat confusing depending on the references you use.*

*Family: Gryllidae (Crickets). Fourteen species of crickets occur in Maine including ground dwelling crickets (Nemobiinae and Gryllinae), tree crickets (Oecanthinae) and the house cricket *Acheta domesticus* L., known in Europe as the "Cricket on the Hearth." Crickets are among the best known insect songsters, or rather chirpers. Most species of Gryllidae are omnivorous in their diet. While a few species such as the tree crickets are considered pests, most other crickets are simply a nuisance or a curiosity. They also make interesting subjects for study. In some parts of the world crickets are revered and kept as pets. Many poems and childrens' stories feature crickets.*

*Species and Life History: The Northern Field Cricket is actually a term referring to two species, the Fall Field Cricket (*Gryllus pennsylvanicus* Burm.) and the Spring Field Cricket (*G. veletis* Alex. & Bigelow). Many early works on entomology wrongly referred to these two, for all practical purposes identical species, as *Gryllus assimilis* Fab. While both species may occur together, the more common *G. pennsylvanicus*, matures in the Fall, and lays eggs in the soil which overwinter hatching in May. The much less abundant, often solitary, *G. veletis* overwinter as mature nymphs which hibernate in the soil maturing in the spring. Neither species overwinter within heated buildings*

*Description and Habits: Northern field crickets (both species) are typical, large (0.75 in. long), black crickets familiar to most of us. They occur in open grassy areas and are especially abundant on old agricultural land and in gardens, waste areas and around homes where vegetation is thin and there are lots of places to hide. Of the two species *G. pennsylvanicus* is by far the most abundant and population outbreaks such as experienced in Maine in the fall of 1966 and more recently this past fall (2004) resulted in nuisance numbers invading homes and gardens. Crickets can and will bite when they are handled roughly.*

*Food: The Northern Field Cricket's omnivorous diet includes such things as corn silk, seeds of grasses and weeds and on occasion flower and vegetable crops. They also feed on a variety of other insects and are thus considered beneficial by some entomologists.*

*Notes: The familiar, rapid (150-240 chirps/min.) "chirping" heard on warm days and nights in August can often be traced to the courtship song of male crickets. Males raise their wings and rub the sound-making structures (file and scraper on their wings) together to make the distinctive chirp. The sound can vary with the temperature, often with great consistency. If the females like the song, they are drawn to the males. Female crickets generally make no sound. The sounds made by various other Orthoptera are distinct and once you relate the sound to the species, you can almost make an identification on that basis alone.*

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## Tech Tips: Biological Supply Houses, a Love/Hate Relationship?

In past "Tech Tips," you may have gotten the impression that I am no great fan of biological supply companies due to the high prices they charge for certain items. But to set the record straight, I really do appreciate the services they provide. Many specialty lab products can only be purchased through them, and they do make available some truly innovative products. It is true that some of the items they sell are quite expensive, prompting me to make every effort to save money by building my own. But where else would one find petri dishes or malaise traps? In addition to providing a source for lab supplies, they can also provide the resourceful entomologist with great ideas for improvements on existing products or new innovations. In this article I would like to share with you some of the companies I have found to be most useful.

Bioquip has been serving the entomological community for over 50 years with a complete line of lab supplies for the entomologist, innovative collecting equipment, and insect storage supplies. I must admit that I have gotten some of my best ideas from the Bioquip catalog; it is said that imitation is the sincerest form of flattery! They carry an extensive line of insect nets and traps as well as a good selection of insect-related books. Check out their folding insect nets that can literally fit in your pocket. And in terms of one-stop entomological shopping, Bioquip has no equal. Their entire catalog is available on-line and can be downloaded as a PDF file at ([www.bioquip.com](http://www.bioquip.com)).

For general lab supplies (petri dishes, beakers, etc), I use either Carolina Biological ([www.carolina.com](http://www.carolina.com)) or Wards ([www.wardsci.com](http://www.wardsci.com)). Both companies will sell to individuals, although certain chemicals can only be sold to institutions. Both carry a selection of entomological equipment, and are great places to buy lab equipment and general lab supplies. Another slightly less expensive alternative that I have used extensively is Cynmar ([www.cynmar.com](http://www.cynmar.com)). They occasionally publish a catalog of sale and closeout items with very competitive prices.

An interesting source for Cornell drawers and other wood insect storage boxes is Atelier Jean Paquet ([www.quebecinsectes.com](http://www.quebecinsectes.com)) in Quebec, Canada. Prices listed on his web site are in Canadian dollars, and therefore represent an excellent value for US shoppers. While I haven't purchased from him directly I have received very positive reports from those that have. Another foreign resource that I recently stumbled upon is a website that provides Austerlitz insect pins at very reasonable prices: [www.skiclub.wz.cz/petr/p\\_engl.php](http://www.skiclub.wz.cz/petr/p_engl.php).

Quest Outfitters ([www.questoutfitters.com](http://www.questoutfitters.com)), while not a biological supply company, is a great source for obtaining materials for building nets and traps, such as

### A List of Maine Crickets \*

- Acheta domesticus* (L.) – House Cricket
- Gryllus pennsylvanicus* Burm. – Fall Field Cricket
- Gryllus veletis* (Alex. & Bigelow) – Spring Field Cricket
- Eunemobius carolinus* (Scudder) – Swamp Ground Cricket
- Allonemobius griseus* (E.M. Walker) – Black-faced or Sand Cricket
- Allonemobius fasciatus* (DeG.) – Striped Ground Cricket
- Allonemobius allardi* (Alex. & Thomas) – Meadow Ground Cricket
- Allonemobius tinnulus* (Fulton) – Tinkling Ground Cricket
- Neonemobius palustris* (Blatchley) – Bog Cricket
- Oecanthus pini* Beutenm. – Pine (Tree) Cricket
- Oecanthus nigricornis* F. Walker – Black-footed (Tree) Cricket
- Oecanthus quadripunctatus* Beutenm. – Weed (Tree) Cricket
- Oecanthus niveus* (DeG.) – Snowy Tree Cricket
- Oecanthus fultoni* T.J. Walker – Temperature (Tree) Cricket \*\*

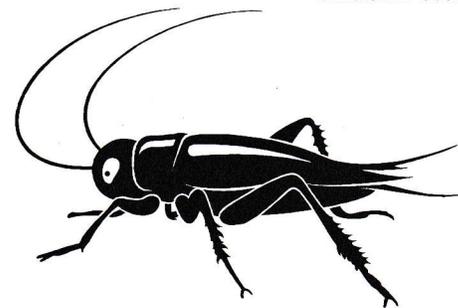
\*Only includes species for which there are one or more Maine records.

\*\**O. fultoni* is called a snowy tree cricket by some authors

mesh cloth, tent poles, canvas, and so on. And in a similar vein, Tarps.com ([www.tarps.com/white.htm](http://www.tarps.com/white.htm)) is a supplier that stocks inexpensive white tarps (because they are waterproof and more durable, I have found them to be more useful than bed sheets for attracting insects to lights).

So there you have some of my favorites. I'm sure many of you have your own, let me know and I will be glad to share them here in future articles.

-Chuck Peters



## The Beetle and the Fox

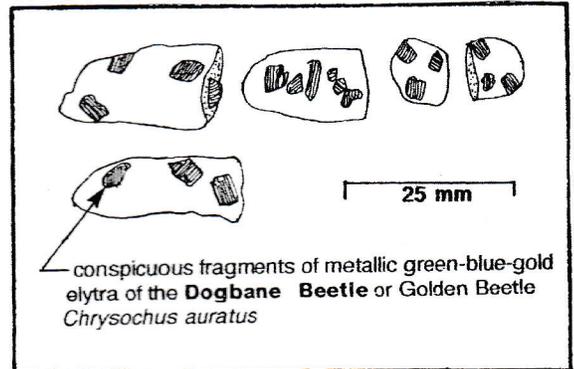
The "Bug Mug Shot" section of *The Maine Entomologist* is always interesting; it forces me to pay attention to insects that I usually fail to think about at all. The Bug Mug Shot piece in Volume 7, Number 3, August 2003 (The Dogbane Beetle) was of more than casual interest to me. As soon as I began to read it, an old field observation came instantly to mind and a mystery was solved.

On July 5, 1993, I visited a powerline in Mansfield, Massachusetts. I hiked south from Bird Road, on a butterfly count. My main reason for visiting this site was the presence of large stands of dogbane, probably *Apocynum androsaemifolium*. The dogbane is in flower in early July and attracts lots of butterflies of many species. Along the dirt road which runs along the powerline, I began to see frequent little piles of red fox scat. There were a great many scat piles along about a half mile of powerline. What was especially notable about this was that a considerable percentage of the composition of the scat was conspicuously metallic blue-green-gold, quite jewel-like. I made a field sketch of some of the scats. At the time I had several questions: How did the fox come to catch so many beetles? What species of beetle was involved?

The Bug Mug Shot piece gave me the identity of the beetles, the dogbane beetle or golden beetle *Chrysochus auratus*, Family Chrysomelidae or leaf beetles. The piece goes on to say that the adult beetles, which emerge in July, attack the foliage of dogbane plants, causing the milky sap to run. Large numbers of these colorful beetles attacking the abundant dogbane would have been easy for the foxes to catch by the mouthful. It is interesting that the beetle elytra keep their jewel-like appearance even after passing through the fox.

-Richard W. Hildreth

### Red Fox "scats"



5 July 1993, Mansfield, MA  
Bird Rd. Power Line-South



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*Please visit our website at [www.colby.edu/MES](http://www.colby.edu/MES)*

*The Maine Entomologist* is published quarterly by the Maine Entomological Society. Dues are \$10 per year or \$18 for two years. Checks should be made out to M.E.S. and sent to Mr. Dana Michaud, Treasurer, at 3 Halde Street, Waterville, ME 04901. Dues are paid through the year printed on the mailing label.