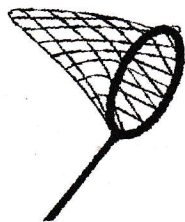


# The Maine Entomologist

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

Volume 6, Number 2, May 2002



## From the President

May already! That time of year when rakes and hoes compete with insect nets and fishing poles for your time. While those essential outside chores will have to be done, early season insect collections often yield some new and interesting species records. First occurrence records for even the more common species are also helpful. So now you have some justification for a trip afield with a net and collecting jar. In the process don't forget to check around outside lights on warmer evenings for early moths. Enjoy! And don't forget to share those records and stories with others in future newsletters.

Between now and our next issue in August we have an ambitious and exciting schedule of events and a photo contest. Take a minute or two now to put these scheduled trips on your calendar and don't forget to send in one of your choice insect/spider photos. This year there should be something for everyone and I would love to see you at one or more of these events. Our big event of course is our joint meeting with the Acadian Entomological Society (AES) in Machias. It all starts out with a day of collecting at 10 am on Sunday, July 21<sup>st</sup>. A mixer/supper follows from 7 to 9 pm which will include a raffle, announcement of photo contest winners, displays, and items for sale. Both MES and AES members and guests are invited. Monday, July 22<sup>nd</sup> will begin with a keynote address by author Sue Hubbell followed by papers on a variety of entomology research topics. Then on Tuesday, July 23<sup>rd</sup>, we will feature a ground beetle (Carabidae) workshop in the morning where carabidologists from all over North America will meet, mingle, and hopefully answer some of those perplexing questions such as why tiger beetles are now considered carabids and how to sample without severely disrupting populations. Bring specimens, your notebooks, and questions.

I could go on and on but I too have to attend to essential spring chores so I can look for those elusive early insects. Have a great season and remember that MES is your group and needs your support. See you in the field!

-Dick Dearborn

## Inside This Issue:



Raising a Dragonfly Nymph



Beetle Nights



Chrysanthemum Insects



Photography Contest Entry Form



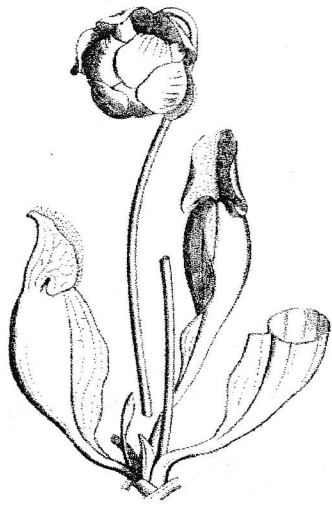
Collecting Trip Schedule

## The Unique Ecology Within a Northern Pitcher Plant

The Northern pitcher plant, *Sarracenia purpurea*, is a carnivorous, herbaceous, perennial plant that holds an extremely interesting place in wetland habitats. Plants such as the Venus flytrap, sundew, and pitcher plant are carnivorous because they are in direct competition for limited available nutrients with soil microbes, *Sphagnum* mosses, and grasses. Pitcher plants rely upon a symbiotic relationship with bacteria to generate enzymes that digest captured insects. This relationship makes nutrients available to the plant in the form of sulfur, carbon dioxide, nitrogen, phosphorus, and ammonia that the plant then absorbs through its leaves. Pitcher plants are mainly found in water-logged, nutrient poor, very to moderately acidic freshwater *Sphagnum* bogs, sedge wetlands, and Northern boreal peat lands, and are generally intolerant of competition, shade, major human disruptions, pollution, and invasive species.

*S. purpurea* will reproduce from seed, but since pollinators are frequently also prey, they usually reproduce by vegetative means from rhizomes. The plant forms a rosette in which the juveniles are in the center, the water-filled, functional pitchers in the middle ring and the dry, non-functional pitchers from the previous season in the outer ring.

Continued on Page 2



## Pitcher Plant Ecology Continued From Page 1

The pitcher shaped leaves are modified to collect water from snowfall, rain, and dew. The pH of the water inside the pitcher is very acidic and is maintained, chemically, at around 3.8. These plants use ultraviolet reflectance, nectar, and scent to attract insect prey. Flies, moths, butterflies, beetles, centipedes, ants, small sick mammals, and frogs often provide a suitable meal for these plants. Even bird droppings will be dissolved and consumed. The prey lands on the pitcher and slips then falls in. Tiny downward pointing

hairs inside the pitcher trap the prey inside. The prey drops into the water inside the pitcher and slowly dies. The meal is then dissolved by the acidic conditions of the water, bacteria, and other organisms living within the pitcher. The nutrients are then absorbed through the leaves; the undigested parts collect at the bottom of the pitcher.

The pitcher creates a small aquatic container habitat that is referred to as a phytotelm. It is as diverse as any other aquatic ecosystem. The phytotelm provides homes for many organisms, is a food for some, and is an intricate part in the life cycles of many others. Two species of moths rely specifically on pitcher plants for completing their life cycle. Larvae of the pitcher plant moth, *Exyra rolandiana* and the pitcher plant borer, *Papaipema appassionata*, consume the leaves. Northern paper wasps, *Polistes fuscatus pallipes*, build their nests in last season's dry pitchers. Living on or near the plant are spiders, frogs, mantids, and assassin bugs that steal prey before the plant can capture them. Protozoa (39 species), 12 species of rotifers, copepods, dragonfly nymphs, *Wyeomyia smithii* (mosquito), *Metriocnemus knabi* (midge), and *Blaesoxipha fletcheri* (flesh fly) inhabit the phytotelm<sup>1</sup>. All of these inhabitants (inquilines) help break down prey into smaller particles for the bacteria. This speeds up the nutrient availability to the plant.

Only 3 to 5percent of carnivorous plant habitat remains because of unsustainable mining of peat and *Sphagnum* from bogs<sup>2</sup>. Draining, agriculture and development of wetlands also leads to a reduction in *S. purpurea* habitat.

Atmospheric and groundwater pollution, global warming, fire regime suppression, collecting, and illegal harvesting of rare plants for sale threatens this species even further. Species such as *Exyra rolandiana* are listed as endangered in some states; however the carnivorous plant species they rely upon is not.

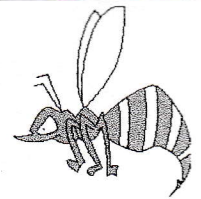
-Kimberly A. Foss

### References:

<sup>1</sup>Giberson, D. and Hardwick, L.M. 1999. Pitcher Plants (*Sarracenia purpurea*) in Eastern Canadian Peatlands. Invertebrates in Freshwater Wetlands of North America: Ecology and Management. John Wiley & Sons, Inc.

<sup>2</sup> International Carnivorous Plant Society. [www.carnivorousplants.org](http://www.carnivorousplants.org) or [www.sarracenia.com/faq.html](http://www.sarracenia.com/faq.html)

## Avoiding Insect Stings



There are many types of stinging insects in Maine: hornets, honeybees, bumblebees, yellowjackets, and paperwasps, to name a few. Here are a few tips to prevent getting stung:

**1) Don't wear bright colors outdoors.** Experts warn that bright yellow and bright blue seem to attract and even agitate some species. Solid black also appears to be a bad choice. Wear earth tones such as khaki, green, olive, clay, or terra cotta if you are going to be working outdoors.

**2) Don't swat and slap at bees and wasps.** It sounds obvious but people do it. It only makes the insects perform to defend themselves.

**3) Don't walk around barefoot or in sandals.** Especially on lawns with clover, where honeybees might forage.

**4) Don't wear perfume, scented lotions, and hairspray outdoors.** It may attract and upset wasps.

**5) Never drink soda or juice from a can left on a table outdoors.** Bees and wasps crawl inside the open can to get a drink. When you lift the can to your mouth, you will upset the insect and get stung. Pour the drink into a glass so you can see the contents.

**6) Don't deliberately disturb a nest.** It may look like no one is home but there may be wasps inside the nest.

**7) Stay away from picnic areas where garbage cans are filled with discarded food and drink.**

**8) Stay clear of fruit trees or shrubs where ripe or rotting fruit has fallen to the ground.** Don't use hedge clippers or pruning shears on shrubs or evergreens until you check to make sure there are no nests attached to the twigs.

-Monica Russo

## Chrysanthemum Insects, Part I

Very few people are interested in insects that visit cultivated chrysanthemums. But the interest was more or less forced on me since I have a large bed next to our home's enclosed porch door. I see these flowers at least six times daily. I have watched the drama for eight years but I will document what I saw from September to November 1999.

Sept. 17- Five *Bombus spp.* (bees), 3 with black abdomens, 2 with orange bands; 2 *Polistes spp.* (paperwasps); 15-20 honeybees; a tiny megachilid; 8-10 *Eristalis tenax* (Syrphid fly); *Halictus spp.* (bee); a large, blue Calliphorid; a small Sarcophagid; a small, yellow Syrphid.

Sept. 20- Eight *Bombus spp.*, 6 with black abdomens, 2 with orange bands; a large Calliphorid; 5 *E. tenax*; *Lucilia sp.* (Calliphorid fly); *Choreutis pariana* (moth).

Oct. 21-23- Three orange banded specimens of *Bombus spp.*; 7 honeybees; *E. tenax*; a large yellow Syrphid with yellow bands; Calliphorids; *Lucilia sp.*; *Pollenia rudis* (parasite of earthworms); 2 sarcophagids; *Phormia sp.* (Calliphorid fly).

Nov. 1- 70°F; 8 honeybees; 2 *Polistes spp.*; 2 orange banded *Bombus spp.*; 15 *E. tenax*; a small, yellow Syrphid; *Lucilia sp.*; *Phormia sp.*

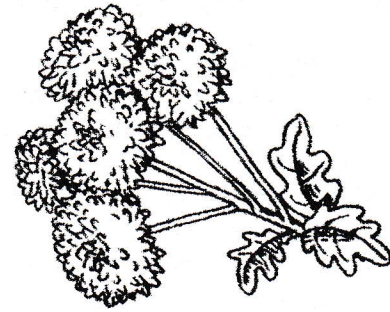
Nov. 6- Twenty *E. tenax*; 6 small sarcophagids; a large, blue Calliphorid; 5 yellow Syrphids; 4 honeybees.

Nov. 20- Three honeybees; 6 *E. tenax*; 2 *Pollenia rudis*.

Nov. 23- Honeybees; *Polistes spp.*; 8 *E. tenax*; *Lucilia sp.*

Summary: The composite flowers produce an abundance of pollen for two months. Since chrysanthemums have an indeterminate inflorescence (producing pollen for a long time), they may have nectaries and are frost resistant. The major player in this little drama was the rat-tailed maggot (*E. tenax*). These maggots live in shallow pools and liquid manure, using their long snorkels for oxygen intake. I was surprised to see the Calliphorid and Sarcophagid flies on these flowers.

-Samuel S. Ristich



## A Summer Collecting Tale

On a hot and humid night one summer, I set off with my head light and trowel for Maryland's Eastern Shore to visit a cattle farm where I had been given permission to collect some nocturnal dung beetles. As I turned onto the dead-end road that leads to the farm, I immediately noticed that the usually dark and deserted country lane was lit up with spot lights and there were police cars everywhere. Well, it turned out that I'd discovered Elian Gonzales's Maryland safe-house, and I needed to drive right past a small army of heavily armed FBI agents who were guarding the road. Imagine my mounting panic at the thought of explaining to these folks exactly what I was planning to do in the adjacent cattle pasture!

To make matters worse, in the back seat I had a cardboard box containing my battery-powered blacklighting getup that was spilling over with all sorts of wires, alligator clips, adapters, fluorescent tubes, etc., not to mention the rechargeable battery itself which weighs about thirty pounds and looks like a small nuclear device. I even had my army surplus camouflage mosquito head net tucked into my front shirt pocket. Well, convinced that any furtive motions would surely get me arrested under suspicion of being some anti-Castro terrorist, I just kept on driving, nobody stopped me, and I even found some of the beetles that I was looking for.

I guess the moral of the story is that we bug catchers are never as conspicuous as we think we are!

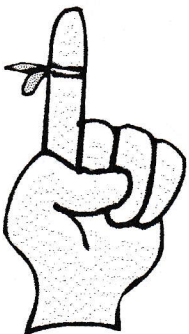
- Frank Guarnieri

## A Reminder for All of Our Members:

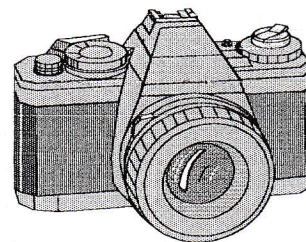
We are hoping to see many members on July 21<sup>st</sup> in Machias. The joint MES/Acadian Entomological Society meeting should have something for everyone! Schedules for events are available through the AES website at [www.ypei.ca/~aes](http://www.ypei.ca/~aes). Preregistration is appreciated.

The keynote speaker will be essayist Sue Hubbell. Her books include [A Book of Bees](#), [Far Flung](#) Hubbell, [A Country Year](#), [On This Hilltop](#), [Broadside from the Other Orders](#), [Waiting for Aphrodite](#), and [Shrinking the Cat](#).

Anyone interested in attending can contact Dick Dearborn at 207-287-2431 or Andrei Alyonkin at 207-581-2977 or [andrei\\_alyonkin@umit.maine.edu](mailto:andrei_alyonkin@umit.maine.edu).



# MAINE ENTOMOLOGICAL SOCIETY INSECT PHOTOGRAPHY CONTEST 2002



## IMAGE GUIDELINES:

- \*Images may be submitted in the form of 35 mm color slides, black and white prints, or color prints. Digital images and digitally enhanced or re-mastered images will not be accepted.
- \*The focus will be on species portraits, but any photo related to entomology will be considered (e.g. a child collecting insects, a beehive, etc.). Insects do not have to be photographed in their natural habitat.
- \*Insects must be species that are known to occur in Maine, but the photo does not have to be from a Maine location.
- \*The calendar will have a horizontal, landscape format. Your photo may be enlarged or cropped to fit this format.
- \*Images may not have been previously published.

## SUBMISSION GUIDELINES:

- \*Entries must be received no later than June 5, 2002.
- \*Please send only duplicates as no entries will be returned. Winners will be contacted for original slides or negatives prior to publication.
- \*A 3 1/2 x 5 inch photo identification card must be enclosed for each photo, in the envelope. Please write the subject, the location the photograph was taken, and the photographer's name. If available, please include the camera model, lens, aperture, film, and lighting data.
- \*Each person may submit no more than two entries.
- \*All work must be no larger than 8 by 10 inches.
- \*MES and its officers and members are not responsible for the safety, delivery, and necessary handling of the photos.

## JUDGING PROCESS:

- \*A judging panel composed of three MES officers and three professional photographers will review all eligible entries. Decisions will be made and winners will be notified by June 30, 2002.
- \*Entries will be judged on subject matter, composition and lighting, and originality. All decisions of the judging panel are final.
- \*In addition to having their work published in the 2003 Insect Calendar, all 12 winners will receive a copy of the 2003 Insect Calendar, a one year subscription to The Maine Entomologist, and an "Insects of Maine" T-shirt.

## USE OF SUBMITTED PHOTOS:

- \*Images chosen for publication in the Insect Calendar will be used with one-time reproduction rights only. The photographer will be contacted individually for written permission for any other use of the photo. Submitting a photo does not in any way prevent the photographer from using this photo for other purposes in the future. The photographer retains all rights to their work.
- \*Photos not chosen for the calendar may be eligible for future use in MES posters, cards, or brochures. In this case, individual photographers will be contacted for permission to use their work.

Please mail your photos and identification cards along with a copy of this form to:  
Laura Stone, Wells Reserve, 342 Laudholm Farm Road, Wells, ME 04090

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

Primary Phone \_\_\_\_\_ Alternate Phone \_\_\_\_\_

E-mail Address \_\_\_\_\_

Please tell us how you heard about this contest.  MES newsletter  Photography Club  Posted Flyer  
 Friend  Internet  Other \_\_\_\_\_

**I have read and agree to all of the Insect Photography Contest guidelines. I do hereby certify that the enclosed photograph is an unpublished image and I give the Maine Entomological Society one-time permission to publish my work in the 2003 Insect Calendar if I am selected as a winner.**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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## Beetle Nights

No, not "The Beatles" of British music fame, but insects in the order Coleoptera! For some time now, those of us who collect beetles at light (trap or sheet) have noticed that there are nights, particularly in June and early July, when the "mob of moths" all but disappears exposing a wealth of beetles uncorrupted by moth scales and other parts. It's great, but unfortunately unexplained and short lived. During most seasons there have been at most three of these between June 10<sup>th</sup> and July 10<sup>th</sup> in Mount Vernon, Maine. In 2001, I experienced only one of these nights occurring on June 15<sup>th</sup>-16<sup>th</sup>. That night my trap yielded several hundred nice Coleoptera specimens including 11 new species records for my light trap which has been in operation at the same site for over 30 years: Bostrichidae (1); Carabidae (2); Cerambycidae (3); Eucnemidae (1); Heteroceridae (1); and Scarabaeidae (3). Although some of these species had probably been captured in my trap before, they stood out better without the moths. As I have never seriously tried to determine whether or not there is some predictability to these events, I would be very interested in hearing from others as to their experience.

The best explanation for my 2001 experience came from a fellow light trapper from New Brunswick, Reggie Webster: "After you mentioned the idea about a short article on 'beetle nights' we had one here. I thought that I would give you a few comments on my experiences here in N.B. Two things seem to characterize beetle nights. First, these nights are often unusually warm. The night of the 27<sup>th</sup> of June was extremely warm (it was still 79 F at 1:00 am), and second, winds are generally light and the relative humidity is usually moderate. I rarely see good beetle nights on very humid warm nights. Often the best beetle nights follow the passage of a weak but dry cold front after a hot day. Another characteristic of beetle nights is that moths are usually not very common at light on these nights. Small species such as geometrids are often common, but not the larger noctuids, sphingids and saturniid moths. It may be that it is simply too warm for the larger species. They would simply overheat when they fly (at least in New Brunswick). I find that the best moth nights occur when the temperature ranges between 55 and 65 F."

This information seems to fit my situation in Maine although I did not have specific enough weather data for my location to be sure. I hope to try and characterize beetle nights at my trap site in 2002 and would like to have some of you join me at your site. To do this you will of course have to be collecting at light on a fairly regular basis as we don't know for sure how to anticipate these events. I will focus in on the period between June 1<sup>st</sup> and July 15<sup>th</sup>. I don't expect weather station quality records but do suggest that you have a thermometer and a willingness to keep as consistent observations as possible. I plan to start simply this year by recording: the daytime high temperature (close will do); the temperature, humidity (high-medium-low will do for now) and relative wind speed (calm or light breeze) at 9 pm; moon phase and whether or not the night was dark or moonlit; comments relative to passage of any frontal systems especially associated with rain; duration of the beetle event (1, 2, 3 or more nights in succession); notes on relative abundance of beetles to other orders expressed as a percent; and any other comments which you think appropriate. It would be especially useful to have similar data for nights preceding and following a beetle night. I would be glad to send any interested collector a copy of the form I plan to use. Call, email, or write me at: Dick Dearborn, 115 Spring Hill Rd., Mt. Vernon, ME 04352, Phone 207-293-2288 or [modear@prexar.com](mailto:modear@prexar.com). I also realize that there will be some need for interpretation/adjustment but it will be a start. It should be fun.

-Dick Dearborn



## ESA Sale Is On

In an effort to streamline their organization, the Entomological Society of America is downsizing their stock of merchandise. After June 30<sup>th</sup>, they will only be selling the following items: ESA pest handbooks, Thomas Say Publications in Entomology series, Common Names of Insects, Arthropod Management Tests, and back issues of the four ESA journals. That means there is a lot up for sale. This is a great opportunity to pick up books and references! Check the sale out at [www.entsoc.org/catalog/](http://www.entsoc.org/catalog/)

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## Raising A Dragonfly Nymph



While at a small vernal pool in Wallagrass where Jerry Longcore collected some frogs on June 1, he pointed out a dragonfly nymph which I then collected. Just as we were leaving, we saw thousands of tiny creatures

swimming in clouds in the pool. I scooped up a container full of the water, which had hundreds of minute water fleas. I put the dragonfly nymph into the water and in a few days it had eaten every one of those fleas. That was what made me decide to feed the dragonfly nymph and raise it.

The next few days I fed the nymph some pollinating beetles from buttercups and Golden Alexanders. The nymph looked at them intently and grabbed them so quickly I was not sure how it did it! It seemed to have a hinged appendage beneath that sprang forward with lightning speed to grasp the prey (it did in fact have a hinged labium).

This nymph kept me busy hunting for its food. Small tadpoles and caddisfly larvae were the mainstays of its diet. It also devoured damselfly nymphs and spiders. During our ham radio field day, I was in an open tent. That night the nymph was fed moths and mayflies and other insects. It must have been ecstatic with the amount of food I presented to it. I kept the dragonfly nymph in a container of pond water that I changed often. The nymph accompanied us on a trip to Cliff Lake. Here I discovered the two things it would not eat were caterpillars and inch-worms.

On June 28<sup>th</sup>, while looking for food for the dragonfly nymph, I saw a strange insect swimming on the surface of our vernal pool. The slim body was 1 inch long with two threadlike tail appendages 1 5/8 inches long. Four long legs supported it on the water. The only thing I have seen that looked like it was a Walking Stick in Connecticut. It didn't seem quite the same, but what was it? Should I put it in water with the nymph or keep it dry? I thought maybe the strong wind had blown it into the water. Putting it in an insect box, I took it and the nymph with me on an Allagash River trip with the "Women On the River" group from UMFK.

That night I checked in the insect book for a Walking

Stick. Walking Sticks have six long legs and no long tail pieces. The swimmer had short, stout front legs. The next morning I saw a picture of the swimmer in a pond book. It was a Water Scorpion. The pale brown insect's front legs are powerful, suggesting the large claws of a scorpion. The two tail threads are grooved and fit together to make a breathing tube. Water Scorpions have short wings capable of flight, but they seldom fly. They are usually bottom crawlers, so I was fortunate to see it on the surface. With a magnifier we discovered two prominent black eyes and a very sharp beak that looked deadly. The beak pierces the prey and sucks out the life juices leaving the victim like a collapsed balloon. They can devour four dragonfly nymphs in forty-five minutes! It's a good thing I didn't put it in with my nymph.

The dragon fly nymph went canoeing with me. It sure must have been puzzled by the rough sessions in its life! A new item in its diet was a tiny fish and a water penny. The water penny was clinging under a rock, sort of round, slightly oval. Transparent looking, it is the larva of the riffle beetle, a small black beetle with silky hairs. Right after the canoe trip, on July 2<sup>nd</sup>, "Nymphy" went on a fast. I feared that maybe the trip was too rough for it, but hoped it was just preparing for adulthood.

On July 10<sup>th</sup>, I found "Nymphy" out of its container on the shelf under the colander I had placed over it. I got a Maple branch with leaves on it and put it in the water, then placed the nymph back in the water. It went through all kinds of gyrations that it had not before. Within 30 minutes it was way up the maple stem and wriggling out. In another hour its wings had expanded and seemed to have globs of green jelly on them. It sort of hung there all day. The next morning I took it out and noticed a left leg missing and a slightly bent back wing. It took one short fluttering flight and dive bombed into a puddle, from which I rescued it. It seemed weak. I kept checking on it. and took it for walks in the sun. Then it rained hard. At 10 pm I went out to see it again. It looked bedraggled. I brought it in for the night. It still seemed weak. All that changed, I guess, because the next morning I took him (I knew it was a male) out again. I put his head next to a raindrop on a leaf. He lapped up the water, vibrated his wings, and it took off! He landed about 15 feet away. A little later he was gone. I hope he is having happy hunting. It was a Shadow Darner. Maybe we will catch sight of him sometime.

-Gale Flagg

## MES Field Trips for 2002

As always, please feel free to bring a few guests along with you for these collecting trips.

**June 15. East Waterford (Oxford County).** For this trip, we will be collecting in the western Maine foothills, on Gail Everett's property along the Crooked River. Habitats include riparian, old fields (mostly dry), mixed forest, and even a bog. Gail's nine acres have something for everyone. Call her at 207-743-2840 for further information.

**June 28-29. Fort Kent (Aroostook County).** This is an overnight trip, with an evening meeting on Friday and collecting all Saturday. For more info, call Gale Flagg at 207-834-6670 or e-mail [GaleFlagg@sjv.net](mailto:GaleFlagg@sjv.net).

**June 29. Brownfield Bog.** North American Butterfly Association (NABA) Annual Butterfly Count. 9 am to 3 pm. Call Gail Everett at 207-743-2840 for further information.

**July 21-23. Machias (Washington County).** This event is a joint meeting with the Acadian Entomological Society in Machias on July 21-23 (Sunday-Tuesday). The July MES collecting trip will be held Sunday morning. That evening, MES will be hosting the "mixer" for the joint meeting at the Bluebird Ranch Family Restaurant. We are hoping to get as many members out for this one as we can. Call Dick Dearborn at 207-287-2431 for more information.

**August 10. Wells (York County).** We will be collecting at the Wells National Estuarine Research Reserve at Laudholm Farm. This trip will focus on increasing the aquatic species list for the Reserve from the fresh and brackish waters of the Little River. Other habitats include successional and managed fields, second growth mixed forests of oak, maple and pine, and alder swamps. The morning will be spent collecting in the field and in the afternoon we'll identify some of the specimens we found. Contact Laura Stone for more information at 207-324-2849.

**September 14. Caratunk (Somerset County).** Bob Nelson will be leading a trip to this northerly locale up the Deadwater Road. This area has marvelous wetlands, including peaty stream margins, dense hardwood and conifer forests, and plenty of open ground (butterflies!) on a recent clearcut. Call Bob at 207-872-3247 for further information.

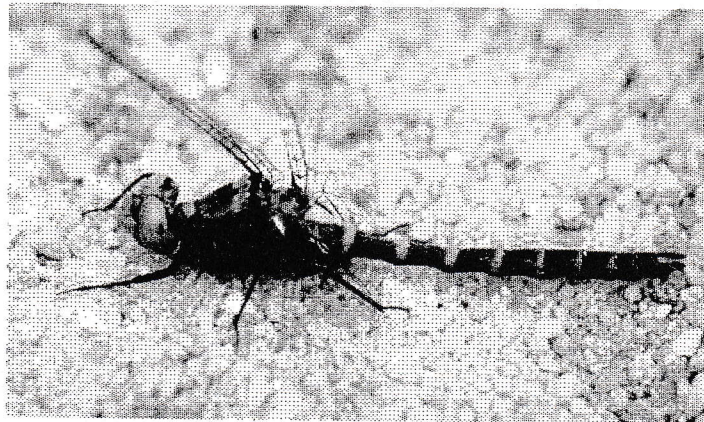
**October 14. Mt. Vernon (Kennebec County).** The annual meeting where officers are elected will once again be held amidst the spectacular fall foliage at Dick and Marj Dearborn's home in Mt. Vernon.

## Dragon Hunting Season Opens

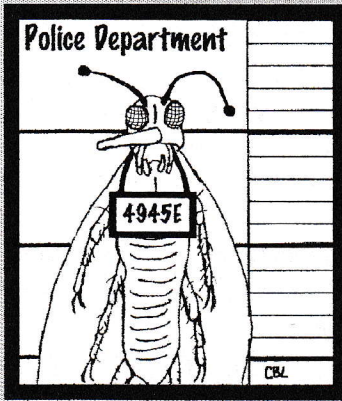
Welcome fellow dragon-hunters to another odonate flight season in Maine. Having made my annual spring pilgrimage to a hardwood floodplain forest in Unity the last weekend in April, I was impressed by the number of trilliums, trout lilies, and bloodroots that were blossoming despite the recent cold snap. The emergence this time of year of spring ephemeral wildflowers, mourning cloaks and other anglewing butterflies, and wood frog tadpoles suggests that it won't be long before our colorful dragonfly quarry will be gracing nearby pond shores and stream courses. In fact, the earliest, and rarest, of our state's dragon fauna – the Ringed Boghaunter (*Williamsonia lintneri*) - has already been documented emerging from a wetland in York County. This is a new early emergence record for the species in Maine and those of you living in Maine's southern tier counties might consider a spring foray on the next warm day if you know of any sphagnum-choked pocket swamps near home. Keep in mind that adults of this species are most often found basking on dirt roads and sun-flecks in the uplands surrounding their breeding pools.

The rest of us are also well-advised to dust off our dragonfly nets, field forms, guides, and collecting gear as many of the earliest Darners (e.g. Common Green Darner, *Anax junius*; Springtime Darner, *Basiaeschna janata*; and Harlequin Darner, *Gomphaeschna furcillata*), Emeralds (e.g. Ebony Boghaunter, *Williamsonia fletcheri*; Misc. Baskettails, *Epithea spp.*; Uhler's Sundragon, *Helocordulia uhleri*), and Skimmers (e.g. Whitefaces, *Leucorrhinia spp.*) are already active a short distance to our south and will be among the first species on the wing in Maine during the beginning weeks of May. Of course, don't forget to look down as well, among the lily pads and rank shoreline vegetation, where you will likely encounter some of our earliest and easily overlooked damselflies - Forktails (*Ischnura spp.*) and Bluets (*Enallagma spp.*).

-Phillip deMaynadier



Ringed Boghaunter (*Williamsonia lintneri*). Image courtesy of Maine Department of Inland Fisheries and Wildlife.



## The Bug Mug Shot: Large Ground Beetle

**ORDER:** Coleoptera (beetles)  
**FAMILY:** Carabidae, the ground beetles.  
 This is one of the largest families of insects, with some 35,000 species worldwide and over 400 species in Maine. A distinguishing characteristic is that the first abdominal segment on the underside is not complete from one side to the other, but

interrupted by the bases (coxae) of the hind legs in the middle. Antennae have 11 segments and usually 1/4 to 1/2 the length of the beetle.

**SPECIES:** *Carabus nemoralis*, a European introduction, but commonly found throughout Maine. It is reportedly more common in the U. S. than in Europe!

**DESCRIPTION:** 20-25 mm long, black, with violet (rarely greenish) reflections on the sides of the thorax and elytra (hardened forewings). Elytra have three clear rows of shallow punctures down their length, with very low, subtle ridges in between them. The mandibles are like sharp-pointed sturdy hooks, not like crossed scythe blades (which are more characteristic of the related *Calosoma*, the caterpillar hunters).

**PRIMARY HABITAT:** They are commonly encountered when taking up the leaves or when weeding the garden in preparation for spring planting. They can also be found in the yard at night, rustling in the leaves as they search for food. Though mostly synanthropic (associated with human-disturbed habitats), they're starting to move into more natural habitats, especially low, wet forests along rivers.

**FOOD:** Larvae of *Carabus nemoralis* are for the most part predators, especially on earthworms (which in Maine are also all introduced!). The adults are also fond of earthworms, but are more generalized predators and scavengers. They have a fondness for injured slugs.

**LIFE HISTORY:** Adults emerge from winter hibernation in the spring, when the ground begins to thaw. They are quite active in the late spring and early summer, and mate and lay eggs in a clutch underground. The larvae emerge and eat voraciously over the summer. By the end of the summer, they are well over an inch long, and then pupate for several weeks, to emerge as adults. A common assumption is that this species lives only one year, but adults are seen all months of the summer season. Their principal predators are medium- and large-sized birds and particularly small, carnivorous mammals, like weasels, skunks, and raccoons.

**NOTES:** Other Maine species of *Carabus* include another European introduction, *C. auratus*, which is larger and entirely bright metallic emerald green, and the native *C. serratus*, which is smaller and has tiny serrated teeth on the shoulders of the elytra. *C. chamissonis* is a smaller tundra species known in Maine only from the alpine zone of Katahdin. Other native North American species reported from Maine are *C. goryi*, *C. maeander* (our only truly holarctic species), and *C. sylvosus* (known only from a single specimen collected in Norway).

## MDDS Workshop Scheduled for June

The last Maine Damselfly and Dragonfly Survey (MDDS) introductory workshop will be offered this summer (yes we are already commencing the 4<sup>th</sup> of 5 MDDS survey years!). The workshop is scheduled for the first weekend in June (June 1-2) and will be hosted at the Eagle Hill Field Station in Steuben.

During the workshop, Paul Brunelle and Phillip deMaynadier will initiate new MDDS recruits by summarizing survey efforts to date, reviewing basic dragonfly biology and identification, introducing protocols for MDDS collecting and vouchering, and practicing techniques at some local coastal wetlands. This weekend seminar is an excellent way to quickly learn more about Maine's odonates and how you can participate in the MDDS project as a citizen scientist. Expenses are covered by MDIFW. Please contact Phillip deMaynadier as soon as possible if you are interested in reserving a seminar slot at [phillip.deMaynadier@state.me.us](mailto:phillip.deMaynadier@state.me.us) or 207-941-4239.

For further information about MDDS or to learn more about odonates, check out their website at <http://mdds.umf.maine.edu/~odonata>. There you will find species distribution and flight records, meeting announcements, literature resources, a digital photo library, and past issues of "Mainensis" - the survey's annual newsletter.



The large ground beetle, *Carabus nemoralis*. Image courtesy of Robert Nelson.



## Insect Orders Word Search

A	P	T	E	R	Y	X	A	L	M	Y	H	C
S	O	L	I	L	O	Q	U	Y	U	H	O	O
I	S	O	P	T	E	R	A	P	T	E	M	L
P	O	R	T	M	O	R	E	S	B	Y	O	E
H	O	H	E	M	I	P	T	E	R	A	P	O
O	R	T	H	O	P	T	E	R	A	D	T	P
N	E	U	O	D	I	P	T	E	R	A	E	T
A	R	O	P	R	A	C	I	N	O	M	R	E
P	H	Y	M	E	N	O	P	T	E	R	A	R
T	H	E	A	X	O	L	O	T	L	O	A	A
E	L	E	P	I	D	O	P	T	E	R	A	T
R	N	E	U	R	O	P	T	E	R	A	R	A
A	L	L	O	D	O	N	A	T	A	R	U	S

ISOPTERA  
HOMOPTERA  
ODONATA  
HYMENOPTERA

COLEOPTERA  
NEUROPTERA  
HEMIPTERA  
DIPTERA

ORTHOPTERA  
LEPIDOPTERA  
SIPHONOPTERA

### Websites of Interest

<http://projects.edtech.sandi.net/grant/insects/>

An Insect's Perspective is an elementary webquest designed to help students understand the importance of insects to both the living and non-living environment.

[www.ufsia.ac.be/Arachnology/Arachnology.html](http://www.ufsia.ac.be/Arachnology/Arachnology.html)

The Arachnology Home Page has over 1000 links to websites on arachnids. It also has great information about arachnid orders and arachnids in general.

[www.nysaes.cornell.edu/ent/biocontrol](http://www.nysaes.cornell.edu/ent/biocontrol)

Cornell University's biological control website provides photographs and descriptions of biological control (or biocontrol) agents of insect, disease and weed pests in North America. It is also a tutorial on the concept and practice of biological control and integrated pest management (IPM).

<http://cse.unl.edu/~scotth/moths-butterflies.html>

The Butterfly and Moth Lifecycles site has great photographs of Lepidoptera life cycles from egg to adult. It also has information on raising butterflies.

## Change of Address

**Editor's Note:** This issue of The Maine Entomologist will undoubtedly arrive late to your mailbox. The reason is that we have recently moved to a new home (and office space!). Please send all future submissions and comments to our new mailing address: 21 Harding Street, Sanford, Maine 04073. Our phone number and e-mail address remain the same. Thanks!

-Chuck and Laura

### Last Issue's Anagram Answers

- |                |                  |
|----------------|------------------|
| 1) Protura     | 9) Coleoptera    |
| 2) Odonata     | 10) Plecoptera   |
| 3) Blattaria   | 11) Hemiptera    |
| 4) Isoptera    | 12) Mecoptera    |
| 5) Diptera     | 13) Trichoptera  |
| 6) Lepidoptera | 14) Siphonaptera |
| 7) Hymenoptera | 15) Corrodentia  |
| 8) Neuroptera  | 16) Dermoptera   |

### Last Issue's Word Search Answers

J	M	N	Y	I	B	H	W	E	S	T	N	I	L	E
E	A	V	S	W	P	R	O	B	O	S	C	I	S	D
N	N	D	L	B	M	E	L	A	N	U	R	A	J	V
C	S	D	A	A	F	H	P	Q	L	K	G	M	M	C
B	O	I	E	Y	T	I	V	A	C	C	M	R	Y	U
I	N	V	M	A	A	V	R	A	L	T	O	C	Q	L
T	I	A	D	P	N	B	I	E	B	W	A	F	E	E
E	A	R	O	A	C	O	G	V	T	T	G	U	A	X
Y	H	G	O	F	A	G	P	R	C	T	G	F	E	S
V	O	Z	L	U	R	W	A	H	V	N	O	U	D	E
F	M	A	B	A	R	E	B	Q	E	E	Y	O	E	T
V	E	U	F	H	A	Z	D	S	L	X	F	S	A	E
C	C	T	F	U	S	C	A	L	E	S	E	A	D	E
K	N	P	T	I	G	S	A	I	M	R	F	S	N	H
Z	R	X	N	N	E	M	O	D	B	A	W	I	J	S

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## New Order of Insects Discovered

An article in the April 18th issue of Science on Line titled "Mantophasmatodea: A New Insect Order with Extant Members in the Afrotropics" by Klaus-D. Klass, Oliver Zompro, Niels P. Kristensen, and Joachim Adis, has just identified and named the first totally new order of insects to be described since 1914. The insects bear some resemblance to walking sticks as well as to praying mantids, but are clearly neither, based on overall morphology and internal physiology. It's believed they may be closely related to the Grylloblatodea (ice crawlers), or possibly the Phasmids (walking sticks), but this can't yet be said with any certainty. Grylloblattids are scavengers and predators restricted to the northern margins of the Pacific Basin, from Washington State to Japan, and are found on and adjacent to glacial ice and perennial snowfields.

The new insect order, Mantophasmatodea, has been described on the basis of museum specimens collected in 1909 and 1950, and a specimen preserved in Baltic amber dating to about 45 million years in age. A more recent expedition to Namibia, sponsored by Conservation International, has apparently turned up two more species in the order. With five species, four of which are known to be extant, this is the smallest insect order known, but it is expected that additional specimens will turn up with increased collecting and people investigating previously unidentified materials in museum collections.

The new species described in the Science on Line paper are *Mantophasma zephyra* gen. et sp. nov. (based on one female from Namibia) and *M. subsolana* sp. nov. (a male from Tanzania). A fossil species, *Raptophasma Zompro* from Baltic amber, has also been described and assigned to the Mantophasmatodea. The insects are approximately 2 cm long, apterous (with short wings) and, judging from stomach contents, carnivores. It is believed that their fossil record may ultimately extend well back into the Mesozoic, the era in Earth history when dinosaurs ruled the land.

Oliver Zampro, who first found the specimens as he was searching museum collections for preserved walking sticks, is a graduate student at the Max-Planck Institute for Limnology in Germany.

-Robert Nelson

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# THE RED-TAILED BUMBLE BEE

(*Bombus ternarius*)

"Bombus" means a humming, buzzing noise in Latin.

Think of a hot summer day, and you can easily imagine the sleepy hum of a big fuzzy Bumble Bee. There are many types of Bumble Bees in Maine. The species shown here has orange-red bands across its abdomen.

### POLLINATION:

Bumble Bees drink nectar from flowers. They like to feed at clover, raspberry, blueberry, and apple flowers. While they feed, they also collect pollen from the flowers. They push the pollen grains into a compact bundle on their hind legs, and carry it back to the underground nest.

Some of the pollen is brushed back onto the flowers. It lands on a part called a stigma -- usually in the center. That's called pollination. Once the flowers are pollinated by bees, they will be able to bear fruits and seeds. Without pollination by Bumble Bees and other insects, we would have no apples, blueberries -- or many other fruits or vegetables!

### A BUMBLE BEE NEST:

Bumble Bees nest underground. A "Queen" starts the nest in the spring, using an old mouse hole, or a hole under a stump. She works by herself. But when the Queen's first daughters emerge from the new nest, they help her to make the nest bigger. By the end of summer, there will be many more females, and males, in the nest!

A female raised late in the summer will spend the winter in an underground den -- perhaps another old mouse hole. The following spring, she will be the new Queen!

COLORS:  
Black and  
yellow, with  
orange-red  
bands on the  
abdomen.

