

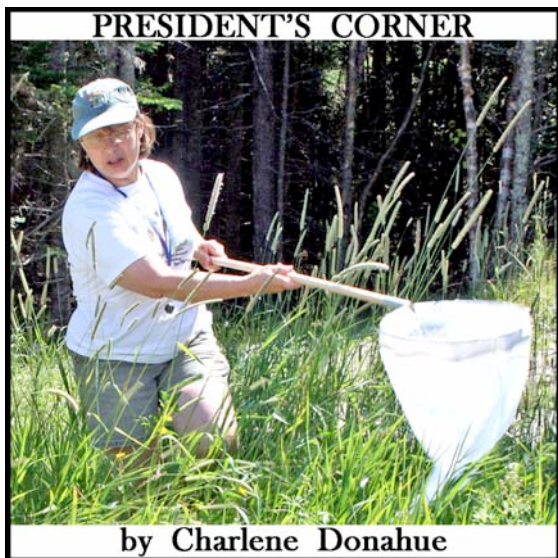
# The Maine Entomologist

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

The Official Newsletter of the Maine Entomological Society

Vol. 17, No. 4

November, 2013



People ask what entomologists do in the wintertime.

Really, there are never enough hours to get all the specimens processed, identified and catalogued. Or enough time to fully research, reflect and plan the next season's work or to fully write up and disseminate reports on the past season's work. But that means that life is never boring. As we move into winter, we start planning for next year and considering what are the best ways to accomplish our goals. Is there a new method or tool can we re-purpose to monitor or collect insects more easily or efficiently? Can we draw on other's work or expertise to expand our understanding of Maine insects?

Tools we use in surveying for insects are often simple or innovative uses of common items. Think of pitfall traps. You dig a hole using a bulb planter and put in your basic 16 oz. plastic beer cup either carefully smoothing the soil up to the rim or adding a collar so that there is no lip to dissuade a wandering insect from falling in. Yellow bowls can be purchased at department stores, set on the ground, filled with water and a bit of detergent to break the surface tension, and collected the next day. These traps attract bees, wasps and aphids in particular. Gypsy moths are caught in 'milk carton' traps. Although now commercially produced, they are just quart-sized cardboard milk cartons with some slots cut in the sides to allow the moths entry with a rain shield, lure and kill strip added.

Recently a friend emailed me about using Google Street View to scout for invasive species (see <http://tinyurl.com/ntujuhg>). At the MFS Lab we have actually used both that and Google Earth in our survey work. We located some of the Emerald Ash Borer (EAB) purple trap trees using Google Earth photos that had been taken in the spring after many hardwoods had leaved out, but before the ash leaves had emerged.

Another way we have utilized Google Earth photos is searching for *Cerceris* wasp nesting sites. If there is an area

of the state that we want to monitor for EAB, then we scan the photos for ball fields and gravel pits, two favorite haunts of *Cerceris*. We have used Google Street View to check out areas where people have reported possible invasive insect damaged trees. This allows us see if the trees are 1) host trees 2) have damage matching that of the invasive. This way we can prioritize our field visits.

Innovative applications of simple, common-use products are utilized by entomologists in many settings.

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## How Bizarre, How Bizarre .....

The other day while looking for something totally innocuous, I came across a web site with photos of a highly unusual fly from Dubai: the darkened pattern on the wings looks just like a spider or ant, so that when the wings are spread, the fly is potentially protected from predators who may not want to mess with the alleged "ants" or "spiders" on either side of it!

- Bob Nelson



The spider-winged fly, *Goniurellia tridens*.

Photo from:

<http://whyevolutionistrue.wordpress.com/2013/11/05/fly-with-ant-mimic-wings/>

## Inside:

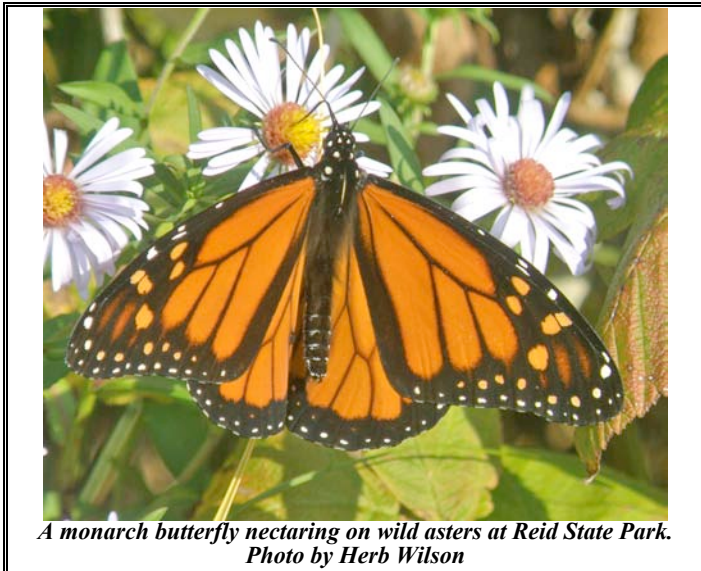
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## IMPORTANT DUES REMINDER!

M.E.S. dues are payable on a calendar-year basis. If you haven't already done so, please renew now for 2014; you'll find an insert inside this newsletter, that will also allow you to order M.E.S. T-shirts and sweatshirts; Treasurer Dana Michaud's name and mailing address are also at the bottom of the back page for your convenience. Dues are \$10 per year, and may be paid up to two years in advance. If the year on your mailing label is "2013", please contact Dana to renew for 2014 or correct the record.

## Where are the Monarchs? by Herb Wilson

Where are the Monarchs? This question was posed many times this summer by volunteers for the Maine Butterfly Survey. Some volunteers failed to see a single one of these orange and black beauties. Few observers saw more than ten Monarchs. Are Monarchs disappearing from Maine?



*A monarch butterfly nectaring on wild asters at Reid State Park.  
Photo by Herb Wilson*

We would be more concerned to see such precipitous declines in resident butterflies like Acadian Hairstreaks, Bog Coppers, Baltimore Checkerspots or Indian Skippers. The Monarch, however, is a migrant. Poor reproduction in Maine will not necessarily translate into lower numbers of Monarchs next year. The complex life cycle involving five or six generations a year, scattered across the continent, make it difficult to understand exactly why Monarchs are scarce or abundant at any particular place. The population dynamics of Monarchs depend on a chain of events.

The amazing southward migration of Monarchs has been appreciated for quite a while. We have long known that populations west of the Rocky Mountains moved south to winter in about 150 winter roost sites from San Francisco south to northern Baja California. These roost sites are usually within a couple of miles of the Pacific Ocean. Each site usually has between 10,000 and 40,000 butterflies. As you can well imagine, coastal development has threatened a number of these roost sites.

But, where do the eastern migrating Monarchs spend the winter? The answer was not known until 1975, when a researcher named Fred Urquhart announced a surprising discovery. Each fall, all of the eastern Monarchs in Canada and the United States empty out, migrating to Oyamel Fir forests in the mountains of central Mexico. The fall migration commences in August and continues into December. Urquhart amazed everyone with pictures of millions of Monarchs roosting in layers on trees, weighting down branches.

About a dozen overwintering sites are known in Mexico. All are within an area of about 500 square miles in a belt of volcanic mountains stretching across Mexico. Conservation biologists are working hard to preserve these habitats and ecotourism is flourishing at these sites. Nevertheless, logging pressure poses a major threat.

As winter gives way to spring, the Monarchs become more active and start to mate. After mating, northward migration begins. Once mated, the butterflies have only a month or so to live. Along the northward migration, the females lay eggs on milkweeds along the way. Milkweed

leaves provide the nutrition for the caterpillars. The migrating butterflies continue north and east with some reaching the Gulf coast states before they die. Meanwhile, the eggs laid along the way have hatched and the gluttonous caterpillars grow rapidly. Nine to 14 days after hatching, the caterpillar enters the pupal or chrysalis stage. During the next eight to 11 days, the tissues of the caterpillar are transformed into the body of an adult butterfly.

These newly emerged Monarchs (the offspring of the overwintering generation) continue northward, laying eggs along the way and ultimately perishing. Each female can lay 500 eggs. Most are laid singly on a milkweed plant. In this leapfrog manner, all of the eastern United States and southern Canada are repopulated. The Monarchs that reach us may be the great-grandchildren of the overwintering population!

The Monarchs that will migrate back to central Mexico emerge in the fall. These butterflies do not become reproductive but rather go into reproductive diapause. They will not be able to mate until the following spring on the wintering grounds in Mexico. Unlike the other adults from other generations that have only a month or so to live, these overwintering Monarchs may live for seven months.

Perhaps the most remarkable aspect of this tale is the "hard-wiring" in the migrating Monarchs. Even though they have never made the journey to central Mexico, the migratory behavior and direction are genetically encoded.

Monarchs are clearly less abundant now than they were 25 years ago. But why? Is it the use of insecticides or loss of habitat in Oklahoma? In Maine? Is it winter habitat destruction? The marvelously complex life cycle makes it extremely difficult to isolate causes of decline. We can do our part by planting milkweeds and by supporting conservation efforts (particularly conservation of open grassland habitats)

I encourage anyone wishing to learn more about these remarkable butterflies to read Sue Halpern's marvelous book, *Four Wings and a Prayer*. Her prose is lyrical and her accounts of field expeditions with established Monarch researchers are fascinating.

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## The Banana Bait Feeder – Revisited by Richard Hildreth

In the February, 2013 (Vol. 17, no. 1) issue of the M.E.S. newsletter, was my article singing the praise of banana bait feeders and describing how to build one.

During the 2012 field season, banana bait feeders were a great success at my cabin in Steuben, attracting many butterflies and other insects and defeating the intentions of the local raccoons. All seemed to be well. I left my banana feeders outside (probably unwisely) during the 2012-2013 winter.

When I got back to Steuben this spring, I was horrified to see that the feeders had not weathered the winter well. The galvanized wire was actually rusty. The wire also seemed to be coming apart.

I hadn't taken into account the popular trend in American commerce: the constant adulteration of products to make them use less material to manufacture. The 1/4" hardware cloth is no longer "up to the task." The wire is finer, the galvanizing is thinner, and the welding of the wire is just barely enough to hold it together. I could rip it apart with my hands.

All too soon, the raccoons also figured this out and destroyed a couple of my feeders.

To solve the problem, I rebuilt the feeders, this time using 1/2" hardware cloth, which uses heavier wire and seems to be a bit better welded. SO, if you decide to build one, I would recommend using the more robust 1/2" wire mesh.

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## Maine Buprestid Biosurveillance Update: Surprising Benefits from a Directed Program

by Colleen Teerling

Many of you are probably familiar with *Cerceris fumipennis*, the native wasp that we have been using to monitor for emerald ash borer (EAB). The female wasps hunt buprestid adults, paralyze them and bring them home to feed to their young. You may also have heard that last year in Connecticut, EAB was first discovered by volunteer wasp watchers doing biosurveillance with *Cerceris fumipennis*. *Cerceris* was also responsible for a new find in a neighboring county in CT this summer.

*Cerceris* is also useful in monitoring for other potentially damaging invasive buprestids. Next summer, the Maine Forest Service will be using biosurveillance to monitor for *Agilus biguttatus* (oak splendor beetle) and *A. auroguttatus* (goldspotted oak borer).

But beyond pest management, *Cerceris* is an intriguing partner for the entomologist. Many buprestids are notoriously difficult to collect, and are not common in collections. The MFS entomology lab has an extensive insect collection going back over 50 years. In it, we have 57 buprestid species from 12 genera. However, in just three years of biosurveillance, we have collected 33 species in 9 genera. During those three years, we collected 6 species that were new to our collection. We also discovered three new state records: *Chrysobothris blanchardi*, *Dicerca asperata*, and *Spectralia gracilipes*. In addition to being a new species, *Spectralia* was also a genus that had never before been seen in Maine. There may be other buprestid species out there that we have never seen, but with our new buprestid-hunting partner, who knows what we will find next year?

\* \* \* \* \*

## Ant Expedition in Baxter State Park

by Charlene Donahue

The second week in July, six ant collectors met at South Branch Pond Campground in Baxter State Park. The lead scientist was Aaron Ellison, Harvard Forest, and he had the collecting permit from the Park. The other collectors were me, MES President; Dana Michaud, MES Treasurer; David Bourque, MES Member-at-Large; Kaitlyn O'Donnell, MES member/UM graduate student, and last but not least, Kyle Bradford, Eagle Hill Ant class 2013 student. We had a strict sampling protocol to follow, both for Aaron's analysis of the samples and to comply with Park research permit requirements.

After setting up our tents, we gathered our collecting gear and headed for the north peak of Traveler Mountain about 2 p.m. of the first day. Although a few stray ants were collected low down on the mountain, we started the first real survey work just shy of the true peak. Two perpendicular transect lines were run to delineate a 50x50 meter square plot, where we spent a one-hour equivalent (actual time spent depends on how many people were at a plot) searching for ant nests and collecting ants within the area. A duff sample was taken as well, that was sifted through back at the camp site. Nests were found primarily by turning over rocks and logs (and then replacing them.) The black flies were fierce – see group photo and note the black specks. That is not dirt on the lens, those are black flies.

We set up more collecting sites in different habitats as we descended the mountain, following the same procedure. Luckily the black flies were the worst near the mountain top, but they moderated somewhat as we descended. Even so, we were all pretty bit up and glad to go for a dip in the pond before a quick supper and bed.



Le Force d' Formicidae of Traveler Mountain, from left to right: Aaron Ellison, Dave Bourque, Dana Michaud, Charlene Donahue, Kyle Bradford and Kaitlyn O'Donnell.

On day two, we split into two groups, with one group doing a traverse of the Traveler Mountain peaks and the second group sampling along the Pond shore. Again we chose different habitat types for each collection site and sampled for a one-hour equivalent. Back at camp we added tracking labels to vials and processed duff samples. After supper we divided up into teams and sampled habitats within the campground area, finally stopping at dusk – it's hard to collect in the dark.

The third day Dana, Dave and I headed out, as we were headed to the Bioblitz at Acadia National Park. The other three stayed and continued collecting. Walkie-talkies proved useful in keeping in contact as we spread out, setting up collection sites and communicating plans between groups. I was pleased with the range the walkie-talkies had in the mountains. Scarves protected necks from black flies and having the pond to swim in was a bonus.

Being entomologists, we noted other insects as well. Two finds that were particularly interesting was a grasshopper found on top of the mountain - more about that in another article in this issue. Another interesting find was a beautiful oyster mushroom that we wanted to pick and eat but left for the beetles instead, as good stewards of the Park. These are *Triplex* sp. beetles that feed on fungi.



*Triplex* sp. on oyster mushroom in Baxter State Park.  
Photo by Charlene Donahue

Photos but no samples were taken of the incidental finds as we did not have Park permission for collecting anything other than ants. Adhering to research permit requirements is important, so that not only are we welcomed back to the Park but also that other researchers will also be allowed to work there as well.

Aaron reports that in four perfect-weather days (= 21 person-days) we collected samples from 266 ant nests in the

(continued on next page)

November, 2013

**Baxter Park Ants (cont.)**

Traveler Mountain area (elevations ranging from 185 to 1085 meters), representing 27 species, of which 13 are new county records for Piscataquis County. One of the new county records (*Formica adamsi*) is also a new state record for Maine, and a new species record for all of New England. All identifications have been confirmed at the MCZ.

**Ant Species Collected at Baxter Park, Travelers Range,  
July 9-13, 2013  
(New record for New England and Maine;  
New record for Piscataquis County)**

Dolichoderinae

- Dolichoderus plagiatus***
- Dolichoderus taschenbergi***
- Tapinoma sessile***

Formicinae

- Camponotus herculeanus*
- Camponotus novaeboracensis*
- Camponotus pennsylvanicus*
- Formica adamsi***
- Formica argentea***
- Formica aserva*
- Formica cf. fossiceps***
- Formica integra***
- Formica neorufibarbis*
- Formica subaenescens*
- Formica subsericea*
- Lasius alienus*
- Lasius flavus***
- Lasius nearcticus***
- Lasius neoniger*
- Lasius pallitarsis***
- Lasius umbratus***

Myrmicinae

- Leptothorax* sp. AF-can
- Myrmica alaskensis*
- Myrmica detritinodis*
- Myrmica fracticornis*
- Myrmica* sp. AF-scu**
- Stenamma brevicorne***
- Stenamma diecki*

\* \* \* \* \*

**New Species Finds in Maine in 2013  
by Charlene Donahue**

Two new Maine insect species were found in Baxter State Park in July. The first is the ant *Formica adamsi*, not only a Maine State record but also a new record for New England. Photos of the specimen can be found at [http://www.antwiki.org/wiki/Formica\\_adamsi](http://www.antwiki.org/wiki/Formica_adamsi).

As referenced in the article on ant collecting in Baxter SP, Aaron Ellison also picked up and photographed a grasshopper on the north peak of Traveler Mountain. It was hunkered down in a protected patch of grass (of course) and moss. I sent the photos to Brandon Woo, who has an interest in grasshoppers, but he did not know this particular species.



***Pardalophora apiculata* specimen from North Taveler Mountain, Baxter State Park. Photo by Aaron Ellison.**

So Brandon posted the photos on Bugguide.net and got back a species ID of *Pardalophora apiculata* (see <http://bugguide.net/node/view/861015>). This species is found from eastern Canada to New Mexico and North Carolina, but this may be first time it has been reported in Maine.

A third new species report is of a moth whose larva was found at the MES annual meeting at Bob and Nettie Nelson's house in Clinton. Pete Darling and I were wandering down Bob's woods road looking for insects. We pulled open some drying Queen Anne's lace flower heads and found lovely fat caterpillars inside many of the heads. Pete photographed them and I later Googled "caterpillars in Queen Anne's lace" and immediately got a hit.



***Sitochroa palealis* larva found in Clinton, Maine.  
Photo by Peter Darling.**

The larvae were *Sitochroa palealis* that I then confirmed using *Caterpillars of Eastern North America: A Guide to Identification and Natural History* by Wagner. This is an introduced species first reported in 2002 in the Midwest. Later, as I was processing the catch from light traps, I started finding the adults in the catch. So far I have found adults from Mount Vernon, Hope and Crystal, Maine, and I am not done yet with the trap catches.



***Sitochroa palealis* adult. Photo by Charlene Donahue.**

Karen Hopkins reported that she had found a *S. palealis* moth back in 2011 in Bangor, and Brian Sholtens identified it for her. So this species is now well-distributed in Maine and has been here for a while.

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## Bug Maine-ia Draws over 2000 Visitors to Maine State Museum in Augusta

by Joanna Torow

On September 11th, 2013, Bug Maine-ia, one of the most popular events at the Maine State Museum in Augusta, transformed the normally quiet history and natural science museum to an entomological wonderland. This multi-disciplinary event shows a broad picture of the wonders of insects and their relatives and the ways they affect our lives from pollination, food, disease, art, and just adding to the pleasures of living on earth.



**Andrei Alyokhin at Bug Maine-ia, looking almost like an astronaut or cosmonaut as he demonstrated protective outerwear worn by properly clothed pest control specialists, or beekeepers who may be allergic to bee stings. Photo by Edie King**

Some 2003 visitors, mostly school children and homeschool families, surrounded 19 presenters.

No one complained about crowds; they were all too busy looking through microscopes, writing their name in oak gall ink, identifying water insects in various stages of life, finding the queen bee, and learning how to predict the severity of the coming winter with woolly bear caterpillars! The students were completely engaged and focused, many coming prepared with questions that showed how thoughtfully their teachers had prepared them for this day.

This year's event featured exhibits on what insects can tell us about water quality, and how good insects and bad insects affect the plants that we eat and the health of our forests, as well as a look at how other cultures view "bugs." Students were invited to solve insect puzzles while they learned about Edith Patch's pioneering work, and to collect insects from the museum grounds to be identified by Maine Entomological Society volunteers.

To all the Maine Entomological Society members that exhibit, volunteer, and support Bug Maine-ia at the Maine *The Maine Entomologist*

State Museum, thank you for sharing your time, energy, and knowledge with the state's students.



**Youthful entomologists-in-training carefully inspect the specimens from a black-light-trap sample at Bug Maine-ia, 2013. Photo by Joanna Torow.**



**Dick Dearborn helped Bug Maine-ia visitors predict the winter severity based on the banding widths of the woolly bear caterpillars he always manages to find. Photo by Edie King**

Next year's event is planned for Wednesday, September 10, 2014, so mark your calendars now. If you have any suggestions or ideas about how to continue making Bug Maine-ia better or if you just want to help out, please contact Joanna Torow, Chief Educator at the Maine State Museum 207-287-6608 or [joanna.torow@maine.gov](mailto:joanna.torow@maine.gov).

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### "Ant Farm" Art Exhibit to Open in April

April 11th, 6-8 p.m., 2014, will be the opening reception for a new exhibit at the Atrium Art Gallery of the University of Southern Maine's Lewiston-Auburn Campus.

*Ant Farm: At the Nexus of Art and Science* will run from April 11th-June 13th at the art gallery and will feature works by artists Colleen Kinsella, Rebecca Goodale, Vivien Russe, and Dorothy Schwartz. The exhibit, supported in part by the Maine Arts Commission, will focus on the life history, social structure and habitats of leaf-cutter ants.

The Atrium Art Gallery is open to the public free of charge. Visit our web site at

<http://usm.maine.edu/atriumgallery>.

For progress on Ant Farm: see

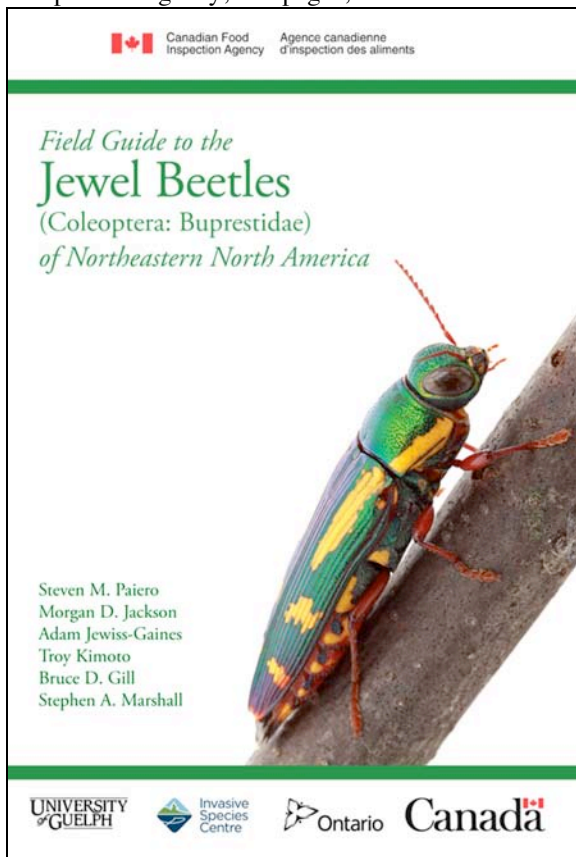
<http://antgirlsmaine.blogspot.com/>

More on the exhibit will be forthcoming in the February issue of *The Maine Entomologist*.

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## Book Review:

*A Field Guide to the Jewel Beetles (Coleoptera: Buprestidae) of Northeastern North America* by Steven M. Paiero, Morgan D. Jackson, Adam Jewiss-Gaines, Troy Kimoto, Bruce D. Gill, and Stephen A. Marshall, Canadian Food Inspection Agency, 411 pages, 2012.



### Reviewed by Frank Guarnieri

The other day it was my great pleasure to receive the long anticipated Jewel Beetle (Coleoptera: Buprestidae) guide by Steven M. Paiero et al., published in collaboration with the University of Guelph, the Invasive Species Center, and the Canadian Food Inspection Agency.

"Jewel Beetle" is a somewhat newer moniker for a Family also known as the "Flat Headed Borers" or "Metallic Wood Boring Beetles" and derives from the fact that many members of the group are quite aesthetically attractive with a streamlined body habitus and usually with some degree of, often quite spectacular, iridescent coloration. Species within the Family Buprestidae typically mine under the bark of numerous species of trees and shrubs and many have significant economic importance, including a newly introduced Asian species, the Emerald Ash Borer, *Agrilus planipennis*.

This beetle was likely transported from Asia to the Midwest United States via infested wooden shipping containers in a fashion very similar to that of the Asian Longhorn Beetle, *Anoplophora glabripennis* (Coleoptera: Cerambycidae). However, unlike outbreaks of the Asian Longhorn Beetle which so far have been very local and thus far contained in Northeast North America, the Emerald Ash Borer has spread rapidly over our area resulting in the deaths of countless Ash (*Fraxinus* sp.) trees.

The Emerald Ash Borer epidemic has in part been documented through a fascinating biological monitoring program using the wasp *Cerceris fumipennis* (Hymenoptera:

Sphecidae). These wasps specialize in hunting Jewel Beetles, which are used to feed larvae in underground borrows. It was found that the local presence of the Emerald Ash Borer could be quickly detected by sorting through the various species of Jewel Beetles occurring at *C. fumipennis* colonies. Intensive surveys have been conducted throughout the region as an Emerald Ash Borer "early warning detection system" but it also became apparent that numerous other species, including many that were seldom encountered through traditional collecting, were being caught by these wasps as well.

I have had the opportunity to observe a *C. fumipennis* colony near my house in Belgrade, Maine, and it is amazing to watch them fly out from their nests and then return, invariably carrying a Jewel Beetle, sometimes quite larger than themselves. All of this is done with clockwork efficiency; clearly the wasps "know" some trick to catching these beetles that far outclasses our abilities to do the same!

The typical (human) strategies for collecting Jewel Beetles includes beating and sweeping along wood margins or hand-picking individual specimens from the trunks of dead or dying trees (always on the sunny side). Pine-feeding species show a particular affinity for newly installed telephone poles. Anyone who has ever chased these beetles in the field is well aware that they are extremely wary, quick to take flight, and a true challenge to catch or photograph.

Whether you are a forester, landscaper, beetle collector or photographer, or anyone with a general interest in field biology and ecology, there has not been an easy way for the non-specialist to identify Jewel Beetles. Somehow, the fact that they tend to be shiny and beautiful makes the difficulty in assigning a scientific name to specimens particularly galling. I remember finding a specimen of *Buprestis rufipes* on a dead ornamental cherry tree in Baltimore back in 1984 (I was only 16 at the time). I was incredulous that I could not identify what one could describe as a Scarlet Tanager or Indigo Bunting of the beetle world despite having all the insect and beetle field guides (Peterson, Audubon, Simon and Schuster, etc.) that were present at the time. Even the vaunted "Dillon and Dillon," which was the most comprehensive general source back then, did not include this species. I had to take the beetle to the local USDA-APHIS office to have it identified!

So I must say that I was tickled to see a beautiful photograph of a living *Buprestis rufipes* (taken by Ted MacRae) gracing the front cover of the new field guide by Paiero et al. Produced in Canada, the guide covers all species of Buprestidae that are known to occur from "Ontario to Nova Scotia and south to Ohio and New Jersey." However, the guide is significantly enhanced by also including species that might potentially occur in this region as well. Thus, the authors expanded their coverage to include species from Manitoba and most of the eastern United States. Practically speaking, I think this guide should work well, at least as far south as Virginia and Missouri, for the vast majority of Jewel Beetles that would be encountered over this geographically and biologically diverse region.

All told there are nearly 170 species included in the guide; an exact number is problematic due to systematic complexities, particularly within the genera *Agrilus* and *Chrysobothris* (i.e., the presence of species complexes and/or several species that may or may not turn out to be conspecific).

The book begins with a key to genera that does require some familiarity with beetle anatomy, although beginners should not be overly intimidated as there is plenty of supporting material (diagrams, photographs, and a glossary), so that I think that just about anyone could easily assign any specimen in hand to genus level. There is also a "field key" to

(continued on next page)



### *Jewel Beetles (cont.)*

genera that should probably work in most instances for specimens that were photographed or otherwise observed in the field.

After the keys to genera, the guide is then arranged like any contemporary field guide that one might find in the neighborhood bookstore for birds or butterflies. All species within each genus are listed alphabetically and each is given two pages containing multiple beautiful and sharp high-resolution photos, detailed morphological descriptions, geographic range maps, and some brief comments concerning the beetle's natural history. Size range is given in millimeters but there are also two very handy icons that show life-sized silhouettes for the smallest and largest known size that would be useful for field use. A special notation is also made as to which beetles are known prey species of *C. fumipennis*.

Unfortunately the morphological descriptions tend to be overly technical and might prove difficult to understand for those without formal entomology training. In the case of more difficult determinations, there are comments under the heading "Similar Species" that are extremely helpful. There were several instances when it was unclear to me which species was being described in this section although that usually became obvious by comparing the text to the accompanying photos. Still, the reader should be aware that some Jewel Beetles (particularly a few within the genera *Agrius*, *Chrysobothris*, and *Dicercia*) cannot be reliably identified to species level using this format. However, many species can be identified and for those that cannot, I believe it is still highly useful to see all of the possibilities in one source and then at least to be able to narrow things down to a handful of choices.

This species level ambiguity is nothing new, even for professional entomologists. But it might prove frustrating, for example, to bird watchers who have expectations for a "Roger Tory Peterson" - style guide book complete with arrows showing obvious field marks that allow for quick and 99% accurate determinations. Unfortunately this is not always the case with Jewel Beetles, not through any fault of the authors, but rather that some of these beetles are even harder to identify than they are to catch.

Ranges are shown with a political map of northeast North America in which certain states and provinces are highlighted. Personally I don't like this format as it tends to give an overly broad impression of a beetle's range. For example, one might conclude that a beetle collected once in southern Ontario can be found up to the shore of the Hudson Bay. The authors did address this issue and added a feature where the maps (through the use of cross hatching) also show a theoretical range based on the host plant's range (if known). I think these modified range maps can be overly speculative (to be specific: I doubt that *Texania campestris* or *Buprestis rufipes* occur in Maine or New Brunswick, or that *B. maculativentris* occurs in the Deep South United States, or that *B. confluenta* occurs along the Atlantic Coast) but still they remain an overall nice addition to the guide. I did notice an error in that no species of *Chalcophora* and only two species of *Dicercia* are listed from Tennessee. This is obviously incorrect but it may be that the authors were less conscientious searching for records that were approaching the geographic periphery of the guide's range and I doubt that this represents any systemic problem with the maps. Overall, based on my personal experience collecting "macro" Buprestidae (e.g., *Buprestis*, *Chalcophora*, *Chrysobothris*, and *Dicercia*) in Maine and Maryland, I would say that the range maps appear to be on target.

There are some minor (mostly typographical) errors and the book comes with an errata sheet to address these. The only other thing that I can complain about is that the image of *Buprestis salisburyensis* is a mislabeled specimen of *B. decora*.

*The Maine Entomologist*

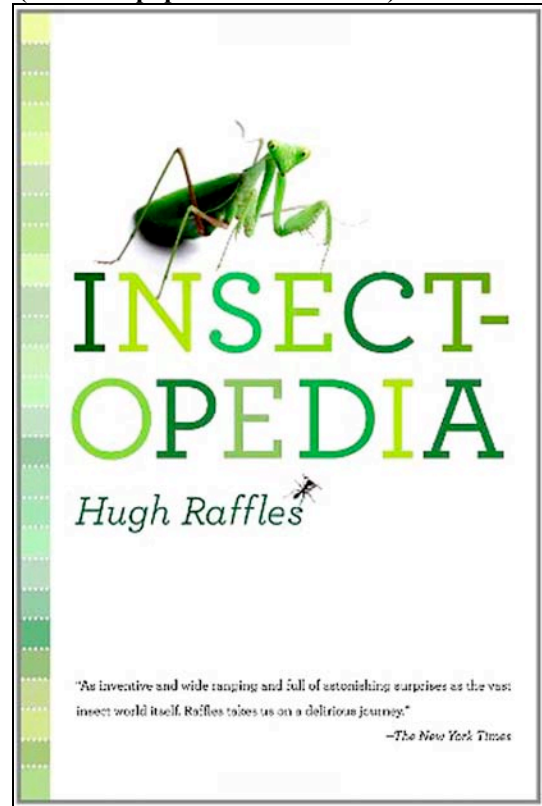
However, this is a minor issue and, as both species are quite rare, unlikely to affect most readers.

In summary I find this be an excellent guide that will appeal to a broad clientele. The photos are striking and do credit to these gorgeous beetles. Those unfamiliar with the group will immediately see where the name "Jewel Beetle" comes from. Clearly a great deal of work was done by the authors to prepare this book and a comparative field guide for another group of organisms would easily cost somewhere between 50 and 100 dollars. Yet, incredibly the book is FREE. Copies may be acquired by calling 1-800-442-2342.

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### Book Review:

*Insectopedia* by Hugh Raffles, Pantheon Books, 465 pp., 2010. (\$12.95 in paperback at Amazon)



Reviewed by Anna Lee Court, MES member, Cornville

*Insectopedia* is a collection of 26 essays, styled from A to Z, about particular families, genera, or species of insects and the scientists who study them. Raffles is an award winning science writer (*In Amazonia, A Natural History*) and teaches anthropology at The New School.

Because Raffles is an anthropologist, not an entomologist, this collection shows his interest in specific insects' impact on human interactions, customs, economy, beliefs, culture, and history. Some of his chapters include long profiles of the life and work of scientists like Jean-Henri Fabre (wasps) and Karl von Frisch (honey bees).

But Raffles is also an excellent science writer, so scientists among his readers shouldn't be put off by his emphasis on culture, history and biography. The book includes an extensive set of chapter notes with references to scientific material, a selected bibliography and an extensive index.

One gets the impression that Raffles chose certain insects and subjects because he was fascinated by them himself. I couldn't find any particular order or pattern in his topic  
(continued on next page)

**Insectopedia (cont.)**

selection. The wonder of the insect world is very apparent in both his choices and his style of writing.

For example the first chapter, "Air," is about insects in the air and their migration and dispersal. Raffles reports at length on the history of investigation by airplane of insects in the air. In 1926, the first such inventory was made within a column of air from 50 to 14,000 feet above a one square mile of Louisiana countryside. It yielded an average of 25 million insects and as many as 36 million. Raffles' comments have the intention, I believe, of opening our minds as well as astonishing us: "Thirty six million little animals flying unseen above one square mile of countryside? The heavens opened. The air column was a vault of insect laden air from which fell a continuous rain."

And that's just the first of the 26 chapters, some very short and others quite long. In the chapter called "Chernobyl," Raffles reports at length on Cornelia Hesse-Honnegger and her research on mutations in insects caused by radiation. A long chapter on the cricket market in China is fascinating: habitats, collection, maintenance in captivity, markets, traditions, economics, and the personalities of the players in these dramas. A chapter on locusts in Africa is similarly structured.

This book is a wild ride and reading it was the best kind of adventure for me, in that so much was new and the treatment was multi-faceted. The reader meets all kinds of insects, not just in biological detail, but also in their cultural, historical and economic contexts and through the scientists who study them. I highly recommend *Insectopedia*.

\* \* \* \* \*

**Big Turnout at Annual Meeting**

by Bob Nelson

Some 21 people and two friendly dogs turned out for the annual meeting in Clinton, where the late morning started with collecting, ended with lunch, and was followed by the business meeting. President Charlene Donahue called the meeting to order at approximately 1:15 p.m. and distributed the minutes from the 2012 annual meeting. Domenica Vacca asked that her name be corrected in those minutes from Domenica Woo, and the minutes were approved as so amended.

Treasurer Dana Michaud presented the Treasurer's Report, which showed a balance of \$1925.39 in the general account as of 31 August, 2012, which had risen to \$2278.64 by 31 August, 2013. Over the same time period, the balance in the Scholarship Account grew from \$1145.46 to \$1344.59, mostly from the \$1 from dues and \$1 for each 2013 M.E.S. calendar sold. The report, including itemized accounting of all income and expenditures, was audited by Nettie Nelson and found to be in order. It was moved and seconded to accept the report, and it was so voted without dissent.

The next item on the agenda was election of officers. The President, Vice-President and Treasurer all ran unopposed, but there were three candidates for the two "at large" Executive Board positions. In a very close vote by paper ballot (counted by Nettie Nelson and Terry Mazurkiewicz, neither of whom voted in the election), Brandon Woo and Edie King were elected.

The assembled members voted to retain annual dues at \$10 per year, but there was a suggestion of offering a lifetime membership at \$200 (20x one year's dues). Doing so will require a vote to change the bylaws, and vote on this change will be on the agenda for the annual meeting in 2014.

The group agreed to move forward on M.E.S. T-shirts and sweatshirts, based on a reconstruction of the original design by Monica Russo. Bob Nelson reconstituted the design from Monica's original artwork (the original

compilation was lost with the original printer), and promised to deliver it to Black Dog Graphics in Clinton. Dana Michaud agreed to handle sales.

Peter Darling suggested establishing a collecting Blog for M.E.S. members, and said he would look into establishing a Yahoo Group for such a purpose.

Several outreach efforts were suggested to increase our visibility, including (1) direct outreach to University of Maine students involved in any entomological study or research, pointing out the scholarship options that we can potentially offer, (2) various garden clubs around the state, and (3) the annual Common Ground Fair in Unity, sponsored by the Maine Organic Farmers and Gardeners Association.

Charlene also suggested we set up a reciprocal link to the Friends of Edith Patch web page.

The Winter Workshop for 2014 will be held in Augusta, with a tentative plan to focus on Hemiptera. This is to coincide with a plan to focus on this group in the BioBlitz on Mount Desert Island, Acadia National Park, in July. Aaron Ellison of Harvard Forest might also be looking for field collaborators for ant collecting on Katahdin in July or August (dates to be determined).

M.E.S. field events were planned for the 2014 collecting season, starting with Maple Syrup Collecting Day on March 22nd. A complete schedule will be shown in the "Coming Events" portion of the M.E.S. newsletter. The 2014 Annual Meeting will be held on September 13th in Clinton.

The meeting was adjourned at approximately 3:30 p.m.

\* \* \* \* \*



Herb Wilson sent a link to a web site for gorgeous photos of some Massachusetts **Bog Insects and Carnivorous Plants**, such as the Sphagnum ground cricket (*Neonemobius palustris*). You can even click on a link to hear its trilling. The site is the blog of professional photographer Piotr Nasrecki, and also includes great photos of some exotics from the tropics, such as an 8-inch-long "cat mantis" from Mozambique, shown above. You can check it out for yourself at

<http://thesmallermajority.com/>

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**Free Posters!!!**

Free posters are available from the U.S. Forest Service, including several featuring native pollinators, as well as high-resolution posters of both Eastern and Western Bumblebees.

The posters can be accessed at the USFS web site at <http://www.fs.fed.us/wildflowers/features/posters.shtml>

\* \* \* \* \*



**See Any Fragile Brown Moths?**



**Winter moth - *Operophtera brumata* (L.) [male]**  
 Photo by Milan Zubrik, Forest Research Institute - Slovakia,  
 Bugwood.org

If you see fragile brown moths flying in DECEMBER, please let me know where, how many (a few; many around light; covering my house), etc. They would be invasive winter moth currently found along the coast from Kittery to Bristol, some of the islands and a few towns beyond. Send reports of any sightings to [Charlene.donahue@maine.gov](mailto:Charlene.donahue@maine.gov).



**Male winter moth emerging from puparium.**  
 Photo by Gyorgy Csoka, Hungary Forest Research Institute,  
 Bugwood.org

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**Donna Nelson** sent a link to a web site for gorgeous photos of eastern Massachusetts **caterpillars**, which includes a number of species that are found in Maine. You can check it out for yourself at [http://www.pbase.com/spjaffe/massachusetts\\_caterpillars](http://www.pbase.com/spjaffe/massachusetts_caterpillars)

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**Book Reviews:**

**Two Odonate Books Worth Having**  
 by Richard Hildreth

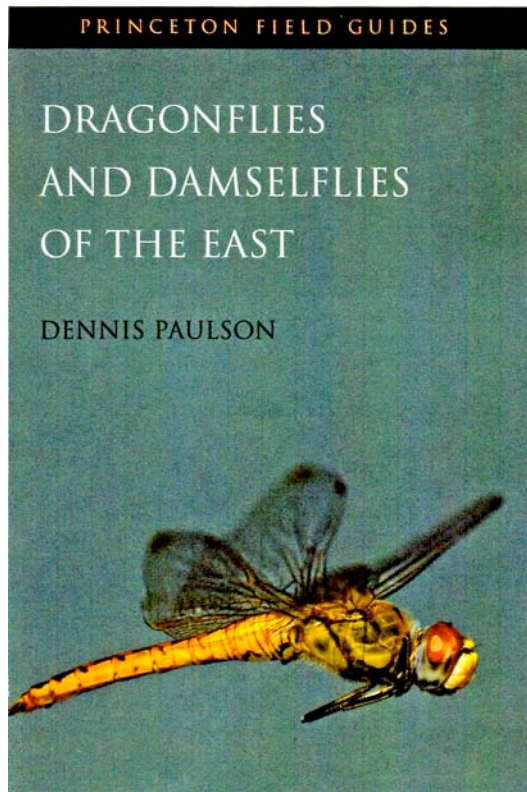
As I got out and about during the 2013 field season, I was struck by the paucity of butterflies, especially the regular migratory species, which usually make up a large percentage of the butterflies seen. Dragonflies seemed to be very abundant, and I found some very cool ones early on.

During recent years, many fine new odonate books have appeared. Lacking has been a comprehensive guide to all the odonates of North America. In 2009, Dennis Paulson produced *Dragonflies and Damselflies of the West*, and in 2011 produced *Dragonflies and Damselflies of the East*. These two books include all 461 species of odonates that are now known from the U.S.A. and Canada.

*Dragonflies and Damselflies of the East*, by Dennis Paulson; Princeton University Press, 2011, ISBN 978-0-691-12283-0 (paperback). On fine glossy paper, 8½" x 5½" x ~1¼" thick, 538 pages.

This book covers all 336 species of odonates ever found in the East, including all areas east of the western borders of Ontario, Minnesota, Iowa, Missouri, Arkansas and Louisiana. All species are shown in very carefully chosen color photographs, usually several photos per species. Anatomical features critical for some identifications are shown by line drawings. There is a range map for each species. The careful species descriptions should allow identification of most species.

Dr. Paulson's vast experience makes the book very useful and practical to use. The odonate names are the most modern, up-to-date scientific names and the English names are the official names of the Dragonfly Society of the Americas. This is the book to get for the last word on Eastern odonates (and probably will be for some time to come).

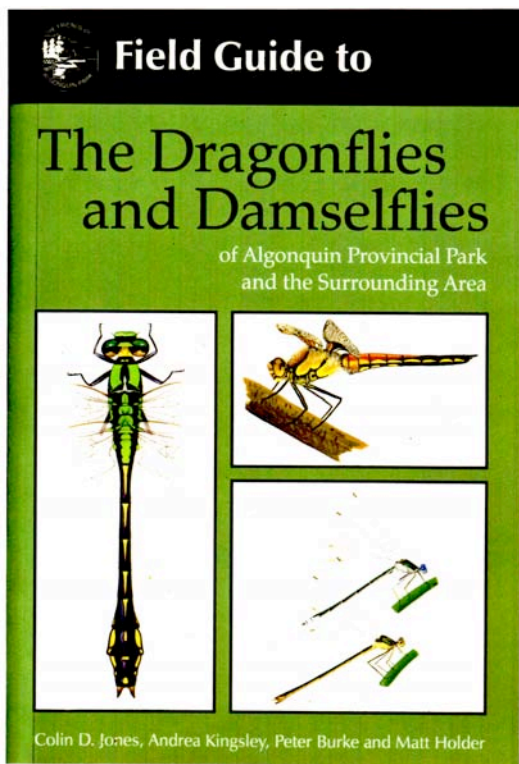


For those who want to consider a smaller list of odonates, one more focused on the Northeast, I should also mention the *(continued on next page)*

**Odonate Books (cont.)**

following fine new book:

**Field Guide to the Dragonflies and Damselflies of Algonquin Provincial Park**, by Colin Jones, Andrea Kingsley, Peter Burke and Matt Holder; published by The Friends of Algonquin Park, 2008, ISBN 978-1-894993-29-6 (paperback). On fine glossy paper, 8½" x 5½" x ~½" thick.



One might ask why anyone in Maine would want a book about odonates of Algonquin Park. The odonate list for this Canadian park is very much like the Maine State list. The list in the book includes a few species not in the Maine list, with western affinities, and the park list does not include a few from the Maine list that have southern affinities.

I recommend this book because it is useful in Maine and because it is *superbly* illustrated. The plates are extremely good, especially for difficult species like clubtails; all species are shown in color. Detailed line drawings are included for some key anatomical details. This book can be obtained from: The Friends of Algonquin Park, P. O., Box 248, Whitney, Ontario, Canada, K0J 2M0, or at their web site:

[www.algonquinpark.on.ca](http://www.algonquinpark.on.ca)

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**COMING M.E.S. EVENTS in 2014:**

- 11 January Winter Workshop, Augusta (contact person: Charlene Donahue)
- 22 March Maple Syrup Collecting Day, Whitefield (contact person: Charlene Donahue)
- 24 May Ant Picnic, Lewiston (in conjunction with "Ant Farm" at the Atrium Art Museum, Lewiston; contact persons: Charlene Donahue and Robyn Holman)
- 14 June Ordway Grove, Norway (contact person: Bob Nelson)
- 18-21 July Entomological BioBlitz, Acadia National Park
- 16 August Reclaimed Plains, Old Orchard Beach (contact people: Domenica Vacca and Brandon Woo)
- 10 September Bug Maine-ia, Maine State Museum, Augusta (contact person: Joanna Torow)
- 13 September M.E.S. Annual Meeting, Clinton

(See <http://www.colby.edu/MES/> for more detailed information; new information on any event will be posted as it is received.)



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

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