

The Maine Entomologist



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

Volume 10, Number 1, February 2006



From the President

With this issue we begin our tenth season of activity! It doesn't seem possible that it was just a short time ago we started with a small local group with lots of enthusiasm and

dreams and have now grown to an organization of roughly 130 members from a number of states and Canadian Provinces with a newsletter and involvement in many other activities! This could not have been achieved without the support of a group of loyal followers. While this enthusiastic and supportive core of workers is still actively keeping us on track we cannot fail to stress the need for expanded support from all of our members as Chuck Peters, our Vice President, stated so well in our last issue. Many of our current officers and our editors would greatly appreciate at least a brief respite in order to regenerate. As we move forward there are new areas to explore and a need to bring fresh ideas to the mix. Increased frequency of volunteer-based insect surveys have been shown to be useful tools to aid in monitoring for environmental changes and these often dovetail well with MES activities. The need for insect faunal lists has also shown a resurgence and there is an increasing need for public education in the recognition of the importance of insects in our lives. In all of these activities the MES has a role in keeping an appreciation of insects "on the front burner."

Moving through our tenth season we look for a greater involvement from all of you, be it an article in *The Maine Entomologist*, participation in one of our scheduled events or simply participating in a dialog with other members. There are somewhere in the vicinity of 20,000 species of insects in Maine in 27 Orders and the diversity continues to change. New species records for Maine are found nearly every time we have a field event. Some may have not been found before because of their cryptic habits or because they have just moved in. Many of these could be written about so let's do it! Let's make 2006 our best year yet for member support. Our January winter workshop was a smashing success. Our field events start in Bowdoin on May 20th moving to Montville on June 17th then to Schoodic focusing on Diptera in July. And this is just the beginning. Check your MES calendar for more information. See you in the field.

-Dick Dearborn

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Winter Workshop 2006

What to do when it pours rain in January? Either watch the sump pump run or learn how to identify flies! Fourteen intrepid entomologists gathered at the Maine Forest Service Entomology Laboratory in Augusta on January 14th to attend the MES Winter Workshop. From 10:30 am until after 4:00 pm the scopes were running and Dr. Don Chandler from the University of New Hampshire was guiding the group through many of the Diptera families. The participants ranged from pretty raw novices to seasoned collectors and veteran taxonomists.

Don had an excellent format for engaging all levels of experience. Everyone was seated at lab tables in front of microscopes. Don would introduce a family, show key characteristics on a power point presentation and hand around specimens from the UNH and MFS collections. Students would look at the specimens and be able to compare what they were seeing on their particular specimen with the projected image. Don would then give biological information, compare the family to other closely related ones, give interesting facts about habits or abundance. He also had wonderful images of representative species in the family. This allowed everyone time to inspect their specimens and take notes.

(Continued on page 4)

Louse in the House

Although I doubt that 1970's rock performer Ted Nugent was really concerned about bacteria when he wrote the "Cat Scratch Fever" in 1977, it is a iconic phrase that resonates outside of the world of science. In truth, cat scratch fever, so called because the causitive agent, a bacteria called *Bartonella*, can be transmitted through the bite or scratch of an infected feline or possible through the bite of an infected tick or flea (1) is an important public health concern.

A recent report published in *Emerging Infectious Disease*, a monthly peer-reviewed journal published by the Centers for Disease Control, contained an article published by researchers at Université de la Méditerranée in Marseille, France. Their paper, "*Bartonella quintana* Characteristics and Clinical Management" discusses the serious implications of *B. quintana*, the bacteria known to cause 'trench fever' in the two World Wars. *B. quintana* is transmitted by the bite of the human body louse *Pediculus humanus corporis* and is now seeing its resurgence in Europe and North American cities, where the primary population infected is the homeless. Massed together in communal shelters, the homeless represent a similar model to soldiers bunkered down in trenches together during World War I. Pediculosis (louse infestation) occurs in the clothing or bedding of people. The disease occurs when *Bartonella*, multiplying in the louse intestines, is excreted on the skin near a bite site. The bite, causing a reaction, is scratched repeatedly, exposing the louse feces to opened skin and wounds. *Bartonella* infection in people seems strongly associated with colder climates as well, which makes sense, as colder inhabitants tend to wear thicker layers of clothing. The EID report sites 22% of homeless surveyed in the study were infested with lice (2). *B. quintana*, like other bartonellas, may also be spread through feline scratches or cat fleas (3).

Clinically, trench fever is characterized by attacks of fever that last 1–3 days; are associated with headache, shin pain, and dizziness; and recur every 4–6 days, although each succeeding attack is usually less severe. The incubation period typically varies from 15 to 25 days but may be reduced to 6 days in experimental infections. Although trench fever often results in prolonged disability, no deaths have been reported (4).

Pediculosis can be treated with insecticides, such as 1% permethrin dust solution to clothing. Because body lice live in clothing, lay their eggs in clothing, and only visit human skin to feed, the human body does not need to be deloused. Boiling infested clothes is also efficient (1), a tactic used in World War II to combat louse-induced typhus.

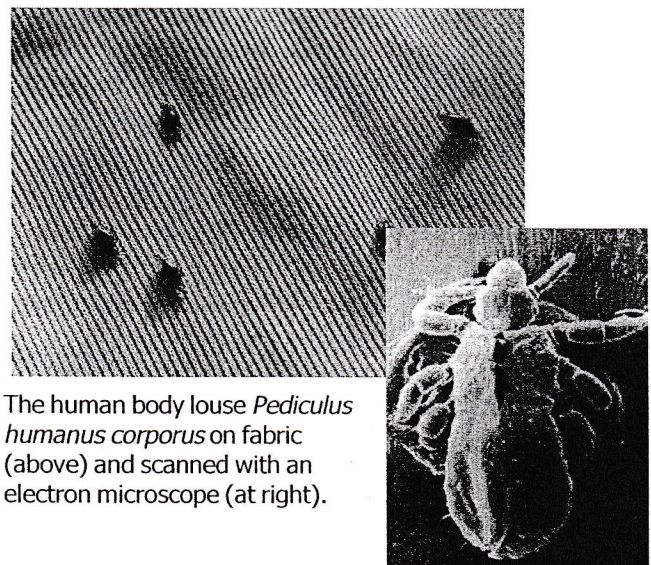
Changes in clean clothing is the simplest method for delousing, but it is, however, not always practical. Bedding at shelters is a major source of infestation and should be treated with insecticides or by boiling the sheets (5).

- Chuck Lubelczyk

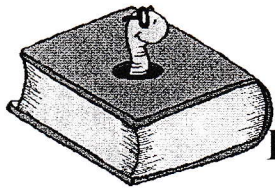
Note: Although the body louse does occur in Maine it should not be confused with the virtually identical and much more common head louse, *Pediculus humanus capitis*. The head louse is found in the situations described but is much more common than the body louse in school systems and tenement housing. Unlike the body louse, the head louse remains associated with hair on the host throughout its life cycle and is thus much more readily controlled.

References:

1. Alsmark CM, Frank AC, Karlberg EO, Legault BA, Ardell DH, Canback B, et al. The louse-borne human pathogen *Bartonella quintana* is a genomic derivative of the zoonotic agent *Bartonella henselae*. *Proc Natl Acad Sci U S A*. 2004;101:9716–21.
2. Foucault C, Brouqui P, Raoult D. *Bartonella quintana* characteristics and clinical management. *Emerg Infect Dis*. 2006 Feb. Available from <http://www.cdc.gov/ncidod/EID/vol12no02/05-0874.htm>
3. La VD, Tran-Hung L, Aboudharam G, Raoult D, Drancourt M. *Bartonella quintana* in domestic cat. *Emerg Infect Dis*. 2005; 11:1287–9.
4. Maurin M, Raoult D. *Bartonella* (Rochalimaea) *quintana* infections. *Clin Microbiol Rev*. 1996; 9:273–92.
5. Raoult D, Roux V. The body louse as a vector of reemerging human diseases. *Clin Infect Dis*. 1999;29:888–911.



The human body louse *Pediculus humanus corporis* on fabric (above) and scanned with an electron microscope (at right).



Book Reviews:

Book Review: *Secret Weapons* by Thomas Eisner, Maria Eisner, and Melody Siegler. Published in 2005 by Belknap Press.

This book may sound like a Cold War spy novel, but it is anything but that. In this book, Eisner and his colleagues prove beyond any doubt that chemical warfare started long before Man walked the planet Earth, and at an astounding level.

Dr. Eisner reveals in this book some of the many bizarre defenses the insects and their close relatives have evolved to protect themselves from various predators. *Secret Weapons* has sixty-nine small chapters, each dealing with a family or species. Some species highlighted employ chemical or physical adaptations or both in their struggle for survival.

The non-insect chapters (Ch. 1-12) deal primarily with the Classes Arachnida, Chilopoda, and Diplopoda. For example, one chapter deals with the large whipscorpion *Mastigoproctus giganteus*. This creature can defend itself by spraying from two glands located at the abdominal tip. The spray, when raised at an attacker's face, is a painful concoction of 84% acetic acid (the highest concentration found in nature).

Chapters 13-69 deal with the Class Insecta, and like the previous ones, tend to be 3-6 pages long, with accompanying photographs, followed by a brief bibliography. From various distasteful or odorous exudates, batesian and mullerian mimicry (brushed upon), the insects are masters of chemical warfare. Slowly, the chemicals of their defenses are being understood, many of which are complex and new to man. This covers a wide range of the insect world's secret weapons from the highly concentrated hydrogen peroxide spray of the bombardier beetle to the well-known monarch butterfly, whose larvae consume calotropin from milkweed, a substance so emetic that a blue jay will vomit minutes after consumption of an adult butterfly.

In the epilogue, Eisner and colleagues appeal to all readers that many of the compounds discovered may yet prove to be very valuable to Mankind. He ends with "to study nature without speaking in its defense is unconscionable."

The book ends with a 10-page chapter titled "How to Study Insects and Their Kin." It explains the equipment needed, number one being a curious mind. If I've learned anything from this book, it is that Man's knowledge of the insect world is fragmented, making them even more interesting because from such small creatures come very complex compounds called "secret weapons."

-Dana J. Michaud

A Few Short Notes on Tropical Butterflies by John Murray Harper - Collins, NY; 2003.

This is a collection of fiction stories, and the title was alluring, so I read it. It received glowing reviews from the New York Times, the Los Angeles Times Book Review, and the Boston Globe, among others.

The author is "trained as a doctor" and most stories have some element of the tragedy of tropical diseases, and the difficulties of rural health care in India and Africa.

But as early as page 8, one character is working on Chagas' Disease, which the author says is transmitted by insects in "the Reduviidae family or cone-nosed beetles." Beetles?

That killed my interest in the rest of the book. Anyone with a field guide can figure that one out. If the author was trained in the medical field, he should be ashamed. So should the editors. On page 81, there is a butterfly expert who studies "the Papilionidae family". Uh-oh. Of course, it should be Papilionidae. Nobody checked the spelling!

The stories themselves are good but not terrific studies of people in difficult environments trying to achieve difficult things: grim healthcare issues, or surviving tragic family problems. If you're in a Schopenhauer mood, you might like it.

How the author got wonderful reviews is a mystery. Don't waste your money on this one.

-Monica Russo

Rare Finds

Warren J. Kiel's *Butterflies of the White Mountains of New Hampshire* is a little gem, a charming compendium of photos, watercolors and species accounts of a surprisingly rich assortment of day-fliers that can, or might, be seen in New Hampshire and, presumably with equal hope, in Western Maine.

The elegant hardcover was published in 2003 at \$20 by the New Hampshire Audubon Society—already a fair price—but has been recently remaindered and can now be had for \$4.95 from Edward R. Hamilton, Bookseller as long as supplies last. Go to www.hamiltonbooks.com and print out an invoice, which can then be sent in with a check. A \$3.50 flat handling charge covers as many books as you care to order from their extensive lists. (Credit card ordering is available through the web site but at a higher price.)

-Tony Roberts

Butterfly Notes

A few days after Christmas I was at a frame shop spending a gift certificate. Among the pictures they had displayed, I noticed one with a real Monarch gracing it. I watched it long enough to realize that it was not alive and, in fact, just kind of stuck onto the picture (in an artistic way, of course). "Hey," I said to the clerk, "that's a real butterfly." "Yes," she said, "we found it in the parking lot." She couldn't remember when, but agreed that it must have been in September or October. The specimen looked perfect, not as if it had been run over, although I didn't get a close enough look to be sure. I wonder what they would have done if someone wanted to buy the picture!

-Gail Everett

Rove Beetle on a Bait Tree

5 August 2005, Steuben, Maine, 324 Village Road, time 1515-1600, I hike along the trail to Joy Cove and return. Yesterday, late in the afternoon, I painted "moth bait" on the 18 numbered trees along the trail. Last night I patrolled the trail and collected moths and beetles attracted to the bait. Today the main purpose of my foray along the trail is to see what insects are still being attracted, in daylight, to the bait. I find 3 Northern Pearly Eye and 1 Eyed Brown (butterflies) at the bait on tree trunks. Many flies, some wasps and ants are also busy at the bait.

The most remarkable insect I find is a beetle. On the trunk of a spruce, one of the "bait trees," I spot an odd looking beetle. It is brownish-black with very short elytra. The abdomen, which extends well beyond the elytra, is curved upward, scorpion-like and the tip of the abdomen is bright yellow. I attempt to pick it off the trunk, but it runs quickly and then drops to the ground and is lost among the leaf litter. At a different bait tree, also a spruce, I find another of these interesting beetles. This time I am ready and manage to grab it; it gives me a sharp bite on the finger but I get it into a vial.

It is a Rove Beetle, Family Staphylinidae. My specimen is about 23 mm long. The dorsal tip of the abdomen and the metasternum are bright gold yellow. It has long curved, "business-like" mandibles. My specimen appears to be like what Jaques(1) calls *Ontholestes cingulatus* (Grav.). I would guess that this very active and fierce rove beetle was at the bait trees not to sip the bait but to catch other insects attracted to the bait.

-Richard W. Hildreth

(1) How to Know the Beetles by H.E. Jaques. Wm. C. Brown Company, 1951.

Meanderings

Large (2" long) black ground beetles (Carabidae) are not easily overlooked especially when they move across lighter colored surfaces during daylight hours. So when three astute Maine beetle enthusiasts encountered such this past summer they took notice! What at first appeared to be the very common introduced species, *Carabus nemoralis*, in fact turned out to be the uncommon (for Maine), bog-oriented, holarctic but native *Carabus maeander*! Up until 2002 we only four Maine records for *C. maeander* all from east coastal towns from Bar Harbor to Dennysville. In 2002, this species was collected for the first time far inland from pitfall traps in a forest ecology study in Bingham. In the literature, this species reportedly "meanders (pun intended)" over higher ground at times. This season, new Maine distribution records were found in just such situations by MES members; Chuck Peters while biking in New Gloucester (June), Dana Michaud while collecting in Skowhegan (June) and by Beetle Bob Nelson as he surveyed his new pasture in Clinton (July)! So we all need to take a second glance at those daytime sightings of large dark ground beetles including road kills. If the beetles you find are in fact black with pronounced elytral sculpturing and possibly with a slight bronze hue but not smooth with a greenish or purplish sheen as in *C. nemoralis* you may want to look more closely. You too may have a new distribution record! Just another great example of the fun of studying and watching insects!

-Dick Dearborn

Winter Workshop (continued)

To help keep everyone oriented to the different groups, Don had made up simple keys with pictures for 34 of the major Diptera families. There were copies for everyone to take home so that even those without taxonomic references would be able to key out the flies they encountered. I don't know if Don kept track of the time he put into preparing for this session - which was obviously A LOT of time - but the attendees certainly appreciated it. This was an excellent introduction to Flies in Maine and it whet our appetites for the summer blitz!

Addendum: The following week Dave Bourque and Dana Michaud returned to the lab for two days of keying out some of the 3,000 Diptera specimens in the MFS collection that have not been sorted even to family. Although a dent was made by the three of us there is still plenty left to do!

-Charlene Donahue

Tech Tips: Make a Berlese Funnel

Tired of winter? Want to do some insect collecting? Here's a little project that will allow you to collect or observe a wide variety of small insects in the wintertime (or summertime too, for that matter). And it's a great project for the kids!

You will need a large jar (one with a wide-mouth is best) or a bucket and a funnel that fits inside the top. You will also need a low-wattage light bulb (25-60 watt) and light fixture. Useful, but not absolutely necessary, is a small piece of ¼ inch hardware cloth to fit into the inside of the funnel over the small opening. Position the funnel in the mouth of the jar with the small piece of hardware cloth in place in the bottom of the funnel over the opening. Now, outside you must go...to collect some leaf litter. You may have to dig through the snow in a wooded area to get a sample, or you may be able to find a spot in a protected area near a building where there is not much snow. Try as many different spots as you can, as each will probably yield different species. Also, try to get samples from different levels of the litter. Put some of the litter in the funnel and hang the light bulb over the litter so the light gently heats it up, but not too close; you don't want to burn the litter! The light and heat will not only bring any overwintering insects out of their slumber, but will also drive them

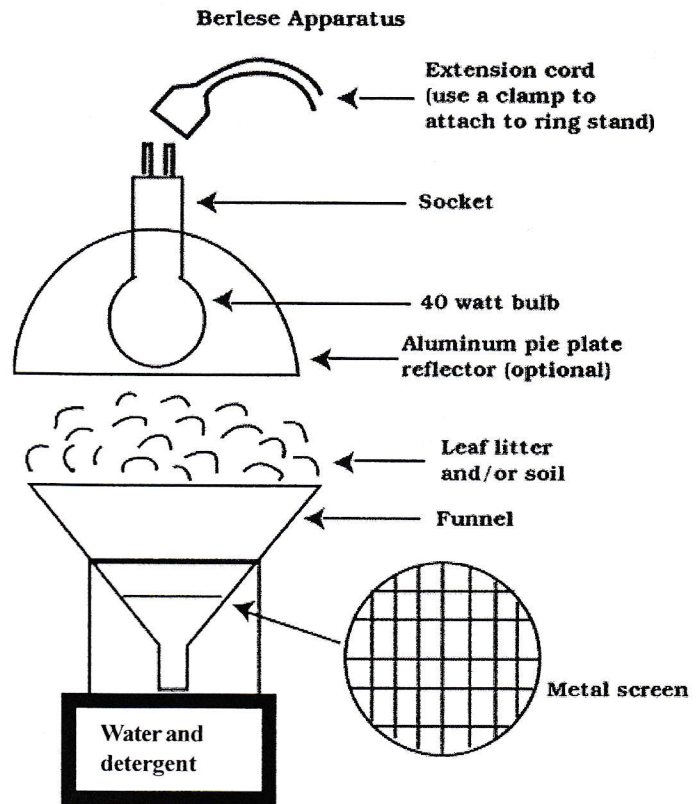
down deeper into the litter as they seek shelter from the intrusion. Be patient, the process may take a day or two. Bugs will soon drop through the funnel into the jar and be ready for you to observe. A small piece of wet paper towel in the bottom of the jar will provide them with the necessary moisture to stay alive for a short time. If you prefer, water and detergent can be placed in the jar as a killing agent/preservative. To increase your take, substituting a larger bucket and funnel will allow for the processing of more litter.

You may be surprised at the number of small insects, larvae, and other invertebrates that this method produces! And if you're lucky you may even find some new records since processing winter leaf litter is not practiced as much as other collecting techniques.

-Chuck Peters

Warren Island Survey

The Warren Island State Park Insect Survey will take place on August 5, 2006. Experience a summer day on a coastal Maine island and collect insects at the same time. The Warren Island Park Manager has invited the MES to survey the island for insects. She will meet us at the Isleboro ferry in Lincolnville and transport intrepid collectors across the cove to Warren Island for the day. People desiring to camp on the island will need their own boat and must make reservations in March with the Maine Bureau of Parks and Lands as this is a very popular park. Contact Charlene Donahue for more information at (207) 549-7241. More information on this trip will be in upcoming issues of the newsletter, although reservations should be made as soon as possible.



A Berlese Funnel Apparatus. Image courtesy of US Dept. of Education.

The Luna and the Kestrel

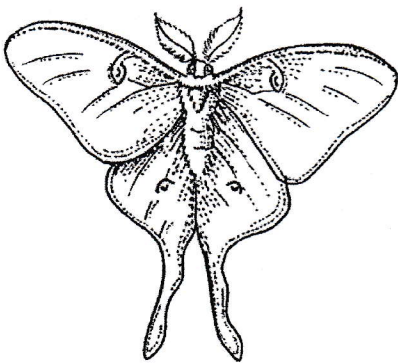
The indoor and outdoor lights at work at night lure a large assemblage of insects, based on time of year. As morning sun breaks, much that visited the night before has either vanished to their diurnal hiding places or fallen victim to the nightly forays of bats or early birds looking for breakfast. On occasion, a Saturniid will stay behind in the shadows, as will a bat that has filled up on the previous night's 'hatch of the day.'

One morning, I noticed a beautiful male Luna moth resting on a wall. Knowing full well that bats love juicy big moths (I occasionally find their wings on the floor or ground as a testament to the previous night's repast), I opted to play the Good Samaritan and remove the Luna from the potential harm by releasing him outdoors. With his large Saturniid antennae, I figured he could find a mate over the next few nights to help propagate the species.

Walking out with the large moth in my hands, I tossed him up into the air. With the midmorning sun as a background, the Luna took off and started to flap his beautiful wings. As he gained altitude, a sudden motion to my right caught my eye. An American kestrel or sparrow hawk on an intercept course with the newly liberated Luna! In seconds, the falcon snatched the moth in flight, turned at a sharp angle, and disappeared back to his hidden perch up on the building. I stood in stunned silence at what had just occurred.

For the next few days, the kestrel hung around. Having made me aware of its presence, any further notions of moth rescue were shelved, knowing full well that this keen-eyed hunter was sitting nearby on the building above. Who would have imagined that one of North America's prettiest birds of prey would teach me a lesson I've never forgotten. As an observer, its best to enjoy the beauty of nature and not pass judgment about the struggle of life. There is no good or bad, just survival.

-Dana J. Michaud



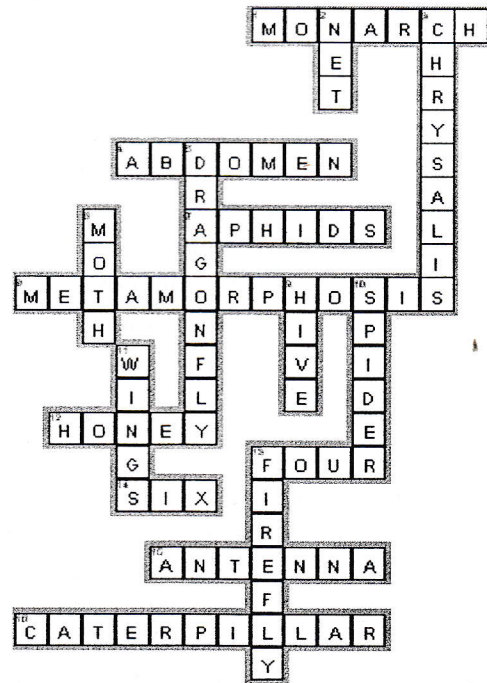
The luna moth
Actias luna.
Drawing by
Monica Russo.

Woolly Bear Winter Weather Forecast

The fuzzy red and black-banded caterpillars of the Isabella Tiger Moth, *Pyrrharctia isabella* (Lepidoptera: Arctiidae) provided a great deal of entertainment for school children at Bug Maine-ia 2006 at the Maine State Museum in Augusta in September and the resultant winter weather forecast continues to stimulate discussion especially in view of our rather bizarre winter. The caterpillars were very plentiful statewide in September and October and they have continued their activities ever since. Reports of caterpillar movement have come from as far north as the Lincoln area and from many localities south of there. As the caterpillars do not truly hibernate, they can activate at any time when conditions turn mild as they certainly have this year. Our ninth seasonal survey suggests that this current winter will be milder than normal which it has. As the story goes when the red band makes up more than one third of the color when compared to black, the upcoming winter will be milder. Our measurement for the winter of 2005-2006 was 4.43 red segments on average as compared to 4.33 for a normal winter. Milder it will be, according to the woolly bears! Keep in mind however that this is based on folklore. It's fun though. The yellowish adult moths emerge in June and July.

-Dick Dearborn

Answers to November's Crossword



A Little Walk Down Nostalgia Lane

As the MES enters its tenth season, I have found myself reflecting on where the organization has been, where we're going and why we exist. Fortunately, a couple of phone calls from long-time members and a couple of recently-aired programs on Maine Public Television: True Adventures of the Ultimate Spider-Hunter (Nature) and Jewel of the Earth (NOVA – insects in amber), brought me back to reality and made me realize that I knew how and why. It's that innate fascination with the world of nature, especially insects and related arthropods, and the interaction with a good core of enthusiastic supporters who are willing to work hard and pull together.

My fascination with nature in all of its wonder and complexity began before I was 12 years old. Although I ended up majoring in entomology in college I could just as easily have become a botanist, arachnologist or even a mycologist. As charter member and mentor Sam Ristich might say "Whoo – ee, the wonderment of it all!" So thanks to all of you who are following a similar route and have made and continue to make MES a success. There are so many exciting things yet to discover.

For those newcomers who are just launching forth I dedicate the following historical sketch:

August 1996 – A seed is formed – The USDA/APHIS/CAPS working group and The Nature Conservancy organized an insect field trip to the Waterboro Barrens which was opened to other interested individuals.

Fall and Winter 1996/97 – Where and how to plant it – Informal discussions between professionals and amateurs on how to continue such events. At a kitchen table discussion Dick Dearborn, Don Ouellette and Monica Russo call for a formal meeting to discuss formation of a working group

June 7, 1997 – The seed is planted – An exploratory meeting is called together at the Pine Tree State Arboretum in Augusta. The fourteen charter members who attended voted to organize The Maine Entomological Society (MES).

August 1997 – The seed begins to grow. Our first newsletter appeared. By the end of 2005 there are 34 issues plus 2 samplers.

June 1999 – Our logo first appears as it exists today, thanks to Monica Russo, its designer.

February 2000 – The name of our newsletter changed to The Maine Entomologist, which becomes a quarterly issue. Thanks especially to Dan Jennings and Bob Nelson a set of bylaws and a constitution are put together for review.

June 2000 – MES website launched at Colby thanks to Bob Nelson. MES Constitution and Bylaws adopted which define our purpose "a) to promote a forum for discussion, cooperation and collaboration among amateurs and professionals in entomology, who either reside in Maine or have interests in Maine insects or terrestrial arthropods: and b) to encourage active study of all aspects of Maine insects and terrestrial arthropods, and to promote educational activities on Maine insects and terrestrial arthropods throughout the state."

July 2002 – First sampler issue of The Maine Entomologist produced. Our first joint meeting with a professional society, The Acadian Entomological Society (AES), takes place in Machias. The focus was on ground beetles (Carabidae).

November 2002 – First MES calendar goes on sale for 2003 season.

January 2003 – Our first winter workshop was held at the University of Maine in Portland. Winter workshops become an annual event.

June 2003 – Our second joint meeting with the AES in Bar Harbor with a focus on ants (Formicidae).

September 2003 – MES joins forces with other insect related groups to host the first Bug Maine-ia at the Maine State Museum in Augusta. This annual event provides educational outreach for over 1100 school children, teachers and friends.

February 2004 – The Maine Entomologist goes digital. Subscribers may now receive their copy as a "pdf" document

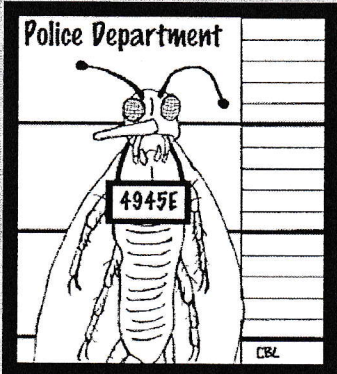
June 2004 – Our first official insect blitz in association with the National Park Service at Schoodic with a focus on Lepidoptera.

July 2005 – Our second blitz at Schoodic with a focus on beetles (Coleoptera).

Although officially known as the MES, many of us fondly refer to the group as "The Maine Bug Club." Even though insects are our focus, we have members whose interests are spiders, mushrooms, birds, plants, etc. Our membership varies from year to year but we generally now range from a low of 120 to a high of 140.

I hope that this brief summary puts things into perspective for you. It took long hours by many members behind the scenes to make all of these achievements possible. While I have mentioned only a few here I want like to personally thank each and every one as we couldn't have succeeded with our entire team from our officers, editors and web master to those who host events and write articles. They all deserve a round of thanks.

-Dick Dearborn



The Bug Mug Shot:

Tabanus atratus Fab.
Black Horse Fly

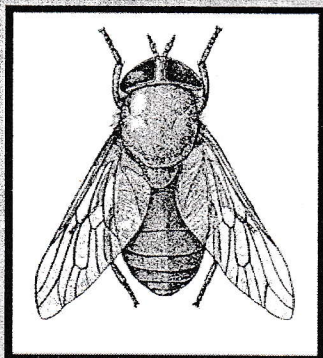
Order Diptera (Flies): This is one of the largest orders of insects with nearly 20,000 species in North America and an estimated 150,000 or more in the world. There are probably close to 2500 species in Maine (the Procter list for Mt. Desert Island lists 1626).

Family Tabanidae (Horse Flies and Deer Flies): There are roughly 3000 species of tabanids world wide with 350 species in North America. A total of 76 species have been recorded from Maine with an additional 11 expected to occur here. The females of all but two of our species, those in the genus *Stonemyia*, suck blood. Males of all species do not bite and feed only on plant pollen and nectar. Roughly 40 of our Maine species are abundant enough to be considered pests.

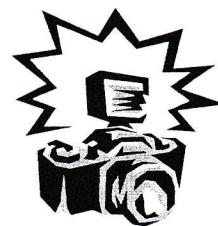
Species and Habits: The Black Horse Fly, *Tabanus atratus*, occurs in the eastern US from the Atlantic west to the eastern Great Lakes and south to the Gulf. Although common throughout the south where it is thought to be the Blue-Tail Fly of folklore (due to a bluish-white bloom on the abdomen of some individuals), this species seems less and less common as you move north. It is rarely seen in Maine, where there are only three known records: Orono, Kennebunk and Wells.

Description and Life Cycle: The black horse fly is a striking insect. Adult females are very large (24-27 mm long with occasional records up to 30 mm), heavy set and very dark, somewhat glossy, black including their wings. They are one of the largest horse-flies in North America and possibly in the world. It is the females that draw attention as they buzz loudly around prospective blood donors. Where numbers are low, the smaller males are seldom seen. In females the large eyes are distinctly separated at the top of the head rather than touching as they do in the males. Once mating has occurred, eggs are laid in masses on vegetation or various objects over moist soil. The cylindrical, off white larvae soon emerge and drop to the soil where they live and feed probably on other organisms. Up to two years are required to complete their life cycle. Black horse flies are active from May to October where they are common but seem to prefer August in the north.

Notes: The straight species, *T. atratus atratus*, which is totally black could possibly occur any where in southern Maine. Two somewhat smaller salt marsh forms, *T. at. fulvopilosus* and *T. at. hantuckensis*, which should exhibit at least some lighter colored, yellowish, markings could occur in coastal York county. Horse flies often enter vehicles through open windows where they can easily be caught. This habit is the basis for a variety of horse fly trap designs. Please report sightings, preferably with a specimen and collection data, to Dick Dearborn. Don't get bitten!



Tabanus atratus. Image courtesy of Mississippi State University.



Call for Photos

In preparation for the 2007 MES Calendar, the Calendar Committee is now requesting photo submissions. Photos must be of entomology-related subjects and either taken at Maine events or include arthropod species which either occur in Maine or could be found here. We are especially interested in seeing new insects represented and the final selection will be based on a good balance of subject matter. Please submit only photos that have not been published before. For ease of processing we prefer digital images on CD's (JPG format preferred). The photos should ideally be in "landscape" orientation and of high resolution that will retain their clarity when enlarged to 8x10. Photos should be accompanied by species identification (as close as possible) with date, location and host if applicable. Entries should be received by July 15th 2006. Accepted photos will only be used once and that in the MES calendar.

Due to increasing costs and limited sales we will unfortunately be unable to provide free calendars this year in order to keep our price stable and our distribution where it is (100). We are truly sorry for this decision as we do greatly appreciate your efforts and expertise and do hope that you will continue to support us. As it is we only cover our cost of this project. Those who purchase our calendars are very appreciative however and do enjoy the fruits of your labor. For more information, submission forms or to submit photos contact: Dick Dearborn, 115 Spring Hill Road, Mount Vernon, ME 04352, Ph. (207) 293-2288, or email him modear@prexar.com.

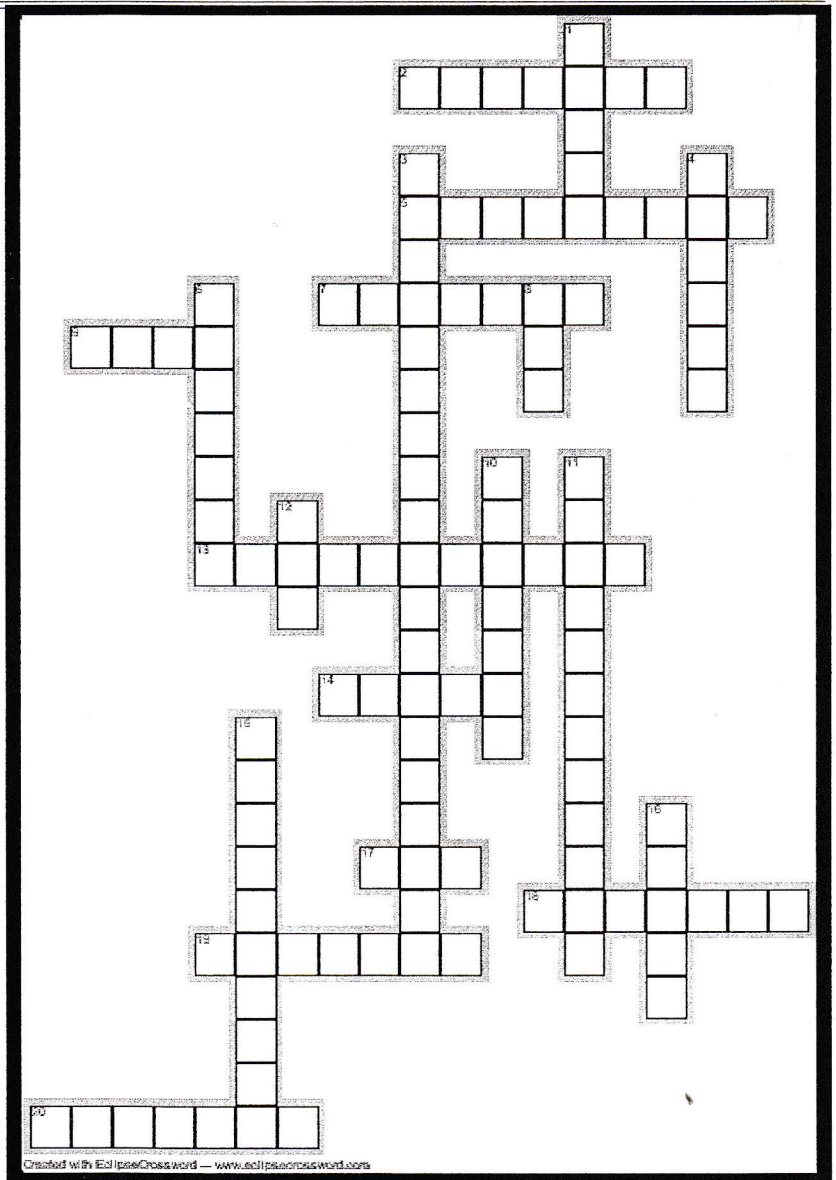
Entomology Equipment Crossword

Across

2. tent-like trap
5. sucks up small bugs
7. collecting insects with a sheet
9. spread on trees to attract insects
13. often displayed with wings spread
14. contains bug data
17. an identification aid
18. drawers commonly housing collections
19. smallest of pins
20. funnel for extracting bugs from litter

Down

1. framed display mount
3. keeps pests at bay
4. used on very small specimens
6. aquatics are often preserved in this
8. sweep and aerial are two types
10. trap consisting of a burried cup
11. bulb attractive to night-fliers (2 words)
12. now used to identify collection location
15. carbon dioxide is often used to trap these
16. makes points



Schoodic Fly Blitz 2006

Join us at the Schoodic Education and Research Center (SERC), July 14-17, 2006, as we continue to explore the fascinating world of flies, which we introduced at our Winter Workshop. This will be our fourth blitz at Acadia National Park, but our first on Diptera. It is sponsored by the Maine Entomological Society, National Park Service, Maine Forest Service, University of Maine, and the George B. Dorr Museum of Natural History at College of the Atlantic in Bar Harbor.

Dr. Joe Keiper, a Dipterist at the Cleveland Museum of Natural History in Ohio, has agreed to be our lead systematist and to line up specialists for the event.

If you are interested in participating please contact: Chuck Peters (PO Box 252, New Gloucester, ME 04260, (207) 926-4806, or email chuckp@secure.speed.net) for a registration form. We encourage you to register as soon as possible as space will be limited. Please join us as we continue our survey of the fauna of the area.

As a prelude to this Blitz, Joe Keiper will be teaching a Diptera Workshop at the Delta Institute of Natural History in Bowdoin, Maine, July 11-13. For more information on this workshop visit the Delta Institute on the web at www.vfthomas.com/deltahome.htm or contact Tom Vining, 219 Dead River Rd, Bowdoin, Maine 04287, (207) 266-5748 or info@vfthomas.com.

For 2006, it's THINK FLIES!

2006 MES Events and Field Trips

May 20. MES Workshop / Field Day, Delta Institute of Natural History, Bowdoin, ME. Contact: Tom Vining (207) 266-5748. More information on this event is in this issue of the newsletter.

June 17. MES Field Day, Frye Mountain Wildlife Management Area. Montville, ME. Contact: Gail Everett (207) 743-2840.

July 14-17. Diptera (Flies) Bioblitz @ Schoodic Point. Contact: Chuck Peters (207)926-4806 and Dick Dearborn (207) 293-2288. More information on this event is in this issue of the newsletter.

August 5. MES Field Day, Warren Island State Park Insect Survey. Contact: Charlene Donahue (207) 549-7241. More information on this event is in this issue of the newsletter.

August 26. MES Field Day, Rock Ridge, Clinton, ME. Contact: Bob Nelson (207) 859-5904.

September 9. MES Field Day – Lepidoptera and Odonates migration trip, Coastal York and Cumberland Counties. Contact: Richard Hildreth.

September 16. MES Annual Meeting, New Gloucester, ME. Contact: Chuck Peters (207) 926-4806.

September 27. Bug Main-ia, Maine State Museum, Augusta, ME. Contact: Jon Bailey (207) 287-2301.



Maine Entomological Society
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