

# The Maine Entomologist

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

Volume 6, Number 3, August 2002



## From the President

Many thanks to the 32 members who came out in support of the MES at our July meeting in Machias. This helped make the joint meeting with the Acadian Entomological Society (AES) a rousing success. Mother Nature also cooperated with great weather for outdoor activities. The

seafood was great, too.

The group began to assemble before 10 a.m. on Sunday the 21st and by the time we left for Rocky Lake (T18ED BPP) to collect, there were 29 who were ready to run down the elusive new records. We hope to hear of any new finds soon.

Our "mixer" Sunday evening allowed us to socialize with members of the AES and friends. By the time the group broke up around 9 p.m. there were 48 who had signed our guest book. Insect shirts, cards and bookmarks were available as well as an exhibit featuring Edith Patch. Those present were also introduced to our MES quilt that will be raffled off this fall.

The joint session on Monday was presented to a group of nearly 60 insect enthusiasts. It began with a keynote address by author Sue Hubbell followed by 17 interesting presentations on a variety of research topics, concluding with a pleasant and unexpected surprise, a photo journal of insects of the backyard by Henri Goulet.

The banquet Monday evening featured a coastal fine dining experience at the Fisherman's Wife Restaurant in Jonesport, with music, for a capacity crowd.

On day three, Tuesday, the group settled into the hard core issues of ground beetle (Coleoptera: Carabidae) sampling and systematics. There were 38 who braved the morning discussions of which 24 stayed for most of the afternoon identification session. The group was ushered out at 5:45 pm, 45 minutes after our scheduled closing with the intentions of partaking of more seafood or collecting in the unique areas around Machais.

I hope that all had a great time and thanks again.

-Dick Dearborn

## Inside This Issue:



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## Bothersome Bots

September mammal trapping. The ritual of baiting traps with peanut butter and oats then extracting wide-eyed chipmunks and white-footed mice from them each morning is an annual event, like the leaves changing color. Unlike trapping sessions in July, the mosquitoes are less, black flies are gone, and the tabanids are no longer circling like vultures. The mornings have a crisp edge hinting of the season to come.

Working with *Peromyscus* mice in September inevitably leads you to another of life's charming creatures - the bot fly (Genus *Cuterebra*, Family Oestridae). Examine a mouse in the fall, and along the lower abdomen and hind-quarters, you are bound to find certain large lumps. Stare at these lumps for a moment or two without blinking and then you see it - a small wiggle, a jerk, then stillness. Gently prod the lump (the mouse will usually squirm as well), and these lumps sort of gyrate. A pleasant introduction to the obligate parasite, the larval bot fly *Cuterebra fontinella*. Species of *Cuterebra* are very host specific. *Cuterebra emasculator* are the parasites of sciurids (chipmunks and squirrels) while *C. abdominalis* and *C. buccata* infest rabbits. In Maine, *C. fontinella* can also infest white-tailed deer<sup>1,2</sup>.

*Continued on Page 4*

# The Early History of Fossil Terrestrial Arthropods and Insects

Some 3.8 billion years ago, the Earth had oceans, and the first signs of life - tiny one-celled organisms - that left their remains behind in the rocks. For the next 3.4 billion years, all life on Earth remained in the sea, as it very slowly increased in diversity and complexity.

Then, a little more than 400 million years ago, the first creatures definitely known to have come out of the waters started walking on dry land, a group of primitive centipedes called Arthropleurids (Fig. 1). At Ludford Lane, in England, fragmentary remains of these have been found in rocks formed from deposits of sediments in shallow coastal waters. These were deposited at a time when much of central and southern Maine was under very deep water, as a proto-Atlantic sea floor was being pushed beneath North America and the earliest phase of the Appalachians, the Taconic Mountains, were being elevated, much the same way the Andes are being uplifted on the western coast of South America today.

Associated with the Arthropleurids in England were primitive scorpions and unusual spider-like animals called Trigonotarbid (Fig. 2), which differ from spiders in that the cephalothorax and abdomen (opisthosoma) are broadly joined, not in a "pinched" connection like that seen in true spiders. Trigonotarbids also lacked spinnerets and had a segmented opisthosoma, contrasting with the smooth and unsegmented opisthosoma in spiders.

Some 15 million years or so later, fossils of collembola (Fig. 3) show up in the Rhynie Chert of Scotland, the first true hexapods known in the fossil record. Trigonotarbids and myriapods (both centipedes and millipedes) show up in the Rhynie Chert, as well as in the slightly younger deposits at

Alken an der Mosel in Germany and at Battery Point in New Brunswick, to our north (Fig. 4), along with additional primitive scorpions. (For photos of a great reconstruction of a trigonotarbid from the Rhynie Chert, go to the web site [www.abdn.ac.uk/~gmi265/profiles/rhynie/trig3.htm](http://www.abdn.ac.uk/~gmi265/profiles/rhynie/trig3.htm).)

The first true insects to show up in the fossil record so far, are jumping bristletails (Fig. 5) from Gilboa, New York. These insects are distinguished by the broad, continuous compound eye that wraps around the head, and which some entomologists also believe is evidence that they came from a different evolutionary lineage than the rest of the insects. But it is this very distinctive, massive, single compound eye that has been recovered as a fossil from the Gilboa rocks. The Gilboa rocks have also yielded fossil mites that can be assigned to modern families, as well as more myriapods, trigonotarbids and true spiders.

The rocks at Gilboa occur at the base of a massive set of river deposits that drained off the western margin of the early northern Appalachians, deposits whose remnants are now themselves called the Catskill Mountains and which contain remains of tree-sized primitive plants up to 2 feet in diameter. The Taconics had been pushed up first by the subduction of the proto-Atlantic seafloor beneath the American continental margin, and then this second pulse (called the Acadian Orogeny) occurred when Europe collided with North America, crunching in between a slenderer landmass called Avalonia, which may itself have been about the size of New Zealand.

Another set of deposits resulted from deposition off the western margin of these mountains, called the Trout Valley Formation in Maine. The Trout

Valley Formation is believed to be slightly older than the deposits at Gilboa. These rocks, which have yielded fossils of a large plant that is the official Maine State Fossil (*Pertica quadrifaria*), among others, have been the focus of studies Dr. Robert Gastaldo and I have been conducting for the past three years at Colby, assisted by a number of our students.

So far, we have inspected rocks containing plant remains that accumulated in tide-flat environments, in stream channels, and leaf litter from an ancient soil (called a paleosol). What we've found have been bits and pieces of what appear to be a millipede, possible tiny scorpion bits, as well as a number of fragments of Eurypterids (ancient, extinct aquatic relatives of horseshoe crabs that bore superficial resemblance to primitive lobsters). We're still in the process of inspecting specimens under the microscope, and carefully dissolving samples of the rocks in hydrofluoric acid to recover the arthropod remains - which have been reduced to solid chunks of acid-insoluble graphite. The results so far have been tantalizing, but we've found nothing we can say yet is definitely insect in character. We're hoping to be able to bring the study to a conclusion within the coming year, and with luck, will be able to demonstrate that yes, if you have plants, you'll have insects.

The Trout Valley Formation occurs only within the confines of Baxter State Park, and our work is being carried out in close cooperation with the Baxter State Park Authority. Although anyone can go look at the rocks and their plant fossils, collecting within the park is strictly prohibited without prior authorization. We're very grateful to have been given permission to work in the Park.

- Bob Nelson

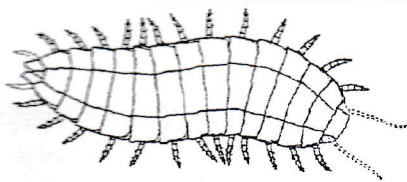


Figure 1. Reconstruction of an early Arthropleurid, based on specimens from Alken an der Mosel, in Germany.

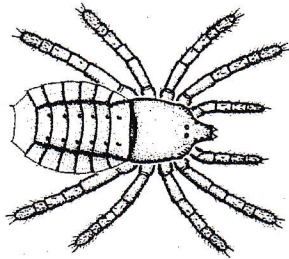


Figure 2. Typical structure of a trigonotarbid, based on specimens from the Rhynie Chert of Scotland.

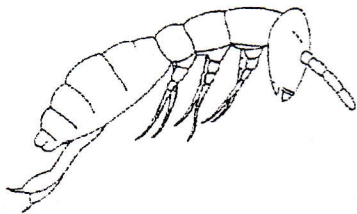


Figure 3. Rhyniella, an early collembolan (springtail) from the Rhynie Chert.

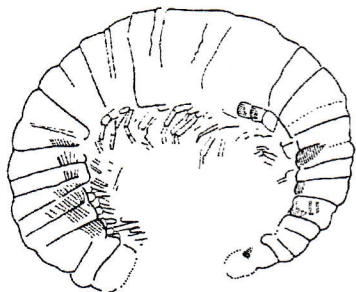


Figure 5. A millipede from the rocks at Battery Point, in New Brunswick.

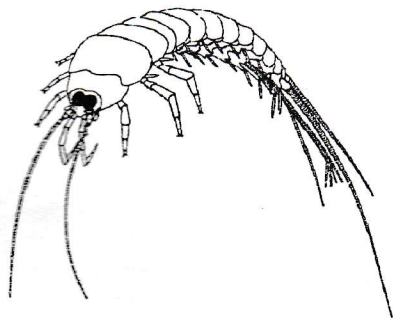
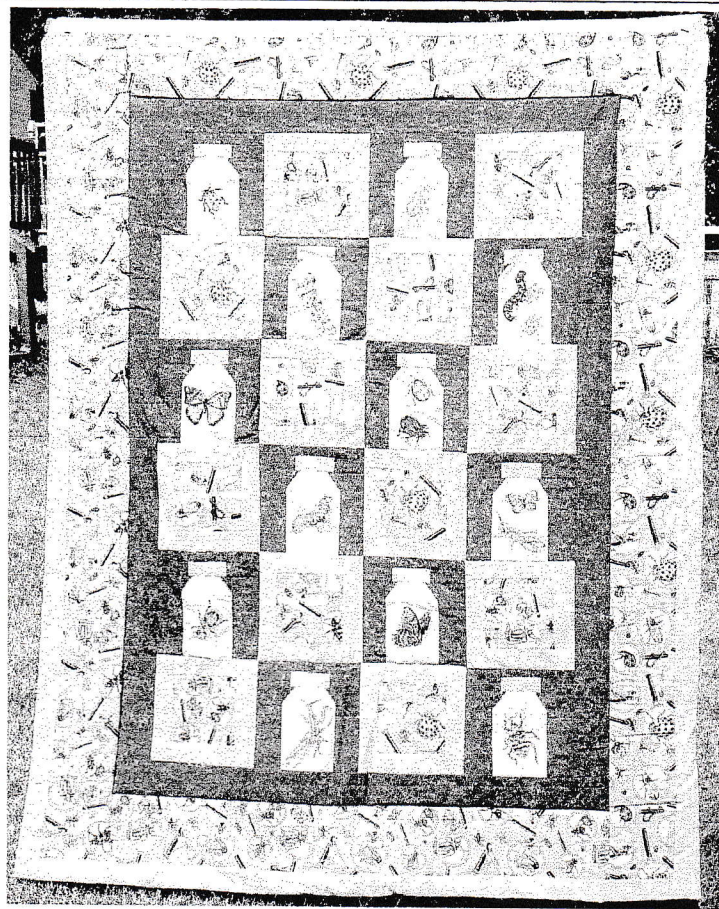


Figure 6. A modern jumping bristletail. Figure from Borror et al., 1976.

## Win This Quilt!

With the chill air of autumn not far away, you still have a chance to stay warm with this "bug quilt." Hand made by MES members Laura Stone and Marj Dearborn, it has a colorful combination of insects with green and blue backgrounds. It's the perfect size for reading on a couch or curling up to watch the leaves fall. It would also make



a great addition to any child's bedroom.

The quilt is first prize for the MES raffle. Second prize is an MES t-shirt and third prize is one of our 2003 entomology calendars. The winner will be drawn on October 14 at the annual meeting at Dick and Marj Dearborn's home in Mount Vernon. You need not be present to win. **Tickets are available for \$1 each or six for \$5.** They can be purchased through any board member, or you can fill out the tickets in the newsletter insert and return them with payment (check or money orders only please) to MES treasurer Edie King at 7 Salem Street, Waterville, ME 04901.

## Photography Contest Winners Featured in Calendar

Many thanks to all who submitted photos to the MES Photography Contest. Twelve images were selected to be featured in our 2003 MES Calendar. Each winning photographer will receive an MES t-shirt, a copy of the calendar, and a one year membership. The photographers and their subjects are listed in alphabetical order below.

- Kevin Byron – pseudo scorpion and cecropia moth caterpillar
- Ryan Haskell – male dobsonfly
- Richard Hildreth – swallowtail butterflies
- Bob Legg – mating grasshoppers
- Rich MacKenzie – horsefly
- Bob Nelson – tiger beetle collection
- Scott Richardson – insect collecting
- Sam Ristich – nursery spider
- Sue Smith – caddisfly larvae and dragonfly nymph exuvia
- Laura Stone – ants

Order your  
calendar today.  
(see insert for details)

## In Search of “Cross-toothed” or “Sickle-toothed” Rove Beetles

(Coleoptera: Staphylinidae:  
Oxyporinae: *Oxyporus* spp.)

I am looking for Maine specimens of these tiny (<1cm long), pretty (brown & yellow), denizens of fleshy fungi with prominent and vicious-looking mandibles. We should have at least four species in Maine but I have zero! If anyone finds one or more, I would appreciate a sample. Simply capture them in 70 percent alcohol accompanied by necessary label data as described in our February issue. It would be great to add the species of mushroom if you know it. If you catch any let me know and I can either pick them up or send a mailer.

-Dick Dearborn

## It's Time for the Woolly Bear Weather Forecast

Members who wish to do a “Woolly Worm Winter Weather Forecast for 2002-2003” should watch for the familiar red-banded black woollybear caterpillars in late September or early October. You should ideally have about 20 caterpillars to work with and by the time of our October meeting it will be almost too late. Folks need to count the number of red-haired segments (including half-segments) in relation to the number of black and come up with an average for the total.

For details, refer to the November 2001 issue of *The Maine Entomologist* or contact Dick Dearborn, who will be doing it for the fifth year in Kennebec County. It's a fun school project as it leads to discussions of science, folklore, and meteorology too.

## Bot Flies

### Continued From Page 1

Male adult flies use *leks* (mating territories) approximately eight to twelve meters in size<sup>2</sup>. The female seeks out the male in this territory. Their eggs are laid near the burrow entrance of the host species and early instars of the larval bots or warbles, attach to the hair as the animal exits the nest. From this point, larvae enter the body through cavities such as the nose or anus, where they penetrate the mucous membrane and move to subcutaneous positions. The hole in the skin of the host that one sees is the breathing hole the larvae has cut. This will later be used for exiting the animal. Larvae remain in the host for several weeks, growing to about 20 mm in length. Once it vacates the host, a larva pupates under the leaf litter though the remaining fall and winter, to emerge as an adult in the spring.

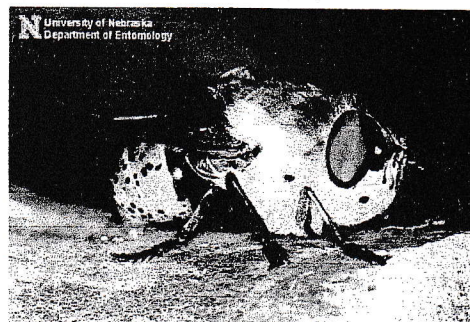
Despite their size, bot fly larvae only appear to be an inconvenience to mice. A study published in the *American Midland Naturalist* (vol.101: 211-217) found that *C. fontinella* parasitized up to 69 percent of *P. leucopus*. Older mice were more parasitized than juveniles. Parasitized juvenile males had smaller testes and seminal vesicles than non-parasitized males while females had significantly smaller spleens. No decreases in mouse populations were noted as a result of bot fly presence on mice. The researchers believed that both species evolved adaptations to balance the relationship<sup>3</sup>.

It is hard to believe, however, that *C. fontinella* larvae do not impact their hosts. I have found as many as five in the bodies of mice in York County, increasing the mass of the mice by many grams! Interestingly, if a *C. fontinella* is allowed to exit its host naturally, the exit hole closes leaving only a small scar that soon heals over. Some specimens caught in late September or October show the vaguest hint of this. If removed forcibly from a mouse, infection will occur within the evacuated cavity and the mouse may die as a result.

-Chuck Lubelczyk

### REFERENCES CITED

1. Herms, W. B. 1956. *Medical Entomology*. The MacMillan Co. New York. 643p.
2. Catts, E. P. 1994. Sex and the bachelor bot (Diptera: Oestridae). *American Entomologist*. Fall: 153-160.
3. R. M. Timm and E. F. Cook. 1979. The effect of bot fly larvae on reproduction in white-footed mice, (*Peromyscus leucopus*). *American Midland Naturalist* 101:211-217.



A male bot fly (left) and bot fly larva with *Peromyscus leucopus* host (right). Photos by J. Kalisch, University of Nebraska.

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## More on the Neuroptera of Maine

The order Neuroptera contains some very interesting and often weird insects. Last year, I introduced you to two unusual groups, the antlions and the mantispids (*The Maine Entomologist* Vol.5 No. 4). I would now like to provide you with a key to separate the Maine species of dobsonflies, fishflies, and alderflies (Neuroptera: suborder Megaloptera). All larvae of our eleven species are aquatic.

-Dick Dearborn

### Key to Adult Megaloptera:

- 1a. ocelli absent; wingspan of less than 30 mm, smoky grey wings  
Family Sialidae (Alderflies) - *Sialis* spp (6 species in Maine, difficult to separate)
- 1b. ocelli present; wingspan of more than 40 mm, wing color variable  
Family Corydalidae (Dobsonflies and Fishflies)
  - 2a. a very large brownish species, wingspan more than 120mm, hyaline wings and prominent mandibles.  
Our only Dobsonfly - *Corydalus cornutus*
  - 2b. much smaller species (wingspan less than 100mm) with mandibles small and generally concealed.  
Fishflies
    - 3a. wings black or brown with white markings
      - 4a. large species (wingspan 60 to 70 mm) with a broad white band extending across the middle of each wing.  
*Nigronia fasciatus*
      - 4b. smaller species (wingspan 45 to 55 mm) with a broad white band only on the front wings, rear wing spotting reduced to small white spots.  
*Nigronia serricornis*
    - 3b. wings nearly hyaline with light and dark banding restricted to the wing veins or small spots, medium sized insects with a 50 to 90 mm wingspan.
      - 5a. antennae of both sexes pectinate.  
*Chauliodes pectinicornis*
      - 5b. antennae of both sexes serrate.  
*Chauliodes rastricornis*

### Key to Larval Megaloptera:

Larvae with two hooked anal prolegs, eight pairs of lateral filaments and no terminal filament.  
Corydalidae

Larvae with no anal prolegs, seven pairs of lateral filaments and a prominent terminal filament.  
Sialidae

Reference: Borror, D.J., C.A. Triplehorn and N.F. Johnson. 1992. An Introduction to the Study of Insects (Sixth Edition). Harcourt Brace College Publishers. 875 pp.

## Websites of Interest

[www.univershell.com/bfly/resources.htm](http://www.univershell.com/bfly/resources.htm)

A website for identification of moths and butterflies from around the globe.

[www.forensicentomolgy.com](http://www.forensicentomolgy.com)

Explore the science of forensic entomology. It includes information on critical equipment, important insects, and ID guides for the forensic entomologist.

[www.howstuffworks.com/mosquito.htm](http://www.howstuffworks.com/mosquito.htm)

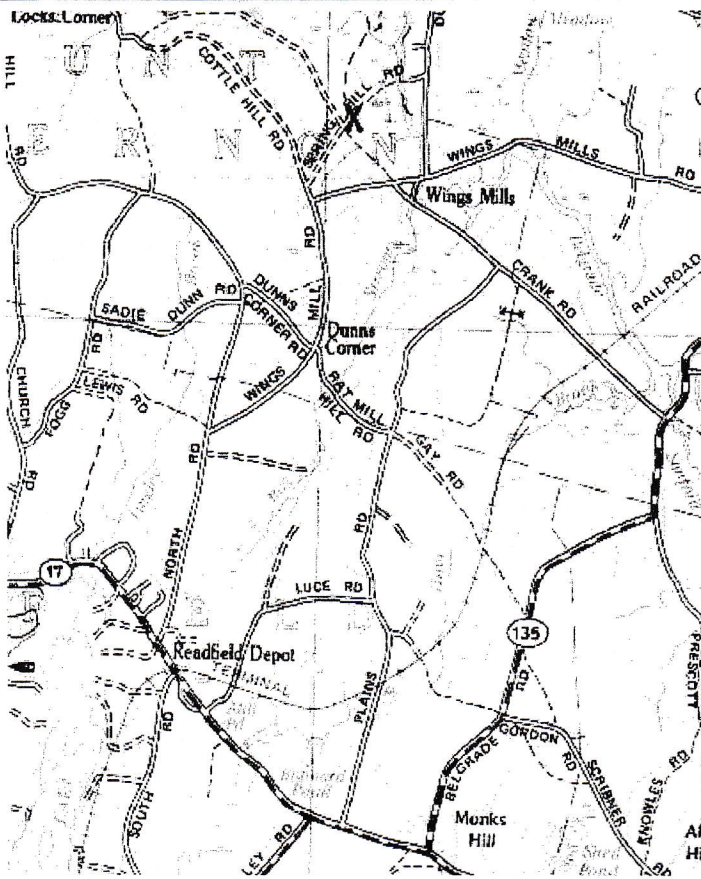
This site will answer all of the basics about one of our constant summer companions, the mosquito.

[www.ces.uga.edu/pubcd/b1088-w.html](http://www.ces.uga.edu/pubcd/b1088-w.html)

Meet the myriapods- centipedes and millipedes. This site, operated by the Georgia Cooperative Extension, gives you all the basics on this interesting group of critters.

<http://endangered.fws.gov/wildlife.html#Species>

View a list of and details about federally endangered and threatened species, including insects and arachnids.



## MES Fall Field Trips and Annual Meeting

**September 21.** Field trip to Caratunk where participants will meet at 10 a.m. across the street from Jimmy's Shur-Fine in Bingham, on Route 201. From the south, take I-95 to Exit 36 in Fairfield, and take 201 North towards Skowhegan. Go through Skowhegan and continue north until you get to Bingham. Jimmy's is about a mile after you come down the shallow grade on Route 201 with the Kennebec River on your left. Jimmy's will be on your left. For those coming from the north on Route 201, cross the Austin Stream bridge and drive through downtown; Jimmy's is on the far side of the downtown area, on your right.

The field trip will go up the Deadwater Road, a back road that follows an old railroad grade, ultimately winding up at Moxie Pond. As time permits, we'll collect along the Austin Stream, in mature conifer forests in Moscow, as well as in grassy meadows, acidic peatlands, moist to dry shrublands beneath power lines, and in gravel pits in eastern Caratunk. Bob Nelson will have a GPS unit so precise locality data can be had. 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 among the fields and fall foliage of Dick and Marj Dearborn's home in Mt. Vernon on Monday, October 14 (Columbus Day). This is an all day event, so come early and stay late! There will be a potluck lunch and chicken BBQ at noon with the annual meeting from 1 to 3 p.m. This is the meeting where the MES officers for 2003 will be elected and next year's field trips will be proposed. The winners of the MES raffle will also be drawn! Collecting will take place throughout the day, so bring your gear. Advance notice of attendance is helpful. Please call Dick at (207) 293-2288 or e-mail [modear@prexar.com](mailto:modear@prexar.com) to RSVP or if you have questions.

To get to the Dearborn residence, take I-95 to Augusta. Get off exit 30 and follow Routes 17/202 west towards Manchester. At Manchester, bear right onto Route 17 towards Readfield. In Readfield, turn right onto North Road and for approximately 1.5 miles. Turn right onto Wings Mill Road for about 2 miles. Wings Mill Road takes a sharp right turn at the bottom of a hill. Instead of taking this turn, go straight onto Cottle Hill Road. Take your first right onto Spring Hill Rd. Dick and Marj's house will be the first house on the right. Signs will be posted.

## A Tic about Ticks

As autumn approaches, I thought it might be good remind folks that October and November are still tick season in Maine. While most cases of Lyme disease are contracted from the nymphal deer ticks (*Ixodes scapularis*) in June and July, adult ticks are out and looking for hosts in the fall and spring. The larvae of the moose tick *Dermacentor albipictus*, might also be found in autumn (see *The Maine Entomologist*, Vol. 5, No. 1). One of the most common comments we hear at our lab in October is, "Well, it was bigger than the head of a pin. It had to be a dog tick, so I flushed it down the drain!"

While deer tick nymphs are about the size of the head of the pin, adults are larger. I think of them as about the size of an apple seed, females slightly larger than males. Dog ticks, *Dermacentor variabilis*, are only summer visitors in Maine and are normally active May through July, although last winter's mild temperature allowed them to start early this spring.

Briefly, dog ticks have dorsal light colored markings. Males have stripes or 'lightning bolts' while females have a white scutum or shield behind their heads. Deer ticks have no white markings. Rather, males appear black to the naked eye while females have a black scutum surrounded by a rust-red carapace. Moose tick larvae are about the size of grains of pepper, and usually appear by the hundreds.

Both the Maine Insect and Disease Lab in Augusta and the Maine Medical Center Lyme Disease Research Lab in Portland offer a free tick identification service for the general public.

So remember to be careful during the upcoming cooler months. And if you find a tick in October-don't just throw it away!

- Chuck Lubelczyk

## Insects on Chrysanthemums Part II

I want to share some very interesting observations of insects on chrysanthemums that took place from October 10 to November 8, 2000. We had several hard frosts that killed most of the flowers except this bed of orange chrysanthemums near our house.

October 11: Two triangle moths (*Choreutis pariana*). According to Michael Roberts, this is a strange import that is a skeletonizer of apple. It overwinters as an adult and it has been in my chrysanthemum patch for five years. Also 2 *Polistes*; 2 honeybees; 6 *Eristalis*; 8 bumblebees; 2 small sarcophagids; a green *Halictus*; and 1 *Ctenucha* moth.

October 14: Eleven honeybees.

October 16: Thirteen bumblebees; 3 *Ctenucha*; 7 *Eristalis*; and 3 small sarcophagids.

October 17: A very windy day. Twenty-one bumblebees; 1 *Ctenucha*; 1 blue calliphorid; and 3 anthomyiids.

October 19: Thirty-four bumblebees; 3 calliphorids; 7 *Eristalis*; 3 syrphids; 3 small anthomyiids; 1 green *Lucilia*; and many small Diptera.

October 20: Twenty-five bumblebees; 5 *Eristalis*; a large syrphid; and 28 Diptera.

October 21: A hard frost last night. Thirty bumblebees; 3 *Eristalis*; 1 *Ctenucha*; a green *Lucilia*; 2 calliphorids; 2 spotted-cucumber beetles; 2 *Choreutis* moths.

October 24: Three *Ctenucha*; 3 spotted-cucumber beetles (*Diabrotica*); a large noctuid moth; 2 large tachinids; 25 small Diptera; 3 *Eristalis*; 2 *Choreutis* moths; 22 bumblebees; honeybees; and *Polistes* wasps.

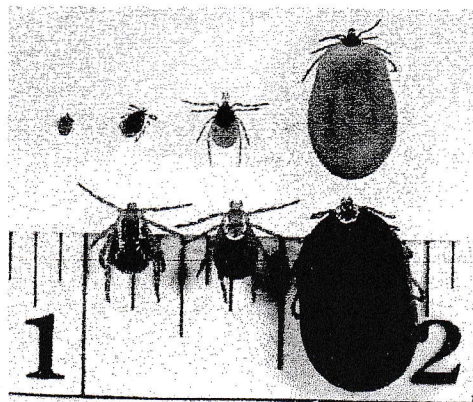
October 29: Temperature drops to 25°F. Seven bumblebees; 3 *Eristalis*; *Polistes* wasps; 2 bumble bees (which stay on plant overnight).

October 30: A hard frost. *Polistes* wasps; 2 bumblebees; 3 *Eristalis*.

November 4: Five bumblebees; 3 *Eristalis*; 2 other syrphids; 6 small Diptera; 1 *Halictus*; 1 *Ctenucha*.

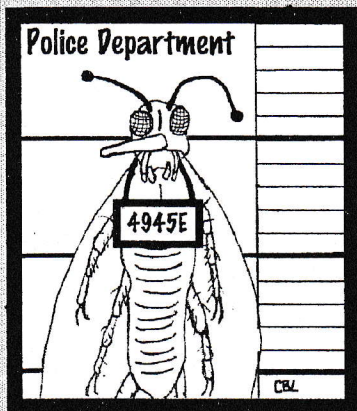
A drought in the year 2000 made it poor for chrysanthemum flowers. I had the following new or outstanding visitors: spotted-cucumber beetles and more *Ctenucha* and *Choreutis pariana* moths than in previous years. The numbers of *Eristalis* (rat-tailed maggots) were the lowest since 1995.

-Sam S. Ristich



For more information on ticks in Maine, check the Maine Medical Center Lyme Disease website at <http://zappa.mmcri.mmc.org/research/lyme/meticks.html> or the Maine Insect and Disease Lab at <http://www.state.me.us/doc/mfs/idmhome.htm>.

Deer ticks (top) and dog ticks (bottom). Photo courtesy of Maine Medical Center Lyme Disease Lab.



## The Bug Mug Shot: Daring Jumping Spider

**CLASS:** Arachnida **ORDER:** Araneae  
**FAMILY:** Salticidae. Approximately 5000 species of jumping spiders have been described worldwide, with about 300 species in the U.S. and Canada. Many of these spiders are brightly colored with iridescent scales. The fourth pair of legs that are slightly modified for this task

power a salticids' jump (up to 16 cm). The eyes of a salticid spider are fixed, but muscular contraction within the eye shift the retina, giving the eyes the appearance of a change in color. The family name is derived from the Latin "salto" which means to dance with pantomimic gestures.

**SPECIES:** *Phidippus audax*, the daring or three-spot jumping spider.

**DESCRIPTION:** Small (13-15 mm) and compact, *P. audax* has the distinct trait of iridescent green chelicerae (mouthparts). A white spot on the abdomen and white markings along its tarsi also make this ubiquitous spider easily recognizable. Their eight eyes are arranged in three rows. Two middle eyes in the front row are large, giving jumping spiders acute binocular vision, allowing sight of predators and prey from a distance of eight feet away. Unlike web-bound spider with 3 claws, *Phidippus* have 2 claws plus a scopulae pad (hairy tufts) that enables adhesion to various surfaces.

**PRIMARY HABITAT:** The daring jumping spider is common along the entire East Coast to the Rocky Mountains and is most often spotted on trees, in gardens, and around homes. Its coloration enables it to blend into crevices among stones. Often, it will enter a house to hunt insects. Silken shelters may be constructed under leaves or bark and are used during rainy or cloudy weather.

**FOOD:** Jumping spiders prey on a variety of insects and smaller arachnids. This cursorial hunting spider stalks prey rather utilizing a web. Before leaping upon its prey's back, *P. audax* uses a silken dragline to anchor itself before jumps. This dragline can be used to right a spider's position quickly if it misses its prey. One source quotes their voracious appetite where a captured *Phidippus* ate more than 40 fruit flies in succession.

**LIFE HISTORY:** During courtship, males will wave their legs in an elaborate display. If the female is of the same species, she will respond with a waving of her forelegs. After mating, female *P. audax* lay their eggs within a silken shelter and guard them until hatching.

**NOTES:** These beneficial spiders, also affectionately referred to as Charlies, Herbies, or Salties, track movements with their body position and if approached too close, will pull up their two forelegs in a defensive position. A very fast creature, it is generally able to avoid contact with humans. It has the sharpest vision of all spiders, and also sees in the green and ultraviolet range. As a result, it is diurnal and forages in sunlight. The green mouthparts aid in attracting mates.

During the recent joint meeting held by the MES and Acadian Entomological Society in Machias, Maine, several members of the MES were presenters during the first day of the conference. Here are some of the highlights:

Potential biological control of balsam woolly adelgid. Carol Cheah and **Charlene Donahue**.

Long-term population trends of arbovitea leafminer in Maine. **Francis Drummond** and **Charlene Donahue**.

Avian community response during an outbreak of *Acantholyda erythrocephala* (Hymenoptera: Pamphiliidae) in northern New York. **Bonnie McCulloch**.

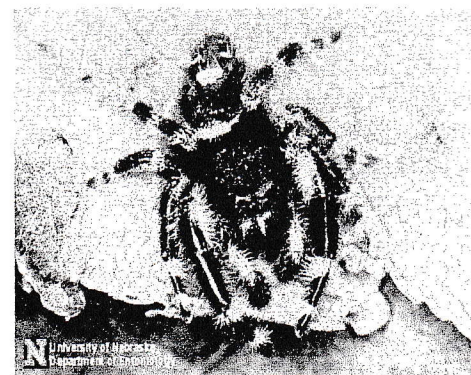
Salt marsh insects: a missing piece in the marine biodiversity puzzle. **Richard MacKenzie**.

Keeping track of winged jewels: An update on the Maine Damselfly and Dragonfly Atlas. **Phillip De Maynadier**.

Preliminary investigation of the European fire ant in Maine. Ellie Groden and **Frank Drummond**.

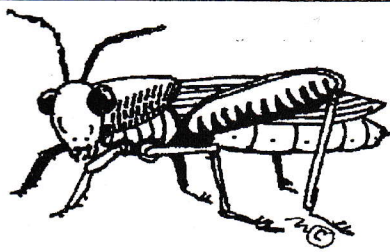
Preliminary results of invasive plant effects on native bee foraging behavior. Anthony O'Neal, **Constance Stubbs**, **Francis Drummond**, and Howard Ginsberg.

Biological control of the house fly on dairy farms: An on-farm demonstration project. **Kathleen D. Murray**.



Male daring jumping spider (*Phidippus audax*). Photo by J. Kalisch, UNL.





## The Great Golden Digger Wasp

The Great Golden Digger Wasp's scientific name is *Sphex ichneumoneus*. Sphex is the Greek word for wasp and ichneumoneus means "a tracker of animals" in Latin. They like to live in sunny, sandy areas and can often be found along a dirt road or path and in flower gardens throughout the United States and southern Canada.

Adult digger wasps feed on flower nectar and make great pollinators. They are especially fond of milkweed and dogbane. The larvae eat grasshoppers which their mother has caught for them.

The female Great Golden Digger Wasp digs a burrow in loose dirt or sand. When the tunnel is finished, she goes hunting for a big grasshopper or cricket which she stings and paralyzes. Then she drags it back to her nest and pulls in underground by the antennae. The female digger wasp lays a single egg directly on the paralyzed grasshopper, so when the larva hatches, it has a food source. The larva remains underground all winter, growing and developing in the burrow. In the spring, it emerges as an adult Great Golden Digger Wasp!

-Monica Russo

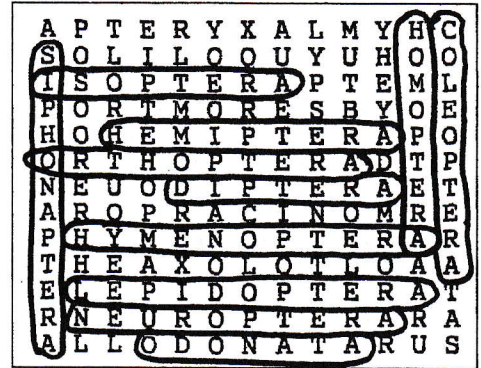


Face of a male *Sphex ichneumoneus* (females have bigger jaws). Drawing and maze by Monica Russo.

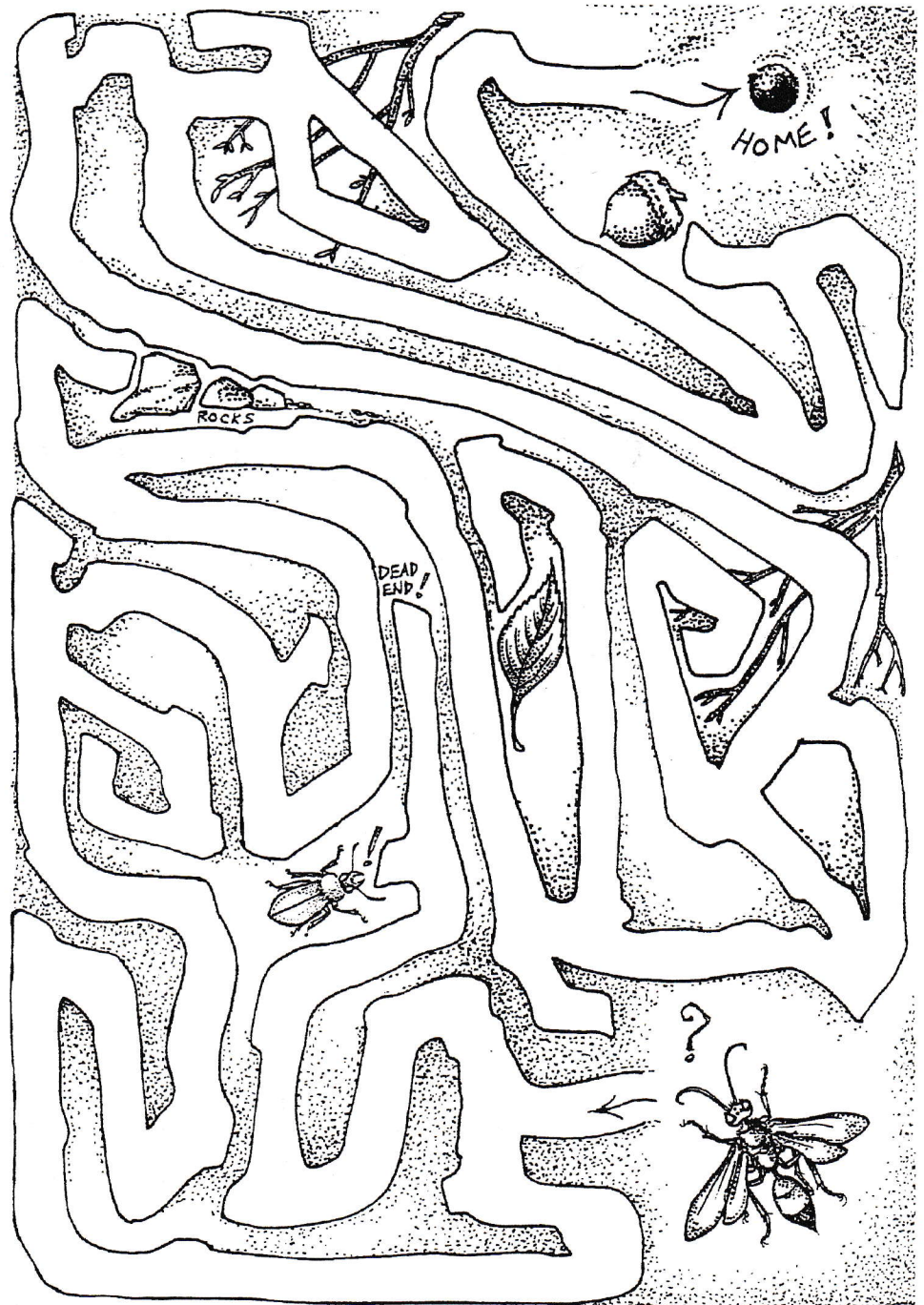
## Orthoptera Word Scramble

- |          |             |
|----------|-------------|
| SLUCOT   | MORSRUNPET  |
| INDTAM   | KRETCIC     |
| MPNTUMAY | ROPSHAPSGER |
| NABLIDEM | RIDACAIDE   |

## Last Issue's Word Search Answers



Help this Great Golden Digger Wasp find her way back to her nest!



## Notes on *Dipogon sayi*: the Logo of the MES

On July 18 of this summer, I watched a *Dipogon sayi*, which is a spider-hunting wasp, drag her prey quite a distance. At about 2:30 p.m., I observed her transporting a spider across our flat, sandy front walkway. That was relatively easy. But then she had to drag the paralyzed spider over a few rocks, over curled up oak leaves, and then a twig that rose up from the ground slightly. She went over the twig, about the diameter of a pencil, then picked up the spider again, and continued to drag it over the ground. Sometimes, she walked backward, pulling her prey along, and at other times she scabbled along sideways or crabwise with it. She had already taken the spider across eight feet of ground.

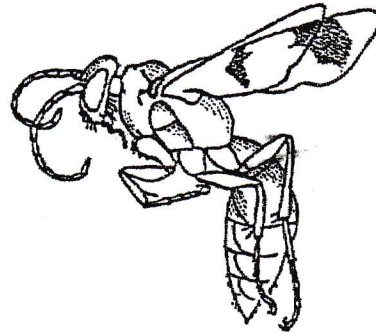
Finally, she came to our woodpile covered with an old plastic tarp. The tarp is weathered, so it is somewhat rough, and she was able to climb to the top of it, proceeding in a zigzag, dragging the spider. At about a height of 32 inches from the ground, the tarp was ripped and she dropped from the edge of the tarp onto a stack of split wood. She disappeared into the interior of the woodpile, so I wasn't able to follow her.

This wasp uses holes bored in wood by other insects as nurseries, storing the spiders inside. She probably had

a choice of sites in our woodpile, since the wood is several years old! I watched her travel a total distance of about fifteen feet with the paralyzed spider. She may have traveled much more, since she was already moving when I first spotted her.

This spider-hunting wasp can be identified by curving tufts of hairs under the jaws, and wings that have black bands across them. The bands can be seen fairly easily as you watch the wasp closely.

-Monica Russo



*Dipogon sayi*. Drawing by Monica Russo.

**CORRECTION:** It has come to our attention that in the February 2002 issue of the *Maine Entomologist* the picture of the wasp on page 3 was mislabeled. It should read *Polistes fuscatus*. We apologize for any confusion this may have caused.

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

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## Insect & Tick Species found in Maine

As 2001 comes to a close we thought that our members might be interested in the current species counts resulting from several insect and tick surveys currently underway across the State. While each of these surveys is conducted in a slightly different manner and for somewhat different purposes, the results are species inventories. The following presents the status of survey results as of November. It should be noted that final tabulations for the year are not complete in all cases:

**Bees** (several families of Hymenoptera) - This survey is based on the identification of native (and in some cases non-native) pollinators. There are currently 295 species listed for Maine with the genus *Andrena* having the greatest number of species.  
**Contact** : Dr. Constance Stubbs UMO (207)581-2754

**Odonata** (damselflies and dragonflies) - The current list for Maine stands at 162 species. Seven new species have been added since 1999 while two species were added in 2001 (Not all material has been processed).

**Contact** : Dr. Phillip De Maynadier ME I, F, & W (207)941-4239

**Ground Beetles** (Coleoptera: Carabidae) - There are currently 400 species listed from Maine. This figure represents an increase of 57 since the last list was published in 1993.

**Contact** : Richard Dearborn ME DOC (207)287-2431

**Mosquitoes** (Diptera: Culicidae) - There are now 41 species of mosquitoes listed from Maine. This figure represents an increase of five species since the last list was published in 1975.

**Contact** : Richard Dearborn ME DOC (207)287-2431

**Butterflies & Skippers** (Lepidoptera : Papilionoidea & Hesperioidea) - Currently there are 109 species recorded from Maine. This includes both residents and strays. It is believed that five species have been extirpated from the State.

**Contact** : Dr. Phillip De Maynadier ME I, F, & W (207)941-4239

**Hard Ticks** (Acarina : Ixodidae) - Fourteen species of hard ticks are now known from Maine. This includes one new species record found in 1996.

**Contact** : Richard Dearborn ME DOC (207)287-2431