

The Maine Entomologist

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

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From the President

It may be colder than we've seen in some time but it is more typical of what a Maine winter is all about and best of all, the woolly bear caterpillars told us what to expect! As we enter our seventh season as a group, new and exciting things await us from a great slate of field events to a number

of projects that are just emerging. Our winter workshop was a success thanks to all of you who joined us in Portland. We also sold or awarded roughly 95 of our 2003 calendars (we have about 5 left by the way) and while we didn't make much we are now out there in homes and offices for all to see. Board members voted at our January 18th meeting to do another calendar for 2004, so get those photos ready and when the calendars arrive help us get them out there.

This will be our second, and last for now, season of joint meetings with the Acadian Entomological Society. We meet this year at the College of the Atlantic in Bar Harbor from June 22nd to June 24th. An excellent program is planned focussing on ants, mosquitoes, ticks, and invasives as well as other topics. This will provide a great time to collect, learn, and share tales with fellow "bug people." It is extremely important to pre-register and line up lodging of some sort soon to avoid higher rates or "No Vacancy" signs later. Bar Harbor is a busy place in the summer.

As I tried to think of additional comments I realized that I could fill a book with tales from 2002 and dreams for 2003, but I know that much of it would probably have to be cropped to fit my allotted space so suffice it to say that I am very proud of our accomplishments and all of the tireless efforts of our officers. We have now officially passed the 130 member mark and I hope that many of you will attend at least one of our events planned for 2003. I also urge you to keep abreast of your dues status (see the mailing label) and send in those newsy items, book reviews and articles for future newsletters.

- Dick Dearborn

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Two field seasons ago, I suddenly found myself with a free day that coincided with a scheduled MES field trip to The Nature Conservancy property of Great Wass Island. After calling to confirm my presence on the trip, it was time to eat gobs of humble pie. Although avidly interested in insects, I have only two basic entomology classes under my belt. What would a day with 'real' entomologists be like? Curiosity overcame intimidation and I found myself up early and driving Down East the next morning.

It was a cool and wet morning, but thankfully, the rain had abated. Most of the group was already together when I pulled in. There were nets swooshing in the air and a wide assortment of collecting equipment assembled on car hoods in preparation for a day of collecting. I kept a low profile. Finally, somewhat shy of each other, we got moving together along the trail with the rough agenda of walking a loop of several miles around part of the island.

It wasn't long before the enthusiastic whoops of those ahead broke any lingering awkwardness. Trip leaders began pointing things out and darting off the trail to investigate. We began to spread out beyond the confines of the narrow

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Winter Workshop A Wonderful Experience

We were fortunate enough to receive two summaries from MES members who attended our first winter workshop so we have included them both in this issue.

On January 18, 2003, the MES held its Winter Workshop in the Science building of USM's Portland Campus. Approximately 30 people braved the cold to gather in a large classroom for the meeting.

The workshop ran from 9:30 to 3:30, offering four hour-long presentations on collecting, collecting equipment, writing and using field notes, and the appropriate labeling of specimens. In lay terms, we were shown where and how to find the critters, how to catch them, and how to insure that where you went, what you observed, and what you caught could be recalled accurately long after immediate memory faded. Also stressed was insuring that your collection remains valuable after it passes to other hands.

Bob Nelson began to enthusiastically detail the fine points of discovering insects, generously mixing directions for coupling cast-off and recycled items with inexpensive hardware store purchases to construct sturdy, serviceable field equipment. Chuck Peters took over with a continuation of the same themes, then moved on to descriptions of how to construct more elaborate collecting devices and inexpensive and functional display containers. The motto of these two men seems to be "Study the catalogs, then do more with less".

At lunch, food took a decidedly second seat as attendees milled about the room, renewing old friendships, examining tools and equipment, swapping anecdotes, displaying prize captures, asking questions, and lining up to view specimens through a microscope. For the uninitiated, a generous display of books and catalogs was a welcome opportunity to plan some reading.

Richard Hildreth began the afternoon with a presentation on field notes. He stressed the value of a disciplined, comprehensive collection of data recording where one had been and what was observed in the field, and then described the tools and methods he found useful as aids in creating his records. Reggie Webster and Dick Dearborn shared the last segment of the day with a presentation on how to permanently label specimens. Both men emphasized that a collection may well survive longer than the person who assembled it, that field notes meant to accompany a collection can easily be lost over time, and that the long-term value of a collection is best insured by the comprehensive labels permanently affixed to each specimen.

Thus the workshop ended. People packed up the pile of handouts that were distributed throughout the day, said

their goodbyes, and departed. The room was nearly empty when I finished my notes, stretched, stuffed my notes into the file folder someone had thoughtfully provided, and took a deep breath. This trip from New Hampshire to Portland was both rewarding and daunting; rewarding because I had learned so much, daunting because I was forced to confront the depth of my ignorance. A bite of humble pie, however, isn't such a bad thing once in a while.

In closing, I must say that I found this gathering impressive. Rare indeed are adults passionate about what they do, and only the passionate would, on their own time and with no remuneration, organize an event such as this, carting in the microscopes and collecting equipment, transporting their beloved specimens, loaning their books, copying the handouts, being patient with the ignorant, and remaining so exuberant about and eager to share their expertise and experience. It's hard to say which was more nourishing-what I learned, or being among people who love their subject so much. Thank you.

My heart is in the water. Winter plods on, but bucket, nets, turkey baster, and white plastic trays are ready. So is the tote holding vials, alcohol, hand lens, labels. Wading boots stand tall beside the front door. Each evening, I note with satisfaction that light lingers longer in the sky. Supply catalogs are at hand on the kitchen table, open at mealtimes. Orders will be mailed soon, and the flashlights checked. These are yearly rituals, and to them this year I will add a pondering as to how best to take those field notes, and a hope that I can squeeze in an extra early expedition, perhaps even before spring rains begin, to search out a south facing slope littered with dead wood, a slope that overlooks a pond. There I just might find some most interesting overwintering aquatic beetles.

-Donna Nelson

Call me silly, but I was really excited about this workshop. As an amateur with absolutely no formal education in science beyond high school, I was feeling very insecure about the value of my paltry collection. Basically, everything I know about butterflies and butterfly collecting I learned from Alexander B. Klots' Field Guide to the Butterflies of North America East of the Great Plains (bless the man). What I was able to understand and practice on my own, I learned. What I found confusing or just didn't run into, I didn't learn. So I didn't know whether my collection of what I call coast-to-coast butterflies (from California and Maine) would ever be worth anything to anyone else.

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Tech Tips: Insect Origami

You're probably thinking of fanciful praying mantises and dragonflies artfully constructed out of folded paper. Actually what I have in mind is far less creative, involves (gasp!) tape, but is much more utilitarian. Still, a great project for the kids on a snowy day.

Unit trays, those small white paperboard boxes with foam pinning surfaces that are made to fit perfectly into Cornell drawers, are certainly very efficient and convenient for storing and organizing insects. They not only allow related specimens to be placed in the same unit tray, but also facilitate the process of re-grouping them, and removal of those insect groups to the microscope for identification.

There are, however, some drawbacks to these trays. If you use Cornell drawers, it will cost about \$10.00 to fill each one with 4 of the largest sized trays, and the cost goes up considerably with the more convenient smaller sized trays. Don't forget shipping costs and the two-week wait for delivery. To further complicate things, if you are like me you have a hodge-podge of boxes not made to Cornell dimensions, and unit trays will not fit snugly thus putting your specimens at risk. Sure, you could line the bottom of those odd-sized boxes with pinning foam, but wouldn't it be nice to have the advantages of unit trays custom fit to your own boxes? To the art or office supply store we go!

To start, you will need a supply of pinning foam. I use 8 mm polyethylene foam available at Bioquip in 24" X 108" sheets (enough for many trays) as well as smaller sizes. You can sometimes find similar material as packing material in boxes containing electronics.

You will also need a sheet or two of heavy, white, acid-free poster board, a roll of white plastic (electrician's) tape, some white glue, a pair of scissors or Exacto razor knife, and a ruler.

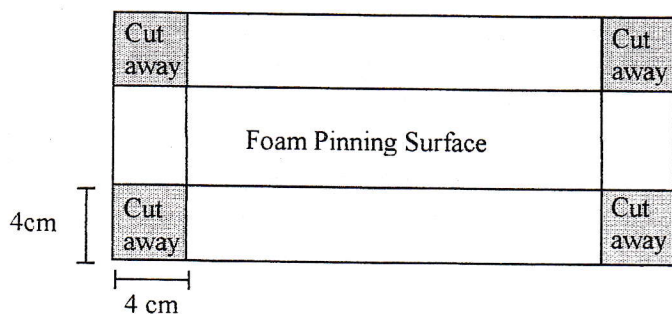


Figure 1. Unit tray layout.

Follow the directions below and you will be able to make unit trays to fit any size box.

1. Determine the dimensions of unit trays that will fit best in your insect box.

2. To the length and width of each tray add 8cm. This will make 4cm high sides. Measure carefully, as these are the outside dimensions of the finished boxes. Subtracting one or two mm will make the fit a little less snug.

3. From heavy poster board cut a rectangle the dimensions determined in step 2.

4. Measure 4cm in from each of the four sides and draw four light lines.

5. Cut away the four 4cm X 4cm corner squares. See Fig. 1.

6. Cut a foam pinning surface to fit the center rectangle and glue with white glue. Let dry.

7. Fold in the four sides.

8. Cut four pieces of white plastic tape 6cm long and place a piece of tape vertically over the outside of each corner, overlapping the top and the bottom of the tray by about 1 cm.

9. Slit the tape down to the top edge and the bottom edge, and fold in the resulting pieces.

If you get your materials at an art supply store, you may be able to get matte board scraps very inexpensively. These make very heavy-duty trays, and also come in a variety of colors, sometimes white on one side and a color on the other. Hmmm, color-coded unit trays next?

- Chuck Peters

Winter Workshop Continued from Page 2

The collecting workshop was an excellent overview of how, when, and where to collect, (with the emphasis on the "how") and what to do with the specimens afterward. For me, the clear, detailed presentation by Reginald Webster was the highlight because it specifically addressed my questions. I was also fascinated by the ingenious contraptions of Chuck Peters and Richard Hildreth's examples of field notes. And yes, guys, I am going to shell out for a GPS before I die of old age.

Without exception, all the presenters did a great job, avoiding unnecessary technical language and sticking to their time limits. I was also pleased to see a good number of people I didn't know, most of whom seemed to be students either officially or avocationally. As usual at MES functions, it was a good feeling to realize that everyone else has as much fun with their bug obsession as I do.

-Gail Everett

Collecting Techniques Old and New

As a general rule of thumb, always remember that there are bugs almost everywhere in the world! This is especially true anywhere there is plant material. So, collecting is in part a matter of keeping your eyes open, and in having the right equipment at hand. Specialized critters sometimes require specialized techniques or equipment. We'll look at these a little at a time. An excellent on-line introduction to collecting equipment and techniques (from which the illustrations used here are drawn) is available at www.sel.barc.usda.gov/selhome/collpres/collpres.htm.

Basic insect collecting equipment includes: collecting vials, various sizes nets, forceps and/or aspirator, padding for killing vials (tissue, etc.), paper and pencil for notes and labels, killing agent such as ethyl acetate or alcohol.

Some more advanced equipment includes: specialized nets (such as aquatic or beating nets), a hatchet or stout knife, a field sifter for leaf litter, a Berlese funnel, knee or hip boots, pitfall traps, and artist's brushes.

Below are some basic collecting techniques:

1. Sweeping vegetation - different plants will have different insects. I use a heavy beating net for these, made from an old closet rod, a 1/4 inch diameter aluminum rod, and white sheet. It's utilitarian, but it works!

2. Beating vegetation- spread a white sheet beneath shrubs or tree branches, whack brush or branches with stout rod. Insects will fall onto the sheet and can be readily seen. This is particularly effective for nocturnal leaf-feeders such as many weevils, as well as for spiders.

3. Berlese funnels - leaf litter is placed in funnel, with container of alcohol beneath and a bright light above. Critters that like leaf litter prefer cool, moist, dark conditions - all of which you're disrupting here. They crawl down through the materials, eventually falling down the sides of the funnel into the alcohol (see Figure 1). This material can then be picked through beneath a microscope. This technique is excellent for many tiny things (mites, pseudoscorpions, etc.) as well as larger but cryptic specimens like centipedes and spiders. Some of these are strikingly beautiful despite their tiny size. This is a technique useful especially in the dead of winter.

4. Sifting leaf litter - this can yield enormous numbers of small things otherwise not visible. Shaking leaf litter and such over a coarse screen, one can then discard the coarse stuff (chunks of wood and bark, acorns, pine cones, leaves, etc.) and pick through the fine stuff by hand, a little at a time, on a white sheet. I use this as a means of pre-concentrating samples for Berlese funnels; in 1979, in one location in northern Alaska, I collected five undescribed species of Staphylinids (rove beetles) by screening willow thicket litter this way. Another sample from northeastern Washington state yielded three undescribed beetle species in three different families.

5. Treading - walk in marshes wearing high boots, trampling a small patch of vegetation beneath the water surface. Collect arthropods as they pop to the surface. This is particularly effective for non-flying arthropods in these wet environments, such as beetles, ants, spiders, some Hemiptera. Carry a small dip-net for scooping up specimens (I use a three inch aquarium net).

6. Get down! I find an enormous number of things by simply lying face-down on the ground and looking carefully at the ground surface below me. This is also a very effective means of studying behavior. It's amazing how much more you can see when you get down closer to a bug's-eye-view of things.

7. Peel bark off fallen logs, look under rocks and other materials on the ground, and poke around inside piles of loose organic debris (leaves, sawdust, etc.). Discarded carpet and clothing can yield numerous delightful surprises.

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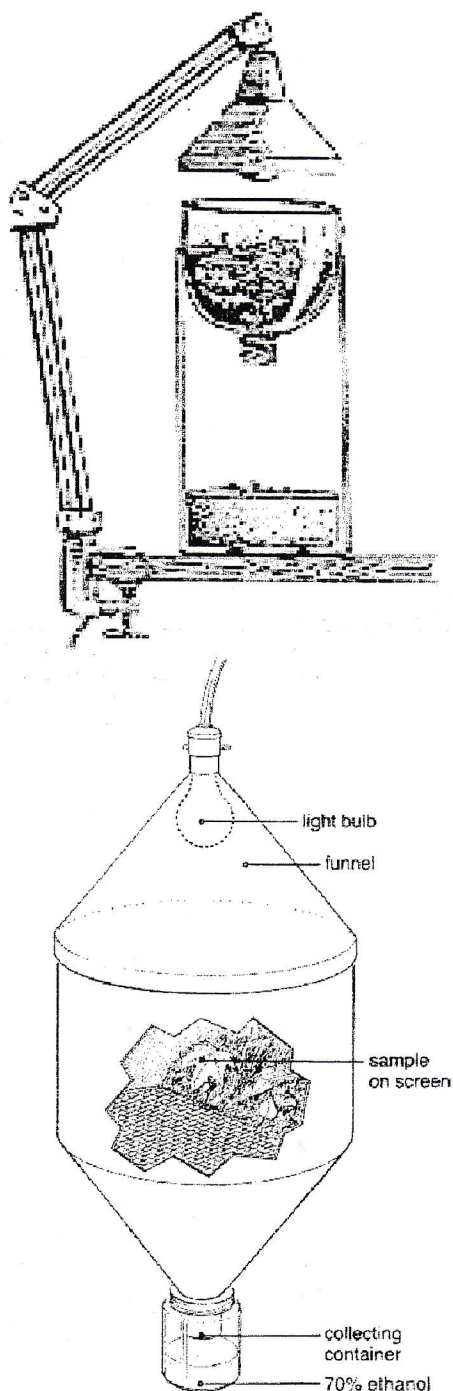


Figure 1. A simple Berlese funnel constructed using a cut off soda bottle (top) and a more complex version (bottom).

Best Lesson
Continued from Page 1

woods trail. Suddenly the group had scattered into many little microcosms of examination. Everyone seemed to want to share his or her discovery. I tagged along wherever the action appeared to be and tried to listen to several different stories at once. Eventually I realized that tactic was futile, so I settled down with the caboose of the group, Dan Jennings and Frank Graham. These two, I discovered, were primarily interested in spiders and spider habitat.

We squatted down together and admired little niches of spider territory. It was explained to me that TNC has a No-Collecting Policy (living or non-living), but that MES was granted special permission for this trip.

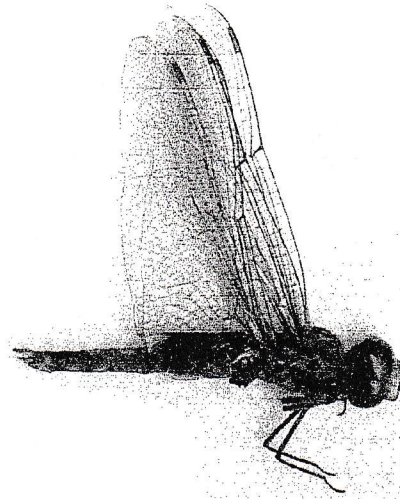
And so, our collecting began. Or at least, the attempts at collecting. A variety of stark webs, all so beautifully crystallized in the morning dew, did not always mean that we could find their occupants. And when we did, their aggressive and surprising burst of speed frequently won their freedom. My first attempts at collecting were with the wolf spider, who makes its home in lichen bunches. My curiosity about its living habits prevailed over a reluctance to disturb it. I pursued, learned not to hesitate, and eventually caught a few.

We also found several funnel nests and tried to trick the spider into coming out to collect its trapped prey. This is easier to write about than do. However, my compatriots were no slouches, and did quite well when I wasn't 'helping' them.

We eventually left the rocky clearing area and walked into denser woods. We found spider nests in crooks of trees, and many different types of webs. I began to recognize some of the more common ones. Hunting for clues and for prey became so engrossing that we sometimes forgot we were (supposed to be) with a group. Dick Dearborn would politely holler back to us once in a while, and we would obediently move along a quicker pace, but with fragile resolve. Something new or another choice habitat would appear and immediately reduce us to a huddled mass again. The primary purpose of being there was to collect and learn, and that we did!

If one has noticed a distinct lack of scientific (or common, for that matter) names in this article, it is because I can hardly remember any! However, I still cherish the friends I made and the awareness I gained, which is far more important to me than memorizing the scientific name or Latin genus. I've since been on several MES outings. These trips are gems: an experience I would highly recommend, to anyone with an interest!

- Jeanne Kannegieser



The spot-winged glider, *Pantala hymenaea*.
Photo by Richard W. Hildreth.

Field Notes on the Spot-winged Glider

July 11, 2002. Steuben, Maine. I visited Petit Manaan National Wildlife Refuge. I hiked along the Hollingsworth Trail to the eastern shore of the Peninsula. I then turn south along the beach. I am hunting for odonates. At about 9:05 am, I see a swarm of fairly large dragonflies ahead, circling and drifting north toward me. They look to be some sort of rain pool gliders. As they get closer, I can see they are not the wandering glider, *Pantala flavescens*. I try to catch one but they don't cooperate. The swarm passes north, and soon I see another coming down the beach. They are approximately four to ten feet above the ground. With some effort, I manage to net one of these dragonflies; it is a beautiful male spot-winged glider, *Pantala hymenaea* (MDDS specimen # 22503). As I hike south along the beach and encounter more swarms drifting north, I am able to catch and release several more of this species. By the time I reach Big Pond, I have counted fourteen glider swarms, each with up to 25 gliders per swarm plus an additional eight single gliders, for a total of 113 northward moving dragonflies, all spot-winged gliders.

July 12, 2002. I am in Lubec at the Hamilton Cove Preserve along the rocky Bold Coast. During this visit, I see four spot-winged gliders flying north along the shore. Later that day I make a brief stop at Milbridge Harbor where I see one more spot-winged glider flying north over the water near the town dock.

August 20, 2002. I collect a spot-winged glider in Steuben in the saltmarsh on Joy Cove (MDDS specimen # 22635). This young female was flying southwest along the shore, probably in southward bound migration.

- Richard W. Hildreth

Collecting Techniques Continued from Page 5

Some of these can be quite deep - so don't give up if something may be buried an inch or more below the surface. Vacuum critters up with aspirators (see Figure 2), or pick them up with forceps or a damp brush or fingertip.

Be creative in your search for insect life. Almost anyplace you look, you're going to find insects or other arthropods of some kind. Looking in places no one has looked before often yields things no one has seen before! Many things are specific to certain habitats - birds nests, beaver lodges, under the bark of or in fungi growing on specific kinds of trees, inside acorns, etc. DON'T think that bugs are only around in the summer! They don't all die with the first frost. Finding wintering hiding places can yield many surprises as well - and some species are strictly winter adults!

-Bob Nelson

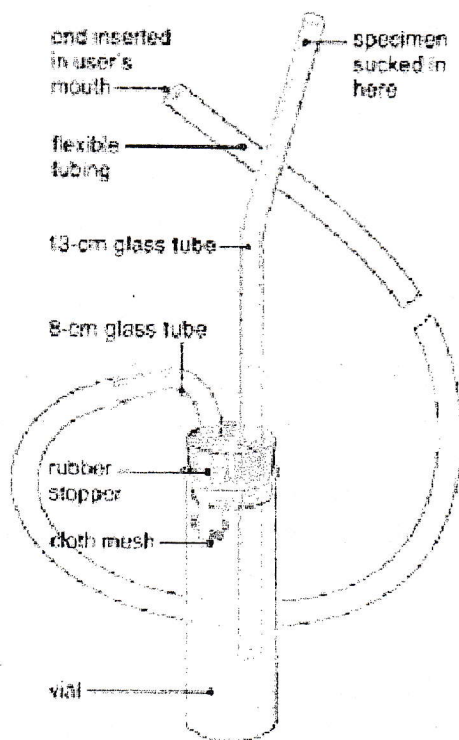


Figure 2. An aspirator used for sucking up small insects.

Call for Field Stories

A biologist named Jennifer Bové is compiling an unprecedented collection of short stories by fellow biologists. The book is called The Back Road To Crazy: Stories From The Field.

Her request for stories is reprinted, in part, here:

"As anyone who has spent time in the field knows, our profession offers challenges and experiences that are unparalleled. We're fortunate to have a true mission in the conservation of natural resources - it is our life's work - and the rewards of our efforts often far exceed the sum of a season's paychecks. From hidden corners of America to distant reaches of the globe, we gladly trade the comforts of more sheltered careers for physical labor, whims of weather, and, above all, wilderness. In the course of such unique work, we end up collecting stories like cockleburrs, and it's time that our stories were told.

The themes in The Back Road To Crazy are sure to be as diverse as the species we study. Any subject will be considered, including: wildlife encounters, solitude, dangerous duties, perseverance, learning the ropes, coworkers, imperiled ecosystems, hope, successes or mishaps, romance, pesky parasites and poisonous plants, field ethics, amazing places, grief, burn-out, humor, wild weather, homesickness, and so on. Let's talk about the tools and techniques of our trade (but try not to get too technical for a general readership). Your story may examine one memorable moment in the field, or it may span a lifetime. Biologists, technicians, volunteers, and students are all encouraged to submit".

Writers may submit up to three stories less than 5,000 words in length (keep copies since manuscripts will not be returned). Submissions must be received no later than May 1, 2003. Entrants will be notified within eight weeks. No story will ever be printed without written consent from the author. A small honorarium will be paid for each story printed at the time of publication (projected to be the summer of 2004). Be sure to include your name, permanent address, phone number, and email address.

Please send story submissions and questions to: Jennifer Bové via mail at 9868 Foliage Road, Joplin, MO 64804, or by e-mail at Fieldstories@aol.com.

Vermont Entomological Society Events

May 17: "Birdathon for Bugs." Mary and Doug Burnham will once again be collecting pledges for the Vermont Entomological Society. Sponsors wishing to donate to the VES pledge a flat rate amount or a per species amount. On the Birdathon day, Mary and Doug identify by sight or song as many bird species as possible in a 24 hour period. Sponsors will then be given a list of birds identified and the amount he or she owes. For more information, contact Mary at (508) 229-9578.

May 24 or 25: Field Trip to Snake Mountain in Addison.

June 14: 10th Anniversary Picnic and Field Trip. Join us for a potluck picnic at the home of Rachael and Scott Griggs in Grand Isle. Our field trip will explore alvars at the Fisk Quarry on Isle La Motte.

July 12: Join us for a Butterfly Walk at Bob Spear's Birds of Vermont Museum in Huntington from 10 am to 1 pm.

August 9: Collecting trip with Susan Morgan (VINS) in the Manchester area.

Visit the VES website at www.uvm.edu/~rtbell/VES.html for further information about these upcoming events.

2003 MES Field Trips

May 17 - Waterville (Kennebec County). For this trip, we will meet and collect at Colby College. Contact Bob Nelson for information at (207) 872-3247 or by email renelson@colby.edu.

June 14 - Waterford (Oxford County). For this trip, we will be collecting in the western Maine foothills, on Gail Everett's property along the Crooked River. Habitats include riparian, old fields (mostly dry), mixed forest, and even a bog. Gail's nine acres have something for everyone. Contact Gail by e-mail at capriolee@yahoo.com or at (207) 878-8183.

June 22-24 - Bar Harbor (Hancock County). Joint meeting with the Acadian Entomological Society. See below for details.

The July field trip will take place in Cumberland County and the August trip in York County. Look for details about these trips in the May newsletter.

Joint AES and MES Meeting Scheduled for June in Bar Harbor

The joint meeting of the Acadian Entomological Society and Maine Entomological Society will take place this year in Bar Harbor from June 22-24. The meeting will take place on the College of the Atlantic Campus. The MES will host a field insect collecting/observation trip, starting at 10:00 am on Sunday, June 22. No experience is necessary, just an interest in insects and lots of enthusiasm. Sunday evening there will be a mixer hosted by the MES. This is a good time to meet people, see displays, and browse insect-related items for sale. Monday, June 23 will be dedicated to submitted paper presentations. These will encompass a number of topics including issues of general entomological interest, one on invasive arthropods affecting Northeastern and Maritime ecosystems, and a third session on vectors of medical importance in the Atlantic Northeast. Additionally, papers featuring the taxonomy, behavior, ecology, and management of ants will be presented. Tuesday, June 24 will be dedicated to a hands-on workshop "Ants (Hymenoptera: Formicidae) of the Atlantic Northeast."

Remember, as this is Bar Harbor, reservations should be made early on. Spaces fill up very quickly for the summer season on Mount Desert Island. We would recommend that you check out the Highbrook Motel, which is located across the road from campus and has rates starting from US \$40.00 for a single room (www.highbrookmotel.com, phone 1-800-338-9688). The Bar Harbor Chamber of Commerce (www.BarHarborMaine.com, phone 1-888-540-9990) and Ellsworth Chamber of Commerce (www.ellsworthchamber.org, phone 207-667-5584) will help you if you wish to make other arrangements.

For more information, please visit the AES website at www.upei.ca/~aes/ or the MES website at www.colby.edu/MES. Additionally, you may contact Andrei Alyokhin, AES president, at (207) 581-2977 or andrei.alyokhin@umit.maine.edu.

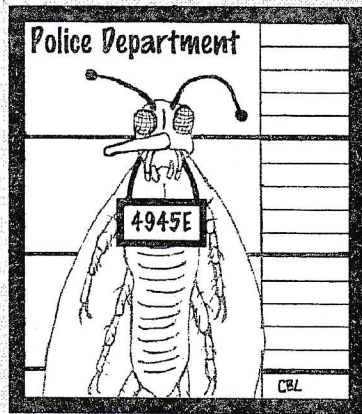


Maine Moth Update

Last year at about this time, I reported on the strange appearance in Downeast Maine of the small gelechiid moth, *Gnorimoschema valesiella* Staudinger. This record stood out because it had previously only been taken in North America in Greenland, Alaska and, most recently, the Yukon Territory. In an era of global warming trends, what was a weak flier doing a good 15 to 20 degrees of latitude south of its known Nearctic range? I still have no convincing answer to this and similar cases - though I have thoughts on the matter - and I still would welcome dialogue on the subject from specialists on other groups, but I am glad to report that *G. valesiella* was back in Steuben again in 2002. This at least suggests the 2001 specimen was not a singleton borne in on the winds.

On a separate and less contrarian note, I can also report a Maine record for the pyralid *Herpetogramma bipunctalis* Fabricius. Seventy-five years ago, this moth (known as the "southern beet webworm," but really a polyphagous pest), was reported only west and south of Illinois. It is now widely distributed in the Southeast, but its intrusion into Maine is notable, though it may well have been merely a stray. The specimen turned up among specimens collected by the late L. Paul Grey of Enfield in October 1986, which underscores the value of accumulating samples from around the State and having them checked over when possible. You never know what may turn up.

-Tony Roberts



The Bug Mug Shot: Velvet Ants

Order: Hymenoptera. Over 17,400 species of this order have been described in North America and there are many undescribed species as well.

Family: Mutillidae. This large family contains about 435 species in North America most of which are found in the warm, dry, sandy areas of the south and west. Nine

species should definitely occur in southern Maine and another ten could possibly reach their northern range limit near the coast in extreme southwestern Maine.

Species: There are definite records for only three species in Maine; *Ephuta pauxilla pauxilla* Bradley, *Pseudomethoca frigida* (Smith), and *Dasymutilla vesta vesta* (Cresson). Of these three, *D. v. vesta* appears to be the most commonly noticed and both males and females have been collected as far north as Augusta.

Description: Velvet ants or mutillids are not ants at all, although they superficially resemble each other. Mutillids are considered wasps and females can sting. Females are wingless, while males are winged. Both have straight antennae and are generally covered with a dense pubescence that may be patterned in black, red, white or yellow. Ants (Formicidae) lack dense pubescence and have elbowed antennae and one or more nodes (lumps) on the segment joining the thorax and abdomen. *Dasymutilla v. vesta* is our largest species and may reach one centimeter in length. Both males and females are patterned differently in red and black and the males have dark smoky-black wings.

Primary Habitat: All Maine species live on the ground and prefer open, sandy areas.

Food: Most, if not all, Maine species probably feed on ground nesting bees and wasps. The hosts of most are not known.

Life History: All species are insectivorous in all stages. Larvae are external parasites of the larvae and pupae of the host species. Pupation occurs in a silken cocoon within the host larval/pupal chamber. Only one generation occurs per year. Life cycles for most species remain unknown.

Notes: Mutillids as a group are poorly represented in most collections. Many species in our area are tiny (less than 5 mm) and easily go unseen. Males and females are often very differently marked and have sometimes been described as separate species initially. Females can and do sting as can tiny females of the closely related tiger beetle parasite, *Methocha stygia* (Family Tiphidae). Large females of some southern mutillids have a powerful sting and have been called "cow killers." Some mutillids can reportedly stridulate and produce a squeaking sound when disturbed. We need more Maine records and observations, but collectors should be careful as females can move fast and will sting.

Bug Trivia

The term "software bug" did originate with the discovery that an actual insect was wreaking havoc in a computer system (I believe it caused a short circuit - in the days when vacuum tube/magnetic memory/magnetic tape computers filled entire, large rooms).

-Rick Mack

Entomology Courses at Eagle Hill

May 25 - 31

Damselflies and Dragonflies: Systematics and Biomonitoring

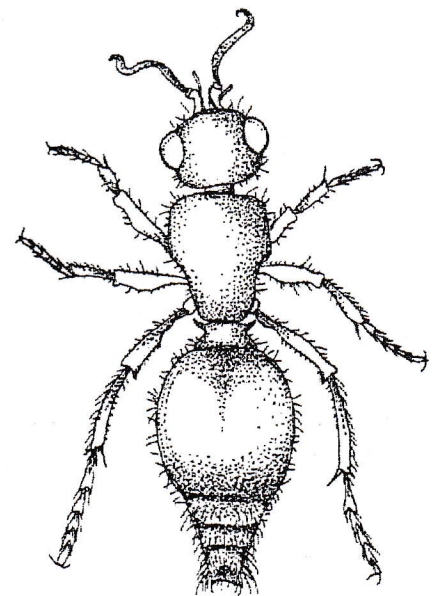
June 8 - 14

Microlepidoptera: Systematics and Study Techniques

June 22 - 28

EPT Taxa: The Ephemeroptera, Plecoptera, and Trichoptera: Systematics and Biomonitoring

For more information on these or other Eagle Hill courses, please contact Humboldt Field Research Institute by calling (207) 546-2821, or by e-mailing office@eaglehill.us.



The velvet ant *Dasymutilla vesta vesta*. Drawing by Monica Russo.

Winging It

In the January 16, 2003 edition of the journal *Nature*, researchers reported that some species of walking sticks (order Phasmatodea) redeveloped wings after losing them millions of years previously. The article, titled "Loss and Recovery of Wings in Stick Insects," states that wings were the primary adaptation that allowed insects to escape predators and exploit new niches. Still, many of the winged orders of insects (pterygotes) have partially-winged lineages, or branches, in their evolutionary tree. As wings declined, insects partitioned more energy and resources toward reproduction, especially in females of the species.

Despite the intricate mechanisms required to re-evolve wings, including interactions between nerves, muscles, sclerites, and wing foils that are required to enable flight, such a reversal occurred in phasmids on as many as four separate occasions! The basic genetic blueprint, the authors believe, was always contained in the DNA of the insects. In wingless phasmids, scientists found that the neural pathways required for flight still exist and are used during terrestrial movement. The reason for a wingless state differs with each lineage but it is possible that the genes required for wings were suppressed or advanced many times meaning that the transition from winged to wingless may not be an evolutionary dead end for insects. This was the first report of a complex feature such as wings being recovered through the evolutionary process.

- Chuck Lubelczyk

Reference: MF Whiting, S. Bradler, and T. Maxwell. 2003. Loss and recovery of wings in stick insects. *Nature* 421: 264-267.

Book Review: Egyptian Scarabs by Percy Newberry

This 2002 Dover Books publication is a paperback reprint, originally published in 1906, long before the opening of Tutankhamun's tomb. It provides a drawing of the beetle that all of the Egyptian scarab art and design is based on – *Scarabaeus sacer*, the Sacred Scarab. The basic parts of the beetle are shown: legs, elytra, head, eyes, and clypeus. The latter is a fancy affair, with several points that make it look like a crown. The scarab was revered as the deity Khepra or Keper-Ra, an emblem of life and regeneration.

Certainly the sacred scarab had to be a familiar sight to just about anybody living in Egypt. Its transference to a more ethereal artistic or spiritual icon was probably due, in part, to its rounded shape – you could take a small chunk of clay or soft stone and carve a replica using minimal sculpturing. Egyptian artists made scarab amulets and jewelry out of lapis lazuli, carnelian, soapstone (steatite), and faience or glazed clay.

I own two Egyptian scarabs; one is from the Middle Kingdom, about 3,500 years ago and is made from lapis. The other is from the Ptolemaic Period, made from steatite. I am sometimes asked if they are 'real' scarabs. After reading Newberry's fascinating book, I'd have to answer that the only real scarab is the living beetle itself, crawling around in the sand! That's because, according to Newberry, the only true scarabs were those used for legal or governmental purpose. The flat underside of the curved scarab was engraved with the personal mark or office of a scribe, doctor, or official, for instance. They could be used to stamp an official mark or amphoras, or put a seal on documents. Apparently, only scarabs that had a job were considered to be important at the time Newberry was writing. Scarabs that were used as good-luck amulets or jewelry were not considered worthy of much study, it seems.

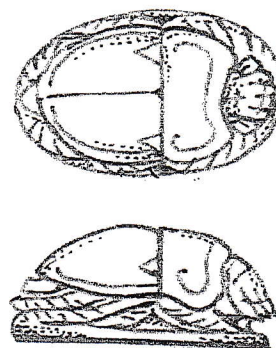
Of course, things changed in 1922 when Carter and Carnarvon opened up Tutankhamun's tomb. A hinged arm bracelet found with Tut's belongings encompassed an enormous lapis lazuli scarab with gold legs. It seemed to be an art object from another world, extravagant and finely worked. I wonder what Newberry and his colleagues would have thought. This is a fascinating book, with many drawings, for only about ten dollars.

-Monica Russo

What's on Your Reading List?

As part of our public service at the MES, we are compiling a list of 'must-reads' for the upcoming summer season. We are asking members to send us a list of up to three books that have made it onto their list of great summer reading material. Please include the complete title, the author, and a *brief* description. This list will be published in the May issue of the *Maine Entomologist*. Although we are a 'bug group,' all ornitho-, myco-, eco-, and geophiles are encouraged to submit their lists.

A lapis lazuli scarab from the Middle Kingdom. Drawing by Monica Russo.



Research Notes - Recent Articles in the Press

R.S.Vetter & D.K. Barger. 2002. An infestation of 2,055 brown recluse spiders (Araneae: Sicariidae) and no envenomations in a Kansas home: Implications for bite diagnoses in nonendemic areas. *Journal of Medical Entomology*. 39(6): 948-951.

This article examined an enormous amount of brown recluse spiders encounters among homeowners and found no record of bites from the three homes in the study. Nonendemic portions of the United States probably have much fewer spider bites than actually reported by physicians. Despite this, physicians continue to diagnose brown recluse bites from nonendemic areas.

M.T. Jones, I.Castellanos, and M.R.Weiss. 2002. Do leaf shelters always protect caterpillars from invertebrate predators? *Ecological Entomology*. 27(6): 753.

Researchers examined larval instars of the silver-spotted skipper that construct and inhabit leaf shelters, presumably to protect them from predators. The shelters effectively protected the larvae against foraging ants and naive *Polistes* wasps in the lab, but did not protect them from predators, largely vespid wasps, present in the field. A range of factors, including type of predator, learning ability, and experience level, may determine the effectiveness of leaf shelters as protection from predators.

A. Kruess & T. Tschardtke. 2002. Grazing intensity and the diversity of grasshoppers, butterflies, and trap-nesting bees and wasps. *Conservation Biology*. 16(6): 1570-1580.

The authors compared grasslands managed through grazing to ungrazed pasture. Increased species richness for adult butterflies and increased abundance for wasps and solitary bees occurred from grazed to ungrazed grasslands. Intensive grazing appeared to affect insect communities through disruption of plant-insect interactions.

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