

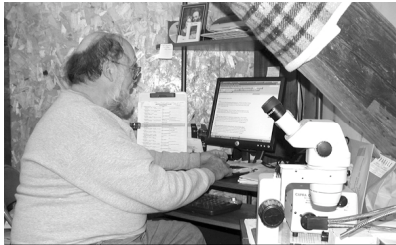
The Maine Entomologist

A forum for students, professionals and amateurs
in the Pine Tree State

The Official Newsletter of the Maine Entomological Society

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President's Corner by Dick Dearborn

Our 2007 field season is turning out to be one of the most active so far for MES member involvement in spite of rather spotty insect activity! As July drew to a close we had already set record attendance at two of our four summer events; 21 at Gouldsboro (Steuben) and over 50 (of which 20 were MES members) at the Schoodic spider blitz. This is very heartwarming to those who have invested much time and effort to bring about these events. And special thanks to a new member, Max Crain of Trenton, who brought six young students to both events to expose them to a diversity of survey methods. Paid MES memberships for the year remain strong at 124. Thank you all!

I know that some of you have asked where I have been this season. Over the past 10 years as president I have set MES on high priority and have tried to show up at nearly all events. This year I decided to step back slightly and devote more time to family activities and my 10 wonderful grandchildren. I've had a great time including travels to Florida and the mid-Atlantic States. So thanks to all of you who kept the group moving forward in my absence. And a special thanks to Bob Nelson who has given even more of his time in spite of a very busy schedule. As you read this issue keep in mind that you would not have such a timely and high quality newsletter without "Beetle Bob."

Although our Maine summer is now two-thirds over, I remind you that August can be one of the busiest months for insect activity. Our calendar lists a few things to watch for but there are many more exciting species of insects to observe and collect. I have already found several species new to me as I tended to outside chores at my place. Our next event will be at Bob & Nettie Nelson's Rock Ridge Farm on August 18th. Let's find something that Bob hasn't found yet!

Although many of us begin to wind down as fall approaches, September is very important for MES with our Annual Meeting at Chuck Peters in New Gloucester on the 15th and Bug Maine-ia now scheduled in Augusta on September 19th, Save these dates. And stay tuned on our calendar for 2008. And last but certainly not least I urge you to read our newsletter and keep us informed as to those unique and interesting finds. Take a moment and write down some of your observations as an article or field note for an upcoming newsletter. I am

particularly interested in hearing of your experiences with the unusually high red admiral butterfly populations (unmatched since 1957) and the perceived reduction in numbers of black flies and mosquitoes locally, earlier in the season.

May the remainder of the field season be fruitful whatever your endeavor. Thanks for your support.

Dick Dearborn

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In this issue:

- ☞ The Emerald Ash Borer - small but deadly (p. 2)
- ☞ Dan Jennings Honored (p. 2)
- ☞ Tabanids bite in a coastal salt marsh (p. 3)
- ☞ Spider Blitz yields NO arachnophobes! (p. 4)
- ☞ Importing dragonflies may not be such a good idea (p. 5)
- ☞ Kids' Column & Field Notes (p. 8)
- ☞ Book Review & Word Search (p. 9)
- ☞ M.E.S. Scholarships on Agenda for Fall Meeting (p. 8)
- ☞ "Bug Maine-ia" returns to the Maine State Museum (p. 10)

Down East in June

June can be a tricky month to schedule an insect field event along the coast of Maine, especially Down East, but Richard Hildreth agreed to give it a try! Six stalwart MES members arrived at the Hildreth Estate in Steuben on a wet Friday evening, June 22, to share in an evening of camaraderie. Saturday morning showed signs of sunny breaks so off we went to join up with 14 others at Chicken Mill Pond in Gouldsboro for a day of collecting and observing. Richard Hildreth gave a presentation on the area involved and then the group traversed woodroads, wetlands, woodlands and finally a saltmarsh. Insect collections were light but interesting and the group also had the chance to discuss many things from birds to salamander breeding areas. There were some interesting insect records which will be provided to the National Wildlife Refuge for allowing us to collect in the area.

Saturday night nine of us joined in an excellent supper of chicken strips, corn and for those who liked it - papaya and lime. After supper our host Richard Hildreth led off with some stories of his worldwide exploits which were interspersed with a good number of humorous situations that he found himself in. Others followed. As darkness descended the hardy remainder made the rounds of mercury vapor lights and collecting sheets and moth bait and pitfall trap trails. Catches however remained light except for slugs.

Even though we would have liked to see more insect specimens, all of us felt that the trip was worthwhile. Richard's planning and hospitality were super and who can figure out the weather anyhow. Thanks Richard!

- Dick Dearborn

Emerald Ash Borer - A Beautiful But Very Deadly Little Gem

by Charlene Donahue



Adult Emerald Ash Borers are small but deadly. (Photo by Howard Russell, Michigan State University, Bugwood.org.)

What is the scariest invasive insect on the horizon for Maine's forests? It is the Emerald Ash Borer (*Agrilus planipennis* Fairmaire) by a long shot. This beautiful green metallic woodborer came to North America in solid wood packing material from Asia. It was first found in Michigan in 2002 and since then has killed millions of ash trees in the Midwest. All ash species (*Fraxinus* spp.) in North America are susceptible to emerald ash borer attack and the insect is spreading rapidly.



Larva of the Emerald Ash Borer beneath the bark of an infested tree; note the sharply serrated margins. Larvae may be up to 25 mm (1 inch) long. (Photo by David Cappaert, Michigan State University, Bugwood.org.)

The larvae feed under the bark of ash trees in long serpentine galleries that tend to split the bark. The attack on the tree often starts in the crown where it difficult to spot the damage. Adults tend to stay in the upper canopy and are difficult to attract to traps so infestations are usually fairly advanced before they are noticed. Currently the most reliable method of detecting emerald ash borer is to girdle a tree, wait for it to be attacked then carefully peel the bark off every bit of trunk and branches looking for the larvae and galleries. It is very time consuming and destructive. You have to really try to target the most high-risk areas and have willing landowners to invest in this detection method.

Emerald ash borer is currently found in Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland and Ontario. Much of the emerald ash borer's spread to new locations is being traced

to the movement of firewood, as people cut down the ash in their backyards and move it with them as they go to their camp or to campgrounds. The emerald ash borer adult is a strong flyer, but the natural spread of the infestation would probably be measured in miles, not tens or hundreds of miles as is currently happening.

Although emerald ash borer is perhaps the most dramatic story of forest pests being moved by firewood, other pests can be moved as well. The take-home message is: Buy Firewood Where You Burn It, or buy kiln-dried firewood. The recommendation is to not move firewood more than 50 miles.

For more information you can check out <http://www.emeraldashborer.info/index.cfm>.

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Dan Jennings' Slice Of Immortality

by Frank Graham, Jr.

They say the only sure paths to immortality in this world are to have your name attached to a disease (as did Lou Gehrig and Alois Alzheimer) or a biological taxon (Swainson's Thrush and *Nicrophorus sayi*.) Recently our own Daniel T. Jennings made the grade for the third time, on this occasion via a trinomial-- *Philodromus rufus jenningsi*.

Philodromus rufus is a small philodromid crab spider found over most of North America, including Canada and Alaska. Until recently, three subspecies were known from the region. One of them, *P. r. ectans*, is present in Maine, and may be found indoors throughout most of the year, running rapidly on walls or windows.

In 1995, entomologist Bruce Cutler of the University of Kansas collected an odd-looking member of this species while beating junipers on campus. Similar specimens, bearing color patterns unlike other *Philodromus rufus* individuals, were later collected in several southern states. Cutler sent specimens to Jennings here in Garland, and the problem was solved. Dan'l recognized the spider as a new subspecies and Cutler, in describing it in the Journal of Arachnology, named it for him.

Jennings first got his name in the literature some years earlier while doing research on the Southwestern Pine Tip Moth, *Rhyacionia neomexicana*. Puzzled as to the identity of another moth he came across, he sent it to a University of California entomologist to identify. It turned out to be a new species, which feeds as a larva on seedling Ponderosa Pines. The entomologist named it *Rhyacionia Jenningsi*.

While working for the U. S. Forest Service in 1991, the indefatigable Jennings collected a comb-footed spider in a pitfall trap from Chestnut Ridge in the West Virginia University Forest. He forwarded it to the Museum of Comparative Zoology at Harvard, where it was described as a new species and named *Chrosiothes jenningsi*. The presence of the spider in West Virginia is remarkable, because other members of the *Chrosiothes* genus are limited to the American Southwest, Mexico, and the Neotropics.

"So, I have one pest and two predators named in my honor," notes Dan'l, beaming with satisfaction.

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Greenhead Fly Studies on a Maine Salt Marsh

By Dick Dearborn

It was March of 1966. With graduate school behind me and a young family in tow, I headed back to Maine with high hopes for a good job with funds enough to start me off with a "family farm" in the country. In June I was offered my "job of a lifetime" as an entomologist with The Maine Forest Service! Not only would I be working with general insect identification and curating a collection, but my first field project was "on the beach" so to speak. I was to take over a study of the salt marsh greenhead fly at Reid State Park and Popham Beach with an eye for population management and control without the use of pesticides.

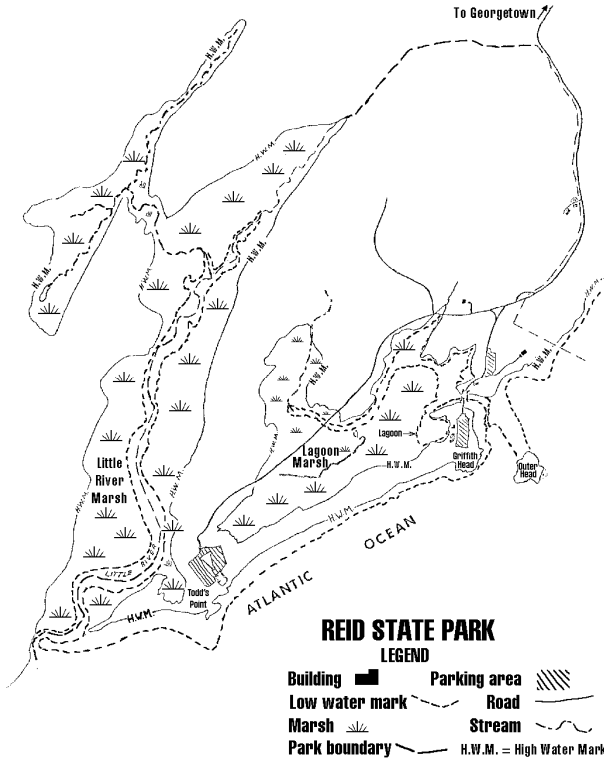


Figure 1. Generalized map of the study area at Reid State Park.

Salt Marsh Greenhead Fly Study (cont.)

Most of the detailed studies ended up at Reid State Park in Georgetown, Maine (Fig. 1). And we finally settled on the Manning trap (Fig. 2) as our survey and control tool. Granger (1970) and Hansens (1971) discuss the trapping approach.

But while trapping was of primary concern, I also took advantage of my time on this project to identify and list the insects I found associated with the greenhead fly in the Little River Marsh, to help better understand the insect ecology of the area. Tables 1 & 2 will give you a pretty good idea of what I found there. To give further details would take many pages but I thought that these lists would be of interest. I might add one interesting note that at Reid we saw two topologically similar but ecologically different salt marshes: the Little River Marsh with its dynamic insect populations, and the empounded (water-controlled) Lagoon Marsh, with its rather sterile insect dynamics (see Fig. 1).

We found no larvae of the saltmarsh greenhead or many of its associates in the Lagoon Marsh but many in the Little River

Marsh. Food for thought! See the reference by Pechuman and Dearborn (1996; next page) for more information on the tabanids of Maine.

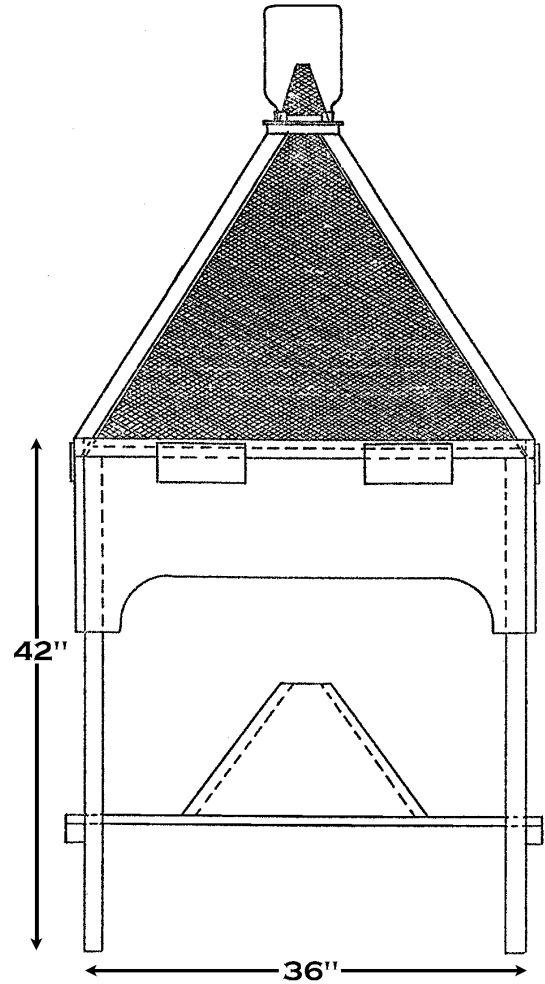


Figure 2. The Manning greenhead fly trap design.

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Table 1. A Representative List of the Insects Collected from Modified Manitoba and Manning Fly Traps in the Little River Marsh at Reid State Park at Georgetown, Maine in 1966 and 1967 *

DIPTERA Flies

- TABANIDAE Horse Flies and Deer Flies, most abundant
 - Tabanus catenatus* Wlk.
 - Tabanus hinellus* Philip A salt marsh species
 - Tabanus marginalis* Fabr.
 - Tabanus nigrovittatus* Macq. Salt Marsh Greenhead Fly, a salt marsh species only
 - Tabanus novaescotiae* Macq.
 - Hybomitra affinis* (Kby.) 1 specimen in 1967 only
 - Hybomitra aurilimba* (Stone) 1 specimen in 1967 only

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Salt Marsh Greenhead Fly Study (cont.)

Hybomitra epistates (O.S.)
Hybomitra frontalis (Wlk.) very common
Hybomitra illota (O.S.)
Hybomitra nuda (McD.) 1 specimen in 1967 only
Hybomitra zonalis (Kby.)
Hybomitra lurida (Fallen)
Chrysops atlanticus Pech. A salt marsh species only
Chrysops carbonarius carbonarius Wlk. 1 specimen in 1967 only
Chrysops excitans Wlk.
Chrysops fuliginosus (Weid.) A salt marsh species only
Chrysops niger Macq. 1 specimen in 1967 only
Atylotus bicolor (Wied.)
Atylotus hyalivitta Teskey 1 specimen in 1967 only

MUSCIDAE – Moderate numbers

Stomoxys calcitrans (Linn.) The Stable Fly, a biting species
A number of unidentified species

SYRPHIDAE – Moderate numbers

Metasyrphus sp.
Sphaerophoria sp.
Mesograpta marginata (Say) Common
Ferdinandia sp. 1 specimen in 1967 only
Helophilus fasciatus Walk. 1 specimen in 1966 only
H. borealis Staeg.
Polydomyia curvipes (Wied.) Very common.
Pronounced sexual dimorphism.
Eristalis tenax L. 1 specimen in 1966 only
Eristalis aeneus Scop. 1 specimen in 1966 only
Eristalis dimidiatus Wied.

STRATIOMYIDAE

Odontomyia cincta Oliv.
Odontomyia pubescens Day Very common

DOLICHOPODIDAE – Large numbers

Dolichopus spp.
? *Condylostylus nigrofemoratus* (Walker)
Many miscellaneous Dolichopodidae

LEPIDOPTERA Moths

NOCTUIDAE

Crymodes devastator Brace Glassy cutworm moth
Caenurgina crassiuscula Haw. Clover looper moth

COLEOPTERA Beetles

BUPRESTIDAE

Buprestis maculativentris Say 1 specimen in 1966 only

Table 2. Additional Insect species collected from the Little River Marsh at Reid State Park, Georgetown, Maine in 1966 and 1967, as part of this study *

COLEOPTERA

CICINDELIDAE

Cicindela marginata F. Salt Marsh Tiger Beetle
Cicindela hirticollis rhodensis Calder

CARABIDAE

Bembidion contractum Say On wet sandy soil
Bembidion quadrimaculatum oppositum Say.
On wet sandy soil
Pterostichus coracinus Newman
Pterostichus patruelis Dej.

STAPHYLINIDAE

Staphylinus praelongus Mann. Both adults and larvae were in the saline muck

HETEROCERIDAE

Heterocerus sp - moderate numbers found in saline muck

COCCINELLIDAE

Naemia seriata (Melsh.) Salt Marsh Lady Beetle,
very common on marsh grasses

CURCULIONIDAE

Calendra venatus venatus (Say)

CHRYSOMELIDAE

Erynephalia maritima (Lec.) Salt Marsh Leaf Beetle.
Found on seaside goldenrod, *Solidago sempervirens*

OEDEMERIDAE

Nacertes melanura (L.) Wharf Borer Beetle, collected sweeping

HYMENOPTERA

NYSSONIDAE

Bembix americana spinolae Lep. Sand Wasp nesting in sand dunes

VESPIDAE - Sometimes in Fly Traps, esp. *D. maculata*

Vespula germanica (FAB.)
Vespula maculifrons (Buy.) Eastern Yellowjacket
Vespula vulgaris (L.) Common Yellowjacket
Dolichovespula maculata (L.) Baldfaced Hornet

DIPTERA

CULICIDAE

Ochlerotatus cantator (Coq.) A salt marsh mosquito
Ochlerotatus sollicitans (Walker) The most abundant salt marsh mosquito at Reid State Park

ODONATA

LIBELLULIDAE

Erythrodiplax berenice Dry. Salt Marsh Dragonfly

* All species have been collected more than once except as noted.

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Schoodic Spider Blitz Catches New Records In Its Web

The Schoodic Spider Blitz at the Schoodic Point portion of Acadia National Park ran July 20-23, and by all accounts was a great success. Over 50 people showed up to participate, from seasoned professionals to a group of eager junior entomologists. This was the fifth year that the M.E.S., National Park Service, University of Maine and Maine Forest Service have teamed up to organize a Blitz devoted to terrestrial arthropods in the park.

Studies at Schoodic Point were not included in the original Proctor studies of Acadia, but that's not to say the spider fauna was completely unknown. In 1991, Dan Jennings taught a summer spider course at the Humboldt Research Institute in Steuben, and in 1998 Dr. Kefyn Catley taught a course. Both brought groups to Schoodic to collect and study. In 1999 they co-taught a similar course, in 2002 Catley returned with a student, and in 2003-2004 Dr. Beth Jakob and a student studied the fauna. But it was realized that much remained to be known.

This year's Blitz began Friday night after dinner, with newly-tenured Andrei Alyokhin introducing key people. Dave Manski and Jim McKenna welcomed everyone on behalf of the Park, and outlined the basic protocols for collecting and working in the park, including safety issues. Jim stressed that their mission is to preserve and protect the park resources, but that they recognize that they can't preserve that which they don't know exists, and so the Blitzes provide critical information for Park management. Charlene Donahue spoke to recognize the tremendous work that Dan Jennings has done over the years to document the Maine spider fauna, as outlined in their brief paper in last May's issue of the newsletter, a fauna now known to consist of over 600 species. Dr. Richard Bradley (Ohio State University), the lead scientist for the Blitz, gave a brief overview of the different major spider families and their

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Spider Blitz Report (cont.)

distinguishing characteristics, also acknowledging Dan's expertise. A slightly embarrassed Dan nonetheless accepted the accolades with grace and charm.

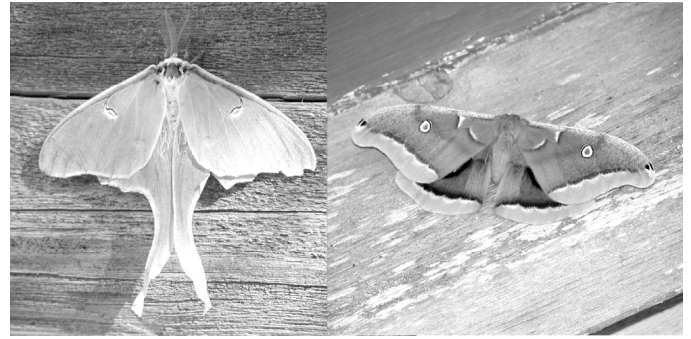
Saturday morning featured a workshop on collecting, sorting, preservation and labeling spiders, with particular focus on identifying mature adult males and females. This last was important because for many groups, juveniles cannot be reliably identified to the species level. The blitz began officially at noon, once folks had finished lunch, and students young and not-so-young fanned out across the park. A critically important cadre remained in the lab, preparing to process samples as they were submitted, from assigning lot numbers and entering collection data into the database to sorting spiders from non-spiders and adults from juveniles, with some sorting to family level. Collecting continued Saturday night after dinner, as a host of night stalkers set out, headlamps on or flashlights in hand, to look for reflections from those eight tiny eyes coming back from the wilds.



Charlene Donahue, Dana Michaud, Dave Manski and Dave Bourque looked over the Schoodic Point map Sunday morning, to identify areas that needed attention before the Blitz ended at noon.

The Blitz got a minor head-start in that some 200 pitfall traps had been deployed in the week before, and five Berlese funnel samples had been collected and started. By the end, over 200 individual lot numbers had been assigned, for specimens collected by one collector or collection team at one site, and even as early as Sunday lunch, when the Blitz officially ended, Rich Bradley reported there were 16 new Schoodic records and one new New England record. As of August 1st, Dan was able to report that HE had seen at least 17 new records (though he didn't know how much overlap there was with Rich Bradley's list), including two new families and two new state records. One of these last is a species previously known from Europe, Asia, and the northwestern part of North America (Alaska, Yukon Territory and British Columbia). At present, it's not possible to say whether this is an introduction "from away" or major range extension.

Sunday morning, in conjunction with the last day of the Blitz, Jonathan Mays gave a spider-based introduction to BioBlitz for Beginners for several dozen interested members of the public, who then also set out to help collect.



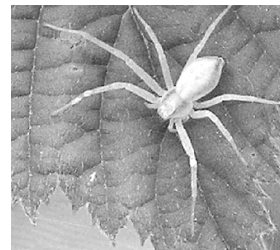
Giant moths provided a delight for some at the Spider Blitz. The luna moth at left, and polyphemus moth at right, were both found outside the main dining hall on Sunday morning. Both sport wingspans in excess of 10 cm (4 inches) at rest.

Sunday evening concluded the event for 30 or so hardy and dedicated individuals, with a traditional Maine lobster dinner, with a solid core of dedicated individuals who stayed over working into Monday morning. Discussion of next year's Blitz has already begun, although the focus group has not yet been selected.

Dan Jennings would like to express his sincere appreciation to all the sponsors of the Blitz, as well as all the attendees who showed up to help out. He said it was a tremendous effort and that people did a great job, producing a wealth of new information. He also said that the participation of so many young people was particularly encouraging. Much work remains, of course, as sorting and identifications will require ongoing work for some months to come.

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***Philodromus* cf.
P. rufus
(see story on p. 2)**

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The 2006 Diptera Blitz at Acadia was featured in an illustrated and very well-written article by Frank Graham in the July-August issue of *Audubon Magazine*.

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The Effect of Dragonflies on Mosquitoes and Mosquito-Borne Disease

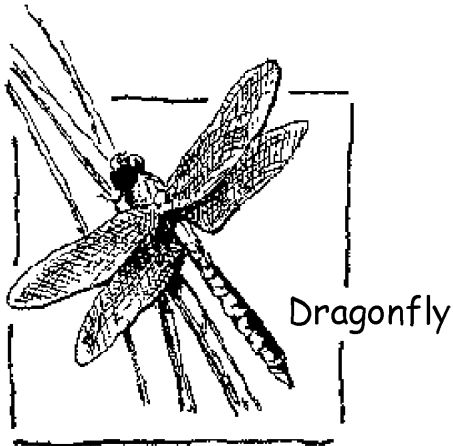
by Leif D. Deyrup and Chuck Lubelczyk

Dragonflies are in the order Odonata. They are primitively winged and develop differently than most insects. While the adults are supreme aerial predators, the larvae are lurking aquatic ambushers. Mere mention of dragonflies can conjure up pictures in one's mind, from the spectacular colors: blood red or sapphire blue, to the fierce aerial combats of two territorial males. Dragonfly watching, itself, has transcended dry science to become a hobby (e.g. Dunkle 2000). However, for someone who has had the experience of seeing a dragonfly whisk past and snatch a mosquito right as it is about to land on their skin,

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(Dragonflies & Mosquitos - cont.)

skin, dragonflies will always be guardians. To us, dragonflies merit their common name “mosquito hawk.”



To a mosquito, a dragonfly is something to fear. The adult dragonfly's keen eyesight leaves flying mosquitoes no place to hide. The larvae, waiting with a hydraulically-operated, extendible lower lip, can snap up the larvae and pupae of mosquitoes (Hinman 1934, Pritchard 1964). Calvert (1947) raised dragonfly nymphs on mosquitoes. One individual consumed 3,037 mosquito larvae and 164 pupae. Unfortunately, this study is not indicative of dragonflies reducing the risk of mosquito-borne disease. The reason is that a substantial study would be extremely difficult to conduct. Acquiring even less direct evidence would be impractical, and although it is easy to get the feeling of security from having a dragon fly around, when one looks at the biology and behavior of the two, it is unlikely that there would be any positive effects from importing dragonflies. Importing dragonflies from other states may even prove to exacerbate the mosquito problem as well as being damaging to the environment.

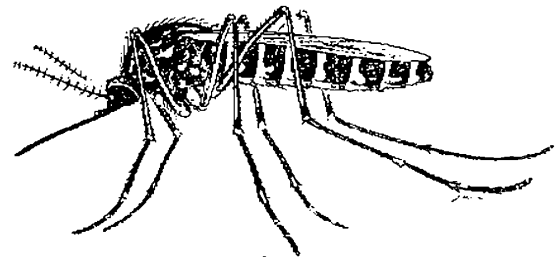
If a dragonfly is a threat for mosquitoes, then one might speculate that dragonflies might reduce the chance of people contracting a mosquito-borne disease such as West Nile Virus. In reality, it is extremely difficult to test this hypothesis. This is because you might increase mosquitoes by creating habitat for dragonflies since dragonflies are positively correlated with some species of mosquitoes (Sunahara et al. 2002, Lee 1998). Dragonflies feed on mosquitoes as well as anything else that they can get their mouthparts on, therefore there will be more dragonflies where there is more for them to feed on.

An apparently simple experiment might be to import dragonflies to a place that has a high incidence of mosquito-borne disease. Unfortunately, diseases often occur in cycles, spreading and subsiding over a period of several years so it would take an extremely long time to answer the question. Most places that have high levels of mosquito-borne disease use pesticides to control the mosquitoes. Pesticides such as DDT, still used in some foreign countries with high mosquito-borne disease levels, would kill dragonflies as well. Moreover, dragonfly adults are highly mobile and it might be difficult to find habitats that are suitable and not already populated by native dragonflies. In addition, the larvae may also consume other species such as tadpoles or even small frogs and fish, which also prey on juvenile mosquitoes.

Although it is difficult to test the question of whether dragonflies decrease mosquito-borne disease directly, one might postulate that it would be possible to address the question indirectly by observing how dragonflies reduce mosquito populations. Entomologists seldom have the funding to conduct the large-scale field experiments required to test the effects of dragonflies on mosquito populations, but some work has been done to look at the predation rates as well as factors that would influence the mosquito population.

Adult dragonflies are diurnally active and can cover a large range. While some species are active in the daylight hours, many species of mosquitoes are primarily nocturnal. They may catch mosquitoes, but it would be a herculean task to count how many. The best way to document a reduction in mosquitoes by dragonflies would be to study dragonfly nymphs. This is especially important when considering the possibility of importing dragonflies for mosquito control. When dragonflies are imported, it is often with total lack of regard for whether the dragonflies will emerge as adults. Instead of trying to increase local dragonfly population levels, dragonflies are often brought in from hundreds of miles year after year. The dragonfly nymphs can only survive in certain habitats such as pond and lakes.

Therefore, all of the mosquitoes that lay their eggs in tree-holes, old tires, moist dirt, or stagnant water are safe from dragonflies. Both types of mosquitoes face a different challenge; Mosquitoes who breed in temporary water such as tree-holes are limited by resources such as how many small puddles of water



Adult mosquito

are available, while mosquitoes that breed in larger permanent bodies of water are reduced by predators (Washburn 1995).

This is an important fact. Importing dragonfly nymphs most likely will not reduce many of the mosquitoes that are implicated in North American disease transmission such as *Aedes aegypti* or city populations of *Culex pipiens*. It is unlikely that augmenting adult populations of dragonflies would reduce these disease vectors to any significant extent. As for affecting larvae of disease-bearing mosquitoes that breed in larger amounts of standing water, such as *Coquillettidia perturbans*, dragonflies might be able to catch a couple of individuals because of their penchant for mosquito larvae (Hinman 1934, Pritchard 1964, Calvert 1947). However, these populations of mosquito larvae are adapted to living with predators such as native dragonflies, and have cool tricks to stay safe, such as living in small divots in the muck and not needing to surface for air.

The presence of dragonfly larvae may reduce the number of mosquito eggs laid in the water. Stav (2000) found that *Culiseta longiareolata* laid fewer egg-rafts in containers that had

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(Dragonflies & Mosquitos - cont.)

uncaged dragonfly nymphs. It has also been suggested that adult female mosquitoes can avoid environments that have predators (Chesson 1984), thus reducing the available mosquito breeding sites, but there are likely to be plenty of other available puddles, old tires, tin cans, and clogged gutters. A better plan might be to seek out and eliminate these small water caches manually.

In southern Maine and New Hampshire, however, it is not just West Nile virus that has caused concern about mosquitoes in recent years. In 2005, human, equine, and avian cases of eastern equine encephalitis (EEE) were reported from the region in above average numbers (CDC 2006). Two human fatalities in seacoast New Hampshire and two equine deaths in York County, Maine heightened the sense of urgency that mosquito control was needed in many communities. This trend was seen in other New England states, notably Massachusetts, which has tried to aggressively control EEE vector mosquitoes through pesticide spraying. The unease many felt in Maine over widespread use of pesticide applications renewed interest in a dragonfly seeding program as a result.

A great deal more research is needed before we could even start to infer that a reduction in mosquito-borne disease risk can come from dragonfly populations, but it is hard to ignore the feeling of protection that one gets when seeing a dragonfly swoop in. It is important, however, to realize that native dragonflies are most likely present where populations are sustainable and already influencing the mosquitoes in the area. For now, it is probably better to look at the conditions carefully before bringing in dragonflies. Will you be hurting local and more stable populations of dragonflies, and, therefore, hindering the long-term reduction of mosquitoes? Do the mosquitoes in the area share habitat with predators, or, if not, are sufficient numbers of adult dragonflies going to emerge throughout the season to reduce the mosquitoes? Finally, are the people selling the dragonflies using destructive methods of collection? If one is going to use methods of controlling mosquitoes or mosquito-borne disease that are not demonstrated to be effective or even logically sound, then we should at least not conduct it in a manner that is harmful to our neighbors or ourselves. Thus it is irresponsible for us to try to reduce mosquitoes and their diseases by importing dragonflies

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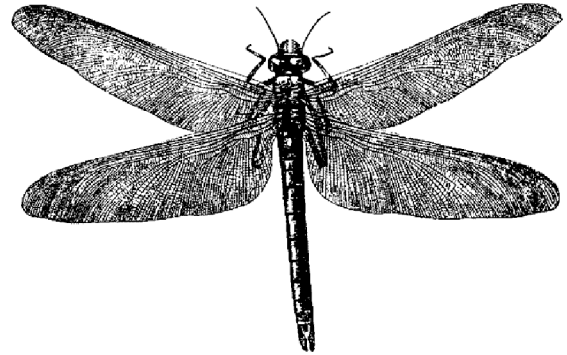
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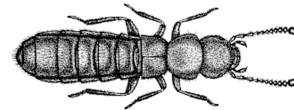
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The largest dragonfly of all time was the extinct Meganeura, which lived in the great Pennsylvanian coal swamps some 300 million years ago. It had a wingspan up to two feet (60 cm) or more.
(Image source: <http://skurvits.tripod.com/dragonflieslivingfossils/id1.html>)

* * * * *

Cataloguing the Unfathomable

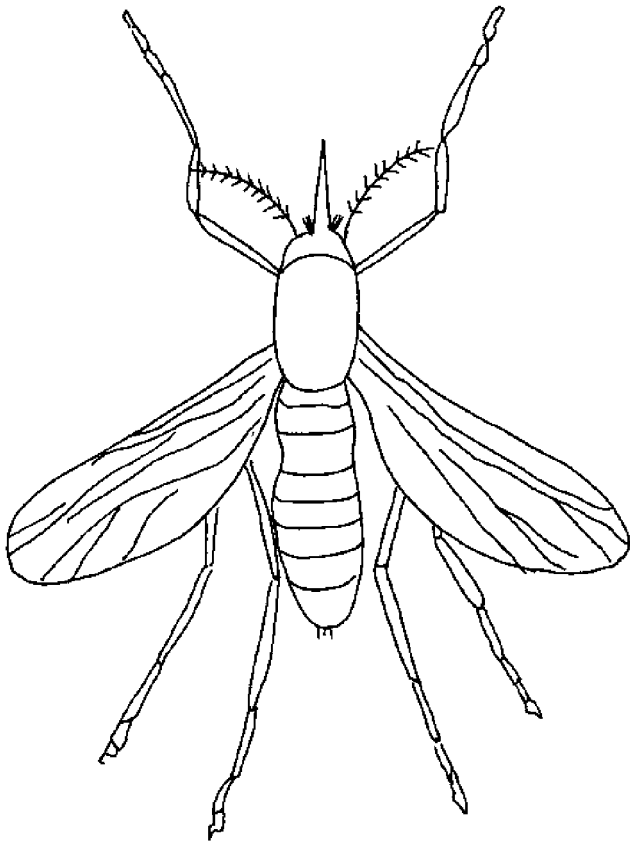


For many Coleopterists, the Aleocharine Staphylinidae have presented the quintessential challenge. Many species have never been described, some have been described multiple times, many are very small, and these are arguably the most diverse, the most taxonomically difficult, and the most abundant and widespread members of the family - comprising an estimated 40% of the entire Staphylinidae. The following book has just appeared and, though my copy hasn't arrived yet, appears promising; Jan Klimaszewski has been working on this group for over a quarter-century. The entire known Maine fauna should be covered, but if this IS just a catalogue, there will be no identification keys included. It will be simply the catalogue of known species, with their synonyms, and their known geographic ranges. Nonetheless, it should provide a valuable new resource in our search to know this fauna.

Gouix, N., and J. Klimaszewski, 2007. *Catalogue of Aleocharinae Rove Beetles of Canada and Alaska (Coleoptera, Staphylinidae, Aleocharinae)*. Pensoft Series Faunistica 65, ISSN 1312-0174, ISBN 978-954-642-294-1. Pensoft Publishers, Sofia-Moscow, 165x240, 16 color plates of representatives of each genus, references, index. In English; paperback, 200 pp. EURO 60.00. Publication date: April, 2007. - B.N.

KIDS' COLUMN!

Color the Mosquito!

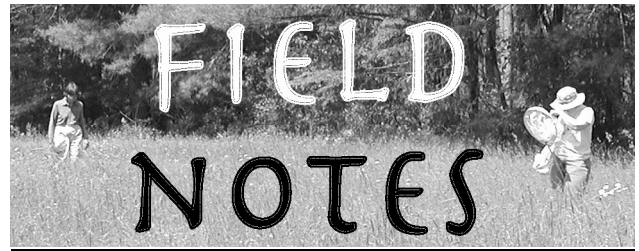


FROM:

<http://www.pca.state.mn.us/artwork/kids/color-july-mosquito.gif>

Mosquito trivia:

- There are over 3000 species of mosquitoes worldwide, of which some 41 are known to occur in Maine.
- ALL mosquitoes need water to complete their life cycle.
- Only female mosquitoes bite, because they need the protein to lay their eggs; male mosquitoes feed on algae or plant nectar.
- Male mosquitoes only live a few weeks, females may live several months.
- A female mosquito can lay up to 200 eggs at one time.
- Mosquito eggs can become adult insects in less than a week.
- Mosquitoes prefer to bite children rather than adults.
- Not all mosquitoes bite people; some prefer other mammals, birds, or even frogs.
- A typical mosquito will weigh only about 2 milligrams, or 1/14,000 of an ounce. (In other words, it would take about 14,000 live mosquitoes to weigh as much as this copy of *The Maine Entomologist* !)
- Mosquito bites make some 500 million people sick in the world every year, mainly in the tropics.
- Mosquitoes and their larvae are a major food source for spiders, other predatory insects, fish, birds and bats. A single bat can eat 200 or more mosquitoes every night.



Hold The Peanut Butter !

Marj and I have been supplying northern (Baltimore) oriole visitors with grape jelly as a feed supplement for several years. This season we treated three pairs of this beautiful feathered jewel and their young to this tasty treat. Although we have seen occasional butterflies at the jelly supply in past seasons, this year we have seen a steady flow of red admiral butterflies picking at the sweets. On numerous occasions we have had 4 or more red admirals at a time at the jelly cup. We are now on our third large jar of jelly!

- Dick Dearborn

* * * * *

Late Summer Butterfly Watch

After midsummer the butterfly season begins to wind down in Maine, with skippers and southern migrants predominating. The Monarch is the most noticeable butterfly at this time (and yes, they seem abundant this year too), but you may also see a second generation of the Viceroy and Inornate Ringlet. The Eastern Tailed Blue and Clouded Sulfur continue to prosper right up until frost. In southern counties, with luck you may find a Variegated Fritillary. They may go so far as to lay eggs on lance-leaved violets, but there isn't enough warm weather left for them to complete their growth cycle, and the caterpillars apparently cannot overwinter.

- Gail Everett

* * * * *

Beetle Nights

Several times the subject of "Beetle Nights" has been brought up in our newsletters. Over the last couple of years occurrences of this event have been scarce. I classify beetle nights as those unique nights (seldom more than 1 or 2 per year) from mid June to mid July when the temperature stays above 80 deg. F and the humidity is high and when beetles far outnumber moths in light trap catches. Moth numbers are usually way down. Nights with similar climatic conditions in August do not seem to show the high beetle numbers! One beetle night occurred this year on June 27-28 and lasted only one night!

- Dick Dearborn

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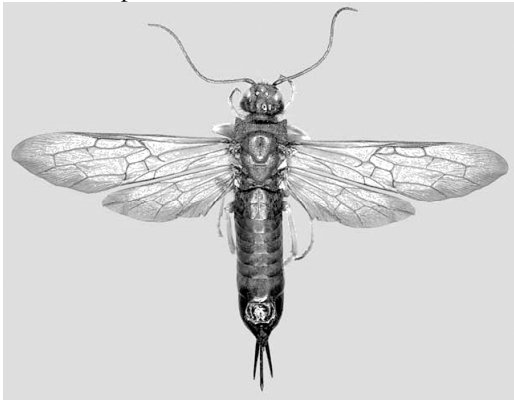
M.E.S. Scholarships to be Topic at Annual Meeting

One of the more important topics to be discussed at the Annual Meeting of the M.E.S. at Chuck Peters' home in New Gloucester will be the possibility of the M.E.S. providing scholarship support to promising students pursuing studies in entomology, either at the University of Maine or elsewhere (if they are Maine residents). Possible means of funding will also be a topic for discussion. All potentially interested members are strongly encouraged to come to the meeting to offer up your wisdom and suggestions on the subject!

Book Review by Bob Nelson

Guide to the Siricid Woodwasps of North America by Nathan M. Schiff, Steven A. Valley, James R. LaBonte and David R. Smith. Morgantown, West Virginia: U. S. D. A. Forest Service, Forest Health Technology Enterprise Team; FHTET-2006-15; 102 p.; 8-1/2 x 11 inches, spiral-bound. **Limited copies available:** send an e-mail to Noel Schneeberger with the Forest Service <nschneeberger@fs.fed.us> to request a copy. This is apparently a free volume as long as supplies last.

This volume just recently arrived in my mail and is arguably going to set the standard for identification manuals for years to come. Though limited in scope to the Siricidae (order Hymenoptera, suborder Symphyta), this volume includes all of the 23 species and subspecies of the family in North America, at least 8 of which occur in Maine or adjacent states/provinces. This group includes some major pests of both hardwoods and conifers. Exceptional digitally enhanced color photos are reproduced on glossy, heavy paper in a spirally bound format that lies flat when opened.



Sirex noctilio is one of the important species covered in this volume. (Image courtesy of Oregon Dept. of Agriculture.)

Siricids are large (20-30 mm long), nonstinging wasps with broad waists, which lay their eggs in wood. Several introduced species, including in particular *Sirex noctilio*, are of special concern in states with significant timber industries. This latter is native to Europe, Asia and northern Africa, but is introduced in New Zealand, Australia, South America and South Africa, and has been found since 2002 in Indiana, New York, Pennsylvania, Manitoba and Ontario; it is considered a potential threat to pines throughout North America - where we have some 40% of all pine species in the world. Because larvae may take several years to develop, they can be transported in untreated wood products and thereby easily introduced to new ranges.

This guide has been produced to the end of helping both professionals and concerned naturalists to distinguish and identify this species, utilizing state-of-the-art digital image enhancement to produce a series of photos worthy of the finest coffee-table volume. Both males and females are shown, and images are of both dorsal (top) and lateral (side) views. Any Siricid woodwasp one encounters should be easily identified to the species level with this guide as a reference.

More on *Sirex noctilio* may be found at <http://www.maine.gov/agriculture/pi/pestsurvey/pestinfo/woodwasp.htm>

* * * * *

WORD SEARCH

OHWHSOBWSEMEARWIGIGNATZS
 ZVICEROYOMOLOGIANLIONCD
 ALNPENTATOMIDAERISOPTERA
 ECGODRFDATSPIIKDISTSRAMM
 PEACBHLESHAAPHIDSNDPALPS
 CFRUUTYFLMANTISYPREIAAME
 VLLOLGFIREFLYECSPIDERABNL
 NYMPHLICLASTRICCTPYARROF
 OCLPLECOPTERAANSTTICCUFL
 CLOWSALCAOHARAGNLDELSMIY
 TTEBYTOEWACARIBNEIBEETLE
 UTTEUXBLEDKISBUMBLEBEETA
 IMANDIBLEBNAFGGHUANISTAN
 DIRRAQIIPUEOPLEWGNATISHT
 AOSBELEFTGPROTHORAXALINT
 ES IPT PHEROMONEHETTERMITE

In the grid above, words may be hidden vertically, horizontally or diagonally. Your task is to FIND:

- | | | |
|--------------|------------|-----------|
| viceroy | Plecoptera | damselfly |
| seedbug | flea | nymph |
| Pentatomidae | ocelli | Noctuidae |
| botfly | spiracle | fly |
| aphids | mandible | moth |
| mantis | palps | pheromone |
| spider | labrum | termite |
| Diptera | tarsi | earwig |
| bumblebee | toadbug | Acari |
| gnat | antlion | beetle |
| spittlebug | wing | firefly |
| kissingbug | prothorax | Isoptera |
| | * | * |
| | * | * |
| | * | * |
| | * | * |

Each cocoon of a silkworm produces a single thread about 1,500 feet long. More than 25,000 cocoons are needed to make a pound of silk.
 It takes about 10 pounds of mulberry leaves to enable caterpillars to manufacture one pound of cocoons - which can be spun into a silk thread more than 100 miles long.



Silk cocoons, photographed by K. R. Robertson in the state of Párána, Brazil from <http://www.life.uiuc.edu/help/digitalflowers/Moraceae/14.htm>

Bug Maine-ia To Return to the Maine State Museum in Augusta

Bug Maine-ia is that annual event that draws several thousand (generally!) younger entomo-enthusiasts to the Maine State Museum each September. This year's Bug Maine-ia is



Karen Hopkins and Marj Dearborn share their knowledge and demonstrate some of their enthusiasm for Lepidoptera to prospective M.E.S. youth converts at last year's Bug Maine-ia at the Maine State Museum.

scheduled for Wednesday, September 19th, and for this one day only, a group of insect educators will swarm the Maine State Museum in Augusta to greet young and old alike.

Entomologists, environmental educators, forensic scientists, foresters, anglers, artists and others will be on hand to explain the wonders and importance of these creatures. Over 20 presenters will give a glimpse of the many fascinating ways that bugs affect our lives.

A live insect zoo will give participants an opportunity to get up close and personal with some of the world's largest bugs. Guided insect collection field trips on the museum's grounds will be available, as will hands-on opportunities to learn about these all-too-often misunderstood creatures.

On September 19, 2007, admission to the Museum and to all Bug Maine-ia events is free!

To schedule your group's or school's visit, please call Marion Smith at the Maine State Museum (207) 287-2301.

Remaining M.E.S.-Sponsored Events for 2007:

(See <http://www.colby.edu/MES/> for more detailed information.)

Saturday, August 18th - Rock Ridge, Clinton (Kennebec County). Field collecting day. Contact Bob Nelson for more information, by phone at 207-859-5804 or by e-mail at beetlebob2003@yahoo.com .

Saturday, September 15th - M. E. S. Annual Meeting, to be held once again at Chuck Peters' home in New Gloucester.

Wednesday, September 19th - Bug Maine-ia at the Maine State Museum. See accompanying story; contact Marion Smith at the Maine State Museum, at (207) 287-2301



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Please visit our website at <http://www.colby.edu/MES/>

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