

The Maine Entomologist

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

Volume 8, Number 2, May 2004



From the President

It seems like only yesterday that I was struggling to stay warm and hoping that the frost didn't go any deeper and now I am thinking about insects, lobsters, and spring chores! Spring is a season of renewal. As I write this in late April, the *Daphne* along the edge of my field is in bloom adding a touch of color to the woodland and the first insects are emerging from winter quarters. From my doorstep I can watch a variety of insects from click beetles to early sawflies, vespids, and bumble bees as they busily move about on their spring rounds. It's now time to focus on the lawn and the garden and yes, making plans for the variety of MES field events we have planned. Now you need to get the spring chores out of the way so that you can join with fellow members in such exotic places as the Berwicks, Schoodic Point, Township 28 MD, and even Vermont! We have a great schedule planned and are going to produce another calendar with a new twist. I urge you to look at the 2004 Field Trip Schedule and the plans for our 2005 calendar, include these in your schedule, and make 2004 a year to participate in Maine's only "Bug Club." I also encourage an adventuresome member(s) to consider supporting MES by offering to serve as editor(s) to give Chuck and Laura a well-deserved break.

Although all of our field events and workshops are instructional to a degree, our Maine Lepidoptera Blitz at Schoodic on June 12 - 14 will give participants an intensive hands-on opportunity to see the methods used professionally to make insect collection/observation records a lasting legacy. If you have questions about collecting methods, specimen handling and record keeping, then Schoodic is the event for you. You will have a chance to experience first hand the importance of an insect inventory system and also add needed support to this ambitious undertaking. In preparation for those who plan to come I would suggest reviewing your copy of *The Maine Entomologist* for Feb. 2002 (Vol. 6, No. 1) on labeling and insect storage. Copies of these items will be available at Schoodic. I hope to see you there.

Have a GREAT Season. See you in the field.

-Dick Dearborn

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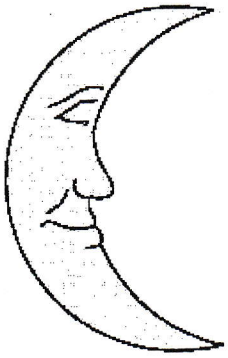
Last June I had the great good fortune to take an Eagle Hill Field Seminar on Microlepidoptera with Dr. Brian Scholtens. I took the class because my work at the Maine Forest Service Entomology Lab is involving more insect identifications with the retirement of our fearless leader and president, Dick Dearborn. Sometimes the things I do for work turn out to be more interesting and fun than anything I do for relaxation and so it was with the Moth class.

We all arrived Sunday evening along with the students for the other course of the week, the Mosses - try saying Moths and Mosses three times fast - and immediately students began checking out where they could collect moths and setting up light traps and bait stations.

There were five students in the class. The first was a woman from the New York Cooperative Extension Service with a budding interest in moths. Two men from New Jersey - one with an Environmental Consulting business that meant he was on his cell phone a lot (June being peak season for his business) and a passion for moths. He has created a butterfly park in downtown Brunswick, NJ and is infamous in his neighborhood for catching moths in his underwear at 3:00 in the morning. The other was a lifelong moth man with no formal training who had convinced the state of New Jersey into letting him document

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the moths that live in one of the State parks and he wanted a better understanding of the creatures he was collecting. He is also going back to college to study entomology. The fourth person was a man from Pennsylvania working for the Nature Conservancy. And me, a long time professional entomologist but more from the pest control end rather than the passionate or taxonomic. Our teacher

was from Charleston, SC with a passion for insects, microleps in particular. He said he finds pinning them very relaxing, calls it the Zen of pinning, and sometimes finds himself pinning insects into the wee hours of the morning.

From the above paragraph you can see the night theme that runs through the lives of those passionate about moths. In a discussion one night (of course) it came out that some of these people had once been morning people but their moth habit switched their metabolism around so now they are definitely night people.

There - half this article is written and I have not gotten past the first day. Anyway, Dr. Scholtens had requested that we all let him know what our level of Lepidoptera expertise was and where our interests lay so that he could target the course to the students. As everyone was pretty much up to speed on the basics, we jumped right into family descriptions and key characteristics without having to review any basic taxonomy. Mornings were spent in the classroom and afternoons visiting various habitats where we might pick up day flying Leps using sweep nets. The fun started with supper, which was always delicious and spent swapping tales amongst all the Eagle Hill residents. As dusk fell, lights and traps were deployed, trees painted with moth bait and we would go hunting. We trekked from light sheet to bathroom light to dining hall light to cabin light looking for interesting specimens. Dr. Scholtens would point out different characteristics of the moths and we would discuss modes of moth approach to the light, wing and body positioning of the different families. Some of the nights were drizzly but there were still moths coming to light, in fact, light rain is not a deterrent to microleps but wind is. We also collected beetles and craneflies and any other insects that were of interest to the various collectors.

As the nights wore on people would gradually depart to their beds with one or two hardcore collectors out until 3:00 am. Next morning would find students at work in the lab before breakfast, pinning and spreading the previous

nights catch. We learned tricks to spread micros, how to dissect genitalia, what keys to use for IDs and lots more. Spreading boards were placed in cardboard boxes set on their sides with small ceramic fans placed in front. Warm air gently dried the specimens in a day so that the moths could be removed from the boards, boards reused and specimens transported home.

By the second day, Dr. Scholten's 11 year old son had joined the class, finding it more interesting than shopping and sight-seeing with his mother, 4 year old sister and grandmother. He was adopted by the guys in the class and we all enjoyed his youthful enthusiasm.

Friday after supper a couple of the Moss students asked if they could come visit the Lep Lab and see what it was that had us all so excited about our class that we were willing to stay up half the night chasing moths. We chose some of the showiest micros - those with silver and black markings or gold 'poufs' of scales on their heads - to display under microscopes. We showed them the convoluted structure of the genitalia and the amazing variety of life that came to light each night. They were impressed but not won over.

Saturday morning was a flurry of last minute pinning and packing up specimens and equipment. I came away overwhelmed by the amount of information I had crammed into my head that week. I spent the rest of the summer on my back porch identifying the moths that came to the screens. The class definitely helped me with my job as I run the Maine Forest Service light trap survey and look through the 4 to 6 week nightly collections of 25 light traps around the State. But more importantly the class stimulated an enthusiasm for collecting and identifying microleps that I had not previously held. It was a great week!

-Charlene Donahue

Events at the Patch Center

Two events will be held in conjunction with the Edith Marion Patch Center for Entomology, the Environment, and Education.

May 23rd - "Getting Started in the Garden." 2-4PM.

June 27th - "Butterflies in Your Backyard." 2-4PM.

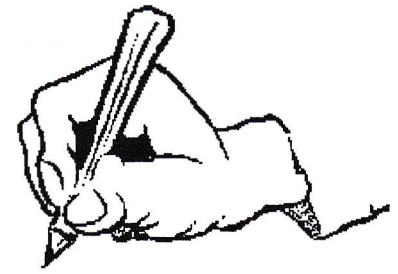
All forum gatherings are held at the Page Farm and Home Museum at the University of Maine in Orono. Look for the big barn with the silo, south of the Center for the Arts.

For more information, please contact Mary Bird of the Friends of Dr. Edith Marion Patch at (207) 581-2434 or mary.bird@umit.maine.edu.

Research Notes-Recent Articles in the Press

Perner, Jörg & Schueler, Silvio. (2004). Estimating the density of ground-dwelling arthropods with pitfall traps using a nested-cross array. *Journal of Animal Ecology* 73 (3), 469-477.

A new procedure for estimating the population densities of ground-dwelling arthropods with pitfall trapping is described. It couples the fitting of single hyperbolic functions to trap data with the use of a 'nested-cross array', a cross-shaped trap arrangement with distances between traps doubling with increasing distance from the central trap. We used individual-based simulation modelling to test the method's reliability given changes in population density, turning rate, trapping period, beetle distribution and intertrap distance. Simulations show that function fits are more likely, and density estimates more accurate, with greater body size and therefore with net displacement, increasing population density, decreasing aggregation and increased turning rate. Simulation indicates that the method is a promising procedure for density estimation that is worth testing in the field. Reliable density estimates are possible if the traps contain a neutral preservative, arrays are established in nearly homogeneous parts of habitat and the arms of the nested-cross array are distant from habitat edges.

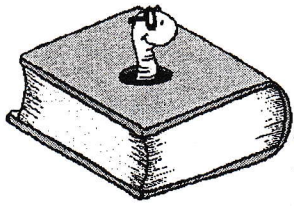


Dussutour, Audrey, et al. (2004). Optimal traffic organization in ants under crowded conditions. *Nature* 428, 70-73.

Garden ants solve quite complex problems of traffic control as they go about their everyday tasks. Can urban planners learn from them when designing traffic networks through our cities? The answer is a qualified yes, since an important component of the ants' method is the head-on collision. When an ant scout discovers a food source, it lays an odour trail that other ants then use and in turn, reinforce the trail as they come back with the food. A study of how ants 'manage' traffic flow on a crowded, branched pathway shows that pheromone-based amplification of the route combines with inhibitory physical actions — bumping into each other — to develop a route network that enables the colony to bring food back to the nest despite the crowded conditions.

Meitner, C.J., Brower L.P., and Davis, A.K. (2004). Migration Patterns and Environmental effects on stopover of Monarch butterflies (Lepidoptera, Nymphalidae) at Peninsula Point, Michigan. *Envir. Entomol.* 33(2): 249-256.

Since 1996, the numbers of migrating monarch butterflies stopping over at Peninsula Point, Michigan, have been monitored by volunteers during the fall migration with standardized daily counts. In this study, we describe this project and examine: 1) general patterns of migration and stopover of monarchs at this site, and 2) how environmental conditions influence monarch stopover frequency. We tested for yearly, seasonal, and diurnal variation in monarch counts within each season. We further combined these data with basic weather information recorded at the time of each count to explore the effects of wind direction and speed, temperature, and cloud cover on monarch stopover abundance. A total of 22,539 monarchs was counted over 7 yr, with yearly totals ranging from 757 in 1998 to 6,638 in 1997. Over the 7-yr period, an average of 29 monarchs was recorded per count at Peninsula Point. Interestingly, in the migration season immediately following a major population decline at overwintering sites in Mexico, the total number of monarchs counted at Peninsula Point was not significantly different from long-term average counts. The timing of the peak of migration was not consistent from year to year, and there were few consistent temporal trends within seasons. More monarchs were counted with walking transects during the day than with a roost count in the early morning. Furthermore, more monarchs were counted earlier in the season than later. Of the environmental variables we examined, wind direction had a significant influence on the number of monarchs recorded on each count with higher counts during north winds. Cloud cover also influenced monarch counts, so that the number of monarchs observed increased with temperature and decreased with cloud cover. Based on the large numbers of monarchs that stop there each fall, we suggest that Peninsula Point represents an important monarch stopover site, and thus has the potential to increase our knowledge of monarch migration and stopover ecology greatly.



Book Review:

For Love of Insects By Thomas Eisner

Published by Belknap Press of
Harvard University in 2003.

Many a volume has been written on the subject of insects. Few will leave you with a feeling of amazement, as does Dr. Thomas Eisner's wonderful and fascinating book titled For Love of Insects. I not only found the book hard to put down, but when finished, hoped there would be a second volume waiting.

From Chapter 1, titled "Bombardier" through Chapter 10 ("The Sweet Smell of Success"), this 400-plus page book concerning the remarkable evolutionary adaptations of many insects is both well written and well illustrated. In each chapter, many colored photographs and/or black and white electron micrographs accompany the text to help illustrate the incredible discoveries that Dr. Eisner and his many associates come across.

The book delves into the various aspects of how insects employ chemical compounds, either ingested or produced, in both defensive and reproductive capacities. It also discusses numerous behavioral strategies to overcome plant defenses. The reader becomes immersed in the bizarre realm of the insects. Humans do not need to send expensive probes to various planets in our solar system in search of alien life. They merely have to walk outdoors and be totally inundated with it! Dr. Eisner's book is testament to just how truly alien the insect world really is.

-Dana Michaud

Selected Abstracts From the New England Odes Conference

The state of Massachusetts Natural Heritage and Endangered Species Program in partnership with the Athol Bird and Nature Club (ABNC) and Ode News sponsored the 2004 New England Odonate Conference on April 17th at the Miller's River Environmental Center in Athol, Massachusetts. Although presenters came from across New England and New York State, we include two abstracts from the Pine Tree State. For a complete review of the conference check out the following web site: www.odes.millersriver.net/new_england_dragonfly_conference.htm

Keeping Track of Winged Jewels: The Maine Damselfly and Dragonfly Survey

Phillip deMaynadier and Paul M. Brunelle

Maine Department of Inland Fisheries and Wildlife

Abstract: The Maine Damselfly and Dragonfly Survey (MDDS) was initiated in 1999 with support from the Maine Department of Inland Fisheries and Wildlife. MDDS is a multi-year, citizen-scientist atlasing initiative designed to improve the Department's knowledge of the distribution and status of odonates statewide. In addition to engaging nearly 250 of Maine's non-game wildlife constituents and raising public awareness of invertebrate conservation, the MDDS has helped the Department more accurately assess the status of rare, threatened, and endangered odonates. To our knowledge, the MDDS is among the first completely state-sponsored dragonfly atlasing projects of its kind in North America. Having recently completed its fifth and final field season, the survey's results have exceeded initial expectations and are best summarized by the following:

1. Outreach Contributions:

Volunteer participation statewide: 250+

Volunteers trained in MDDS seminars: 95

Newsletters published ("Mainensis"): 4

Major press articles covering the project: 5

Website hits (<http://mdds.umf.maine.edu/~odonata/>): >10,000

2. Scientific Contributions:

New U.S. species records: 1

New state species records: 8

New Rare, Threatened, and Endangered species records: 819

Total records submitted (% increase over 1999 baseline): 13,794 (187%)

The Ringed Boghaunter (*Williamsonia lintneri* Hagen) in Maine: What we now know and why we don't know more!

Mark Ward and Phillip deMaynadier

Maine Department of Inland Fisheries and Wildlife

Abstract: The Ringed Boghaunter, *Williamsonia lintneri*, was first discovered in Maine in 1995. Since that time the Maine Department of Inland Fisheries and Wildlife (MDIFW) has conducted annual surveys to assess the distribution and status of the species in the state. The biology of *W. lintneri* has

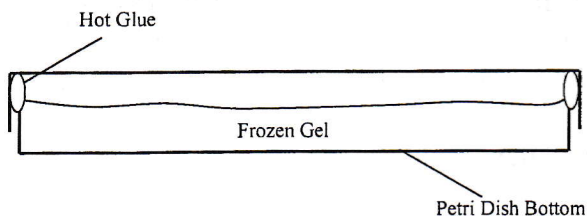
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Tech Tips: Chill Out!

Have you ever wanted to closely observe small insects, say under a microscope, without having to kill the insect? If so, then read on.

A few years ago I forgot to order ether for anesthetizing fruit flies that my students were using for genetics experiments. I called a friend who teaches at Southern Maine Community College to borrow some ether, and found out that he had stopped using ether long ago. He recommended placing the flies in a freezer for a few minutes to stun them, then putting them in a petri dish set atop a small freezer pack under the microscope. I tried it and it worked! But I found it difficult to make good enough contact between the petri dish and the freezer pack; there always seemed to be a little space between them that hindered the chilling effect. So I decided to combine the freezer pack and the petri dish into one unit.

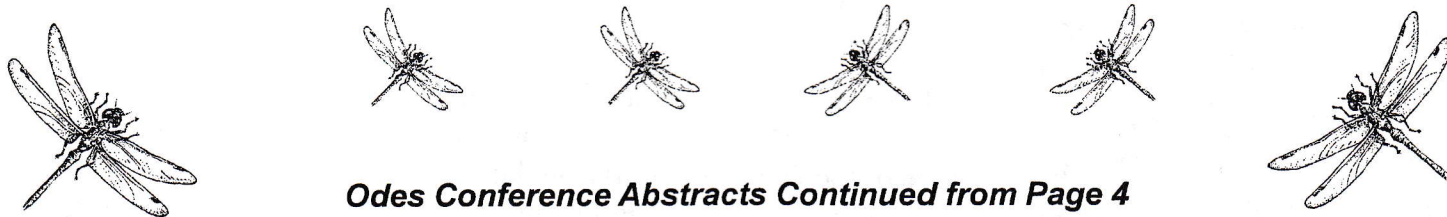
For this project you will need a few plastic petri dishes, a small freezer pack (like you'd use in your cooler), and a hot glue gun. Try to find the small "bag" type freezer packs, which have white gel inside, as this provides a better background for observation than the blue gel. Cut the freezer pack open and pour the gel into the bottom of the petri dish (the top of a petri dish fits over the bottom, which has a smaller diameter) so it is about $\frac{3}{4}$ full to leave some space for expansion of the gel when it freezes. Turn the top of the petri dish over and run a healthy bead of hot glue on the inside edge of the top where it will contact the bottom, and quickly place the top over the bottom while the glue is molten. This will seal the gel inside the petri dish. Let the hot glue harden for a few minutes, put the assembly in the freezer, and in a few hours you'll be ready!



To observe small insects place the insects in a vial, put them in the freezer for a couple of minutes until they are knocked out, then place them on the bottom of the upturned frozen petri dish (the side with the most gel). This flat, cold surface should keep them immobilized for at least ten minutes. If you need to observe for a longer period of time, when the first petri dish begins to thaw pull another frozen one out of the freezer. I have used this technique to observe

small ants, bees, wasps, flies, and small ground beetles for up to a half-hour with no apparent harm to the insects. Some experimentation will be needed to be sure that it doesn't harm other groups of insects, and it does seem to be less effective for larger bugs, but for many of the small forms it really is cool!

-Chuck Peters



Odes Conference Abstracts Continued from Page 4

presented several challenges for surveyors because of its early and brief flight period (April 27-June 11 in Maine), its tendency to spend most of its brief adult life stage in forested uplands, and the difficulty of definitively distinguishing its exuviae from those of the ebony boghaunter (*Williamsonia fletcheri*) – a species with considerably more general distribution and habitat preferences in Maine. Nevertheless, surveys to date have improved our understanding of the habitat requirements and distribution of *W. lintneri* in Maine and resulted in: 1) the development of a habitat potential index to score wetland suitability, 2) the development of an evidence-based categorization of wetland breeding certainty, and 3) the identification of several previously unknown populations. The results of this work will be summarized and a wetland-specific conservation model will be proposed as a management tool for the conservation of *W. lintneri* breeding habitats.

Six Legs Afield-What to Watch For

JUNE - The regal migrants, the **Monarchs**, return from the south just as the milkweed pushes higher. Meanwhile the **Canadian Tiger Swallowtail** and **White Admiral** butterflies appear at wet spots along wooded roads often in great numbers where birch and aspen stands predominate. By mid-June those warm, dark, humid nights are often right for **Beetle Nights** when beetles greatly outnumber the moths at lights in both abundance and diversity. Beetle collectors be ready as there are usually only two or three of these a year between June 10 and July 10!

JULY - Butterfly diversity reaches its pinnacle during July as various species of **hairstreaks, fritillaries, and skippers** crowd milkweed flowers in meadows and woodland glades. The diversity of damselflies and dragonflies on the wing is at its highest in late June and July with **Clubtails** (Gomphidae) dominating the faster waters and **Skimmers** (Libellulidae) adding color to the slower vegetated waters. **Japanese beetles** always seem to emerge around the Fourth of July in Maine, so celebrate the Fourth with these beetles as they make their season's debut. Watch for the **browntail and gypsy moths** too.

AUGUST - Many species of **Orthoptera** reach maturity in August and provide a show as they flit through hay fields and in other open areas. This is the time to look for a variety of grasshoppers, and late in the month don't be surprised to see **Preying Mantids** in a variety of color phases, from pink and brown to green. Mature **Northern Walking Sticks** also appear late in the month near oak stands. And those "Hot Weather Bug, Harvest-Fly, Dog-Day Cicada" males sing high in the trees far out of reach of all but the hardy or lucky observer. August is also a great month to look for the fascinating **fossorial (ground-nesting digger) wasps** as they provision their nests. Most prefer the drier sandy areas of southern Maine. Some *Aphilanthops* provision their nests with ants, other genera with tabanids, and still others with beetles, caterpillars or a variety of orthopterans. Some such as the Great Golden and Black Digger wasps are large, colorful, and impressive. Others such as the sand wasp (*Bembix americana spinolae*) and our large velvet ant (*Dasymutilla vesta*) are just plain fascinating. During the dog days of August, **wood nymph butterflies** can often be found courting through old fields, and **green and gray commas** can be observed at wet spots along forest roads. August is also the month when the rare **Clayton's Copper butterfly** takes wing among the yellow flowers of shrubby cinquefoil in cedar fens. The elusive **American Rubyspot damselfly** is just beginning its flight season along streams and rivers.

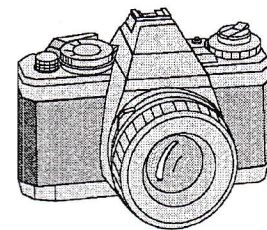
NOTE: We would like to remind our readers that neither the true katydid nor the infamous periodical cicada (also called the 17 year locust) occur in Maine.

-Dick Dearborn

Reminder:

If you would like to receive *The Maine Entomologist* via e-mail in PDF format, please e-mail the editors at naturbuf@gwi.net. You may request to receive both a hard copy and a digital copy if you desire. By going digital you not only help us save on mailing costs and reduce paper use, but you also get to view better quality graphics and portions of the newsletter that are printed in color.

2005 Calendar Photos Wanted



MES members are encouraged to submit a favorite photograph for our 2005 calendar. The 2005 calendar committee (made up of Gail Everett, Dana Michaud, and Dick Dearborn) is looking for photos of insects, insect-related subjects, or member activities. Photos will be selected by the committee based on a good balance of overall subject material as well as photograph quality. Insects should be those that occur or could occur in Maine. Although digital photographs are preferred, we will also accept 8 x 10 color prints and color slides. Images should be sharp quality and each photo should be accompanied by species identification (as close as possible) with the date and location, if known. Entries must be received by July 15, 2004. A complimentary calendar will be given to those whose photos are chosen for inclusion. For further details, please contact Gail Everett at capriolee@yahoo.com or (207) 743-2840.

MES 2004 Field Trips

May 22. For those interested in a York County collecting trip to either South Berwick or the Kennebunk Plains meet at the Walmart on Route 109 in Sanford at 9 am. Contact Chuck Lubelczyk at (207) 324-2849 or naturbuf@gwi.net for more info.



May 22. Folks attending the Tomah Mayfly Field Trip with Cassie Gibbs should meet at 10:00 am in Topsfield at the Irving Station, which is located on Route 6, just east of its intersection with U.S. Route 1.

June 12-14. The MES will be joining forces with lepidopterists and biologists from Acadia National Park to conduct our first **Maine Lepidoptera Blitz**. This intensive survey will focus on the butterflies and moths of the Park and will be based at the National Park Service's new Schoodic Education and Research Center, located at the former Navy Base campus in the Schoodic Peninsula District of Acadia National Park.

The Blitz itself will run from 3 pm Saturday, June 12, to 3 pm Sunday, June 13. An additional work session will be held on Monday, June 14th. The National Park Service has a limited amount of housing available at the Schoodic Education and Research Center for participants. For more information please contact Charlene Donahue (207) 287-3244 or charlene.donahue@maine.gov or Dick Dearborn at modear@prexar.com or (207) 293-2288. MES members are encouraged to support this exciting event. Please register in advance.

June 26. Gail Everett will be hosting a butterfly count beginning at 10am. Meet at her house at 19 Pulp Mill Lane in Waterford at 9:30 am. Call Gail at (207) 743-2840 for more information.

July 24-25. This year, our joint meeting with the Vermont Entomological Society will take place in Groton, VT. See adjacent article for details.

August 14. We will be going "Down East" for this trip. Those who are interested in this collecting/observation adventure should meet trip coordinator, Richard Hildreth (watch for his white van), at the junction of Rt.9 (The Airline) and Rt.193 in Twp. 22 MD (DeLorme Maps 24 & 25) by 9:30 am. Folks will then travel north along the Narraguagus River to the Stud Mill Rd. If you are interested please let Dick Dearborn know by August 7th.

September 18. The MES annual meeting where new officers will be elected! This event will be held at Chuck Peters' home in New Gloucester.

September 23. The 2nd annual "Bug Maine-ia" will again be held at the Maine State Museum in Augusta. This event is open to the public. School groups should make arrangements through their teachers by contacting Marion Smith at the Museum, (207) 287-2301. MES members who would like to participate or have a table display should contact Dick Dearborn for more information.

VT and ME Team Up

A 25,000-acre state forest, with varied woodland and habitats, will be the backdrop for 2004's joint meeting of the Vermont Entomological Society and the MES on July 24 and 25.

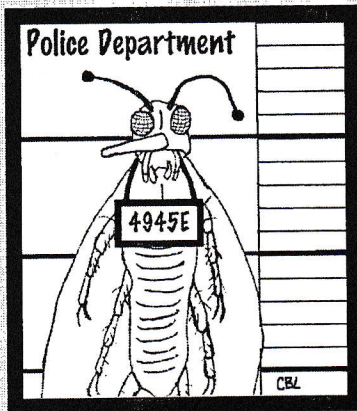
Groton State Forest, in Vermont's northeastern piedmont, is an ideal setting for insect investigations. Easily accessible are bogs, wetlands, rivers and brooks, deciduous and coniferous woods, even cliffs and other openings.

"We're looking forward to welcoming folks from Maine for a great weekend of collecting, sharing, and socializing," said Bryan Pfeiffer, vice president of the VES. "And our site, between the towns of Groton and Marshfield, isn't far from the Maine border."

The two groups will convene Saturday morning, July 24, for a full day in the field. Participants will want to pack a lunch for that day. On Saturday evening, we'll gather together for supper. And we may line up a speaker for Saturday night. After breakfast Sunday will be another day in the field. VES expects to have a "lab room" accessible near our sites for stereoscopes, Berlese funnels, or other equipment.

Details of the joint meeting are still being developed. Camp sites are abundant in Groton State Forest, however, there are no hookups for campers. Lodging is limited in the Groton area, but with advance notice the VES can line up a few motel rooms or can offer space to visitors in the homes of members who live nearby.

To join the VES-MES gathering, please contact Bryan Pfeiffer at bryan@vermontbirdtours.com or (802) 454-1874 as soon as possible. In order to finalize plans for the event, we need to know soon who will be attending.



The Bug Mug Shot: An Arctic Tussock

Order: Lepidoptera (Moths and Butterflies)

There are more than 3000 species of Lepidoptera found in Maine of which 114 are butterflies and skippers and the rest moths.

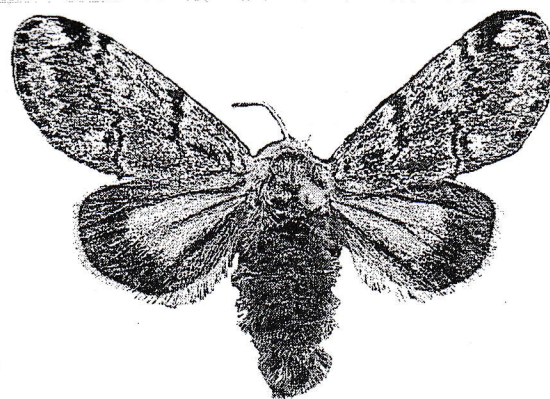
Family: Lymantriidae (Tussocks). This family, also known as Liparidae, contains more than 2500 species worldwide but is represented in North America by only 32 species of which 3 have been introduced. We have 12 species in Maine. In spite of the small number of species in North America nearly a third of these are considered significant pests!

Species: *Gynaephora rossii* (Curtis). This fascinating holartic, arctic/alpine species occurs in Maine only above 4500 feet on Mt. Katahdin. More commonly found only in the tundra of the Canadian arctic and in Siberia and Japan, *G. rossii* strays south into the United States only to Mt. Katahdin in Maine and Mt. Washington and Mt. Jefferson in New Hampshire in the East and to the mountains of the West. It's ability to withstand and seemingly prefer severe cold and extremely short seasons is unique. It is not considered a pest.

Description: The wingspan of the grayish-tan adults ranges from 3.0 to 3.5 cm. On the forewings there are dark costal spots with the subapical one the largest, a dark discal lunule and a thin antemedial dark band. The hind wing is translucent tannish-yellow with a broad dark gray border. The body of the female is much broader and heavier than the male and the antennae much less feathery. The slate gray to dark, grayish-brown caterpillar is a true tussock with eight distinct hair tufts (tussocks) on the dorsum of the abdomen. These tufts are sometimes difficult to see as they are the same length as surrounding hair. All other tussocks have only five abdominal tussocks.

Primary Habitat: Open tundra. In Maine, this species is found only on the Tableland and a few other similar areas of Mt. Katahdin.

Life History: This creature with its sibling species from Greenland, *G. groenlandica* (Wocke), probably hold the record for the longest lifespan of any of the Lepidoptera, up to 10 to 15 years. The entire life cycle varies from place to place and year to year. In Maine it has been estimated to take from 2 to 3 years to complete although it has been said to take up to 7 in some cases. Moth emergence can vary within a single season and between seasons. Moths have been very common in some seasons and almost non-existent in others. Moths, generally males, on Mt. Katahdin have been seen in flight during the day from the last of May to the middle of July. The eggs of *G. rossii* are laid in clusters in a protected area either on the cocoon or on a twig or rock surface within their habitat. Eggs hatch within the same season. The caterpillars overwinter and are able to withstand freezing and thawing for several years before pupating. All of the extended life cycle occurs within the caterpillar stage. During warmer days, even with remnant snow present, the dark fuzzy caterpillars can be seen wandering about and feeding on a wide variety of ericaceous and rosaceous hosts. With colder weather they seek protection within the scrub growth or rock fields and may remain there for many months.



A female *Gynaephora rossii*. Photo by Gary Anweiler. Used with permission of the Alberta Lepidopterists' Guild.

Get the BUZZZZ on How to Host a Great BEE-day Party For Kids



Beehive Pinata

Materials: newspaper, Elmer's glue, large round balloon, petroleum jelly, paint, white or tan tissue paper, tape, strong nylon string, yellow paper, scissors, heavy duty thread, candy, broom handle or stick

1. Rip or cut up newspaper to about 1 by 3 inch strips.

2. Blow up the balloon to the size you want

the beehive to be. Smear petroleum jelly all over the balloon and place it in a bowl that has also been smeared with petroleum jelly. The bowl should be big enough to fit only about 1/4 of the balloon in. The bowl will hold the balloon in place and keep it from rolling around while you work.

3. Cover your work area with old newspapers or a plastic drop cloth.

4. Prepare the glue mixture in a medium size bowl. To start mix 1/4 cup glue with 1/2 cup water.

5. Soak some of your paper strips in the glue mixture for a minute or two. Remove one strip at a time pulling the strips between your fingers to get rid of any excess glue and place them on the balloon to form the beehive. (It is important not to use too much glue or it will take too long to dry). Cover the whole balloon with one layer of newspapers overlapping them slightly so that there are no holes.

7. When you have finished the first layer place the balloon with the bowl in a warm place to dry overnight. Repeat this process.

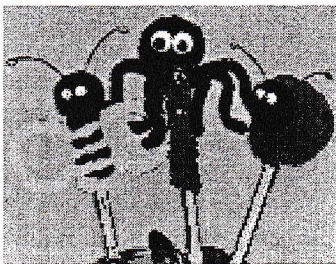
8. Wind your nylon string around the balloon a couple of times ending with both ends of the string at the top of the balloon. You may have to tape the string in place. Cover the entire balloon again a few times. When all the layers have dried thoroughly remove the balloon from the bowl and punch a hole in it so that the air is released. Remove the balloon carefully.

9. Cut 2 inch strips of white or tan tissue paper. Starting in the middle of the beehive tape the tissue paper around the hive. Add new layers overlapping slightly as you work your way to the top and bottom of the hive.

10. Fill the beehive with candy.

11. Cut out bees and glue them to the beehive. Hang some bees from thread. Glue two bees together so that you can see the bee from both sides.

12. Hang the pinata from a tree branch and have blindfolded kids try to break it with the broom handle to get the candy.



Bee Pencil Party Favor

Materials: yellow and black pipe cleaners, 3/4 inch black pompom, black heavy gage florist wire, tiny googly eyes, hot melt glue, needle nose pliers, and a pencil.

1. Fold black and yellow pipe cleaners in half. Wind the folded black pipe cleaner around the end of the pencil leaving spaces around each turn.

2. Wind the yellow folded pipe cleaner around the end of the pencil in between the black pipe cleaner. Push the pipe cleaners up toward the end of the pencil. Glue them down so they stay in place

3. Glue the black pompom on top for the head.

4. Cut a small piece of wire and bend down the ends with some needle nose pliers to make the antennae.

Make two holes in the black pompom. Place a drop of glue on the end of each antenna and press them into the holes. Press the fur around the end of the antenna.

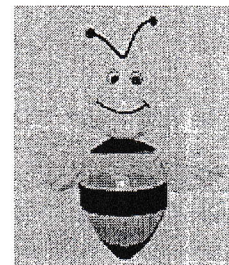
5. Glue on googly eyes.

6. Cut two pieces of yellow pipe cleaners for the wings. Bend them into a wing shape and glue them onto the bee's side.

NOTE: For instructions on how to create the other pencils pictured, please visit www.daniellesplace.com.

Bee Balloon Decoration

Materials: two large yellow balloons, yellow and black tissue paper, Paper glue (rubber cement), black permanent marker, black pipe cleaner, small black pompoms, tape, and black heavy duty thread to hang.



1. Blow up the two yellow balloons, one half the size of the other. Glue them together using rubber cement pressing the two rounded ends together. To glue together paint the rubber cement on each of the balloons and let dry for a few seconds and then press together.

2. Cut a strip of black tissue paper about 4 inches wide and tape around the center of the body. Cut two large circles of black tissue paper. Use a plate to trace around. Cut into the circles and cut out the center. Place one circle around the neck of the bee like a collar. Cut off any extra tissue paper and tape the tissue paper down. Do the same at the bottom of the bee.

3. Crinkle up a sheet of yellow tissue paper bringing the long side of the tissue paper together to form wings. Tape at the center. Cut the wings to the right size. Tape them to the back of the bee at the neck area.

4. Fold a black pipe cleaner in half, glue a pompom to each end of the pipe cleaner, and wrap it around the knot on the top of the bees head.

5. Draw on eyes and a mouth with a black permanent marker.

6. Tie a piece of thread to the top of the head to hang the bee.

Bug Eyes Party Headband

Materials: Construction paper, pipe cleaners, tape, stapler, pompoms, paper, markers or crayons, scissors, and glue.



1. Cut a band from the construction paper large enough to fit around each child's head (tape two pieces together if you need it longer) and staple the ends together. Cover the staple

with tape so that the staple doesn't scratch the child's head.

2. Show the child how to wind a pipe cleaner around a pencil to make it into a spring shape.

3. Place a small amount of glue at the end of the pipe cleaner and push it into a pompom for each antenna then staple inside the band.

4. Let the children draw eyes on a piece of paper and cut them out and then tape them to the band.

Continued on Page 10

Game: Honeypot!

Materials: brown lunch bags, raffia, yellow ping-pong balls, black permanent marker, individually wrapped candy

1. Roll down the tops of the brown lunch bags and tie raffia around them so they look like honey pots.
2. Color black stripes on the ping-pong balls so they look like bees.
3. To play, have kids bounce the "bees" into the honey pots.
4. When they get one in, they have to call out "Honeypot!" (kind of like Jackpot) and they get to take a piece of candy out of the bag they got it in.

Game: Bee in Your Shirt

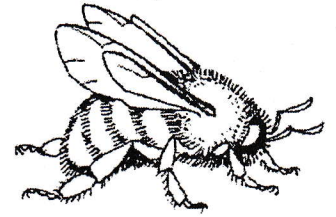
Materials: 2 long lengths of yarn, 2 plastic bees

1. Divide the children into two teams and give each team a length of yarn with a bee tied to the end.
2. Have the first player on each team put the bee down their shirt and pull the string through.
3. The first player then hands the bugs to the second player in line and he does the same thing and so on until the end of the line.
4. Then reverse it and send it all the way back to the first player.
5. The first team to get the bee all the way back to the first player wins.
6. You can play "Flight of the Bumblebee" while they play if you want.

Game: Pin the Bee on the Flower

Materials: construction paper, tape, blindfold

1. Make a large daisy-like flower out of the construction paper and mount it on a wall at child height.
 2. Cut out one bee shape for each child, label it with their name, and put a piece of tape on the back.
- To play, blindfold the first child and spin them around then have them try to stick the bee in the center of the flower. Repeat with all the other kids. The one who gets closest to the center of the flower wins.



You can use a few or all of these ideas to create a wonderful bee-themed party for your child (or for your friends since entomologists tend to be a kooky bunch). Of course there are lots of other little touches that you can add as well including having a cake decorated with bumblebees, have honey sticks as party favors or prizes, have the kids make a bug catching jar, and many more.

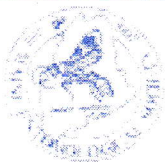
All four of the crafts/decorations shown previously on page 9 were modified from activities created by Carolyn Warvel. She has these activities and many other insect-related crafts posted on her website at www.daniellesplace.com. She has granted us permission to reproduce them here (along with the accompanying photos), but asked that we remind folks that they are copyrighted and for personal use only. The games are modified from common children's games.

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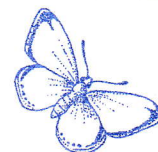
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The Maine Entomologist

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Produced in partnership with the Maine Department of Inland Fisheries and Wildlife



A Checklist of Maine Butterflies

The following checklist summarizes our current knowledge of the butterfly species known from Maine. Information on the occurrence of these species comes from a variety of sources, including Brower (1974) and other publications, specimens contained in all major northeastern museums and many private collections, the Maine Department of Inland Fisheries and Wildlife (MDIFW) ecoregional survey project, and MDIFW's rare species tracking database. A detailed list of contributing data sources will be published in a comprehensive treatment of Maine's butterfly fauna at a later date.

Brower (1974) listed 103 species of butterflies and skippers for the state. Following a review of the sources listed above, eleven additional species have been added bringing the state's total list to 114 species. A few of the additions are the result of taxonomic changes that split formerly one species into two, but most result from new species discoveries. Five of the 114 species are believed extirpated from Maine and ten have been listed as state endangered or special concern by MDIFW. Much has been learned regarding butterfly species rarity and threat in Maine since the previous state-listing process in 1997 (McCullough et al. 2003), and several revisions, mainly additions to the endangered and special concern list, are anticipated.

The nomenclature followed in this list follows Opler and Warren (2003) and includes all recent changes in nomenclature since the Miller and Brown (1981) *Catalogue/Checklist of the Butterflies of America North of Mexico* and the supplement by Ferris (1989).

Acknowledgments:

This checklist is the product of a larger baseline atlas and conservation assessment of Maine's butterfly fauna supported by a grant from the Maine Outdoor Heritage Fund. Further support for the project has been provided by the Maine Chapter of The Nature Conservancy, the Maine Department of Conservation (Maine Forest Service), and proceeds from MDIFW's Nongame and Endangered Wildlife Fund (conservation license plate and state income tax Chickadee Checkoff). We are thankful for review of the checklist by Beth Swartz (MDIFW).

Literature Cited:

Brower, A. E. 1974. A list of the Lepidoptera of Maine – Part 1. The Macrolepidoptera. Technical Bulletin 66. University of Maine, Orono, 136 pp.

Emmel, J. F. and G. F. Pratt. 1998. New subspecies of Lycaeninae from California and a type locality restriction for *Chrysophanus cupreus* W. H. Edwards (Lepidoptera: Lycaenidae). "Systematics of Western North American Butterflies". Gainesville, Florida: Mariposa Press. Pp. 661-680.

Ferris, C. D., editor. 1989. Supplement to: A catalogue/checklist of the butterflies of America north of Mexico. *Memoirs of the Lepidopterists' Society* 3: 1-103.

McCullough, M., C. Todd, B. Swartz, P. deMaynadier, and H. Givens. 2003. Maine's Endangered and Threatened Wildlife. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 117 pp.

Miller, L. D. and F. M. Brown. 1981. A catalogue/checklist of the butterflies of America north of Mexico. *Memoirs of the Lepidopterists' Society* 2: 1-280.

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-Reginald P. Webster & Phillip G. deMaynadier

Scientific Name	Subspecies	Common Name	Status ¹
Family Hesperidae		Skippers	
<i>Epargyreus clarus</i> (Cramer)		Silver-spotted Skipper	R
<i>Thorybes pylades</i> (Scudder)		Northern Cloudywing	R
<i>Thorybes bathyllus</i> (J. E. Smith)		Southern Cloudywing	R
<i>Erynnis icelus</i> (Scudder & Burgess)		Dreamy Duskywing	R
<i>Erynnis brizo</i> (Boisduval & LeConte)		Sleepy Duskywing	R
<i>Erynnis juvenalis</i> (Fabricius)		Juvenal's Duskywing	R
<i>Erynnis persius</i> (Scudder)		Persius Duskywing	EX
<i>Pholisora catullus</i> (Fabricius)		Common Sootywing	R?
<i>Carterocephalus palaemon</i> (Pallas)	<i>mandon</i> (W. H. Edwards)	Arctic Skipper	R
<i>Ancyloxypha numitor</i> (Fabricius)		Least Skipper	R
<i>Thymelicus lineola</i> (Ochsenheimer)		European Skipper	R
<i>Hesperia comma</i> (Linnaeus)	<i>laurentina</i> (Lyman)	Laurentian Skipper	R
<i>Hesperia leonardus</i> Harris		Leonard's Skipper	R
<i>Hesperia metea</i> Scudder		Cobweb Skipper	R
<i>Hesperia sassacus</i> Harris		Indian Skipper	R
<i>Polites peckius</i> (W. Kirby)		Peck's Skipper	R
<i>Polites themistocles</i> (Latreille)		Tawny-edged Skipper	R
<i>Polites origines</i> (Fabricius)		Crossline Skipper	R
<i>Polites mystic</i> (W. H. Edwards)		Long Dash Skipper	R
<i>Wallengrenia egeremet</i> (Scudder)		Northern Broken Dash	R
<i>Pompeius verna</i> (W. H. Edwards)		Little Glassywing Skipper	S
<i>Anatrytone logan</i> (W. H. Edwards)		Delaware Skipper	R
<i>Poanes hobomok</i> (Harris)		Hobomok Skipper	R
<i>Poanes viator</i> (W. H. Edwards)	<i>zizaniae</i> (Shapiro)	Broadwinged Skipper	R
<i>Euphyes bimacula</i> (Grote & Robinson)		Two-spotted Skipper	R
<i>Euphyes vestris</i> (Boisduval)	<i>metacomet</i> (Harris)	Dun Skipper	R
<i>Amblyscirtes hegon</i> (Scudder)		Pepper & Salt Skipper	R
<i>Amblyscirtes vialis</i> (W. H. Edwards)		Common Roadside Skipper	R
Family Papilionidae		Swallowtails	
<i>Battus philenor</i> (Linnaeus)		Pipevine Swallowtail	S
<i>Papilio polyxenes</i> Fabricius		Black Swallowtail	R
<i>Papilio glaucus</i> Linnaeus		Eastern Tiger Swallowtail	S
<i>Papilio canadensis</i> Rothschild & Jordan		Canadian Tiger Swallowtail	R
<i>Papilio troilus</i> Linnaeus		Spicebush Swallowtail	S, SC
<i>Papilio cressphontes</i> Cramer		Giant Swallowtail	S
Family Pieridae		Sulphurs and Whites	
<i>Pontia protodice</i> (Boisduval & LeConte)		Checkered White	S
<i>Pieris rapae</i> (Linnaeus)		Cabbage Butterfly	R
<i>Pieris oleracea</i> Harris		Mustard White	R
<i>Colias philodice</i> Godart		Clouded Sulphur	R
<i>Colias eurytheme</i> (Boisduval)		Alfalfa Butterfly	R
<i>Colias interior</i> Scudder		Pink-edged Sulphur	R
<i>Phoebis sennae</i> (Linnaeus)		Cloudless Sulphur	S
<i>Phoebis philea</i> (Linnaeus)		Orange-barred Sulphur	S
<i>Phoebis agarithe</i> Boisduval		Large Sulphur	S
<i>Pyrisitia lisa</i> (Boisduval & LeConte)		Little Sulphur	S
Family Lycaenidae		Hairstreaks, Blues, Coppers, and Harvesters	
Subfamily Miletinae		Harvesters	
<i>Feniseca tarquinius</i> (Fabricius)		Harvester	R
Subfamily Lycaeninae		Hairstreaks, Blues, and Coppers	
<i>Lycaena phlaeas</i> (Linnaeus)	<i>hypophlaeas</i> Boisduval; not <i>americana</i> Harris (See Emmel & Pratt 1998)	American Copper	R
<i>Lycaena hyllus</i> (Cramer)		Bronze Copper	R
<i>Lycaena epixanthe</i> (Boisduval & LeConte)		Bog Copper	R
<i>Lycaena dorcas</i> (W. Kirby)	<i>claytoni</i> Brower	Clayton's Copper	R; EN

Scientific Name	Subspecies	Common Name	Status ¹
<i>Callophrys hesseli</i> (Rawson & Ziegler)		Hessel's Hairstreak	R; EN
<i>Callophrys gryneus</i> (Hübner)		Juniper Hairstreak	R; SC
<i>Callophrys augustinus</i> (Westwood)		Brown Elfin	R
<i>Callophrys polios</i> (Cook & Watson)		Hoary Elfin	R
<i>Callophrys irus</i> (Godart)		Frosted Elfin	EX
<i>Callophrys henrici</i> (Grote & Robinson)		Henry's Elfin	R
<i>Callophrys lanoraieensis</i> (Sheppard)		Bog Elfin	R; SC
<i>Callophrys niphon</i> (Hübner)	<i>clarki</i> (T. N. Freeman)	Eastern Pine Elfin	R
<i>Callophrys eryphon</i> (Boisduval)		Western Pine Elfin	R; SC
<i>Satyrium titus</i> (Fabricius)		Coral Hairstreak	R
<i>Satyrium acadica</i> (W. H. Edwards)		Acadian Hairstreak	R
<i>Satyrium edwardsii</i> (Grote & Robinson)		Edward's Hairstreak	R; EN
<i>Satyrium calanus</i> (Hübner)	<i>falacer</i> (Godart)	Banded Hairstreak	R
<i>Satyrium liparops</i> (LeConte)	<i>strigosum</i> (Harris)	Striped Hairstreak	R
<i>Strymon melinus</i> (Hübner)		Grey Hairstreak	R
<i>Erora laeta</i> (W. H. Edwards)		Early Hairstreak	R
<i>Cupido comyntas</i> (Godart)		Eastern Tailed Blue	R
<i>Cupido amyntula</i> (Boisduval)	<i>maritima</i> (LeBlanc)	Western Tailed Blue	R
<i>Celastrina lucia</i> (W. Kirby)	Populations from northern black spruce bogs may represent another species. <i>C. ladon</i> (Cramer) applies to another species that has not yet been found in Maine but could occur in southern parts of the state.	Spring Azure (and what is often referred to as the Cherry Gall Azure)	R
<i>Celastrina neglecta</i> (W. H. Edwards)		Summer Azure	R
<i>Glaucopsyche lygdamus</i> (Doubleday)	<i>couperi</i> Grote	Silvery Blue	R
<i>Plebejus idas</i> (Linnaeus)	<i>empetri</i> (T. N. Freeman)	Crowberry Blue	R; SC
<i>Plebejus melissa</i> (W. H. Edwards)	<i>samuelis</i> Nabokov	Karner Blue	EX ²
<i>Plebejus saepiolus</i> (Boisduval)	<i>amica</i> (W. H. Edwards)	Greenish Blue	R
Family Nymphalidae		Brushfoots, Monarchs, Satyrs	
Subfamily Libytheinae		Snouts	
<i>Libytheana carinenta</i> (Cramer)	<i>bachmanii</i> (Kirtland)	Eastern Snout	S
Subfamily Danainae		Monarchs or Milkweed Butterflies	
<i>Danaus plexippus</i> (Linnaeus)		Monarch	R
Subfamily Heliconiinae		Fritillaries	
<i>Euptoieta claudia</i> (Cramer)		Variegated Fritillary	S
<i>Speyeria cybele</i> (Fabricius)		Great Spangled Fritillary	R
<i>Speyeria aphrodite</i> (Fabricius)		Aphrodite Fritillary	R
<i>Speyeria idalia</i> (Drury)		Regal Fritillary	EX
<i>Speyeria atlantis</i> (W. H. Edwards)		Atlantis Fritillary	R
<i>Boloria eunomia</i> (Esper)	<i>dawsoni</i> (Barnes & McDunnough)	Bog Fritillary	R; SC
<i>Boloria selene</i> (Denis & Schiffermüller)	Two poorly differentiated subspecies occur in Maine; <i>myrina</i> (Cramer) in the southwest, and <i>atrocostalis</i> (Huard) in the north. A broad blend zone occurs across central Maine.	Silver-bordered Fritillary	R
<i>Boloria bellona</i> (Fabricius)		Meadow Fritillary	R
<i>Boloria frigga</i> (Thunberg)	<i>saga</i> (Staudinger)	Frigga Fritillary	R
<i>Boloria chariclea</i> (Schneider)	<i>grandis</i> (Barnes & McDunnough)	Purple Lesser Fritillary	R
Subfamily Nymphalinae		Checkerspots, Tortoiseshells, Commas, and Ladies	
<i>Chlosyne nycteis</i> (Doubleday)		Silvery Checkerspot	R
<i>Chlosyne harrisii</i> (Scudder)		Harris's Checkerspot	R
<i>Phyciodes tharos</i> (Drury)		Pearl Crescent	R
<i>Phyciodes cocyta</i> (Cramer)		Northern Pearl Crescent	R
<i>Phyciodes batesii</i> (Reakirt)		Tawny Crescent	EX
<i>Euphydryas phaeton</i> (Drury)		Baltimore Checkerspot	R
<i>Junonia coenia</i> Hübner		Common Buckeye	S
<i>Polygonia interrogationis</i> (Fabricius)		Question Mark	R

Scientific Name	Subspecies	Common Name	Status ¹
<i>Polygonia faunus</i> (W. H. Edwards)		Green Comma	R
<i>Polygonia gracilis</i> (Grote & Robinson)		Hoary Comma	R
<i>Polygonia progne</i> (Cramer)		Grey Comma	R
<i>Roddia vaualbum</i> (Dennis & Schiffermüller)		Compton Tortoiseshell	R
<i>Aglais milberti</i> (Godart)		Milbert's Tortoiseshell	R
<i>Nymphalis antiopa</i> (Linnaeus)		Mourning Cloak	R
<i>Vanessa atalanta</i> (Linnaeus)		Red Admiral	R
<i>Vanessa cardui</i> (Linnaeus)		Painted Lady	R
<i>Vanessa virginiensis</i> (Drury)		American Lady	R
<i>Limenitis arthemis</i> (Drury)	The northern limit of the blend zone between the subspecies <i>L.a. astyanax</i> (Fabricius) (Red Spotted Purple) and <i>L. arthemis</i> occurs in southwestern Maine where some individuals may show reduced white banding on the wings and rare individuals may closely resemble the Red Spotted Purple phenotype.	White Admiral	R
<i>Limenitis archippus</i> (Cramer)		Viceroy	R
Subfamily Satyrinae		Satyrns and Arctics	
<i>Enodia anhedon</i> A. H. Clark		Northern Pearly-Eye	R
<i>Satyroides eurydice</i> (Linnaeus)		Eyed Brown	R
<i>Satyroides appalachia</i> (R. L. Chermock)		Appalachian Brown	R
<i>Megisto cymela</i> (Cramer)		Little Wood Satyr	R
<i>Coenonympha tullia</i> (Hübner)	<i>Inornata</i> W. H. Edwards	Inornate Ringlet	R
<i>Cercyonis pegala</i> (Fabricius)	In southwestern Maine is subspecies <i>alope</i> (Fabricius) which has a well developed yellowish to orange patch on the forewing. In northern Maine is subspecies <i>nephele</i> (Kirby) which lacks the forewing patch. A broad blend zone occurs between these two subspecies in southern and coastal Maine as far east as Calais producing phenotypes of intermediate appearance.	Common Wood Nymph	R
<i>Oeneis jutta</i> (Hübner)	<i>ascerta</i> (Masters & Sorensen)	Jutta Arctic	R
<i>Oeneis polixenes</i> (Fabricius)	<i>katahdin</i> (Newcomb)	Katahdin Arctic	R; EN

1: R = Breeding resident; S = Stray or rare temporary colonist; EX = Extirpated; EN = State Endangered; SC = State Special Concern
2: *Plebejus melissa samuelis* (Kamer Blue) is the only federally endangered butterfly in Maine; It is now extirpated.

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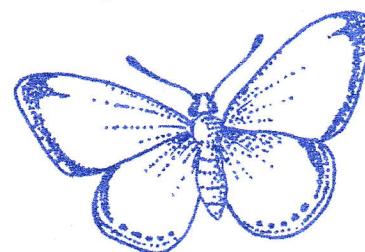
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