The Maine Entomologist

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

The Official Newsletter of the Maine Entomological Society

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PRESIDENT'S CORNER

BY HILLARY MORIN PETERSON

Dear MES Members,

I hope you had lovely holidays and are ready to move into the deep winter! For some sunshine, I recommend everyone take the advice of past president Charlene on warmer and sunnier days this winter, to head out and search for winter insects and spiders! On her walk on January 19th, she was able to find a Green Long-jawed spider (*Tetragnatha viridis*) and two snow scorpionflies (*Boreus* sp.), male and female.

Another great way to warm up this winter is to warm up your brain, which you can do attending our upcoming webinars (check out **www.maineentosociety.org** for more information).

MES Members also gathered this past January 28th, to warm up their *centralized* brain, as opposed to the insect brain which we learned is spread out across the body and integrated into the wonderfully adaptable cuticle and epidermis. We learned lots more as well about insect morphology from Dr. István Mikó and the four UNH students he brought along.

We kicked the day off with cockroach races "so we could emotionally connect with the specimens," which was covered in a hilarious Bangor Daily News article by lifetime MES member Julia Bayly (**tinyurl.com/28cjjask**; see p. 9). The live specimens also served as a really fun opportunity to stop and look at different insect body parts on an actual *live* specimen while listening to the lectures, a rare opportunity in a field that usually uses dead ones!

István gave us a tour of the insect body, showing amazing images of resilin in many different parts of the insects, discussing how adaptable the cuticle and epidermis are, reminding us to "keep it simple" and making us laugh as he pointed out the sometimes over-complicated terminology for things ("why can't it just be called a *running* leg?!), and ended his talk with a mind-blowing discussion about how in holometabolous insects, the cells for the adult insect are already developing and competing for resources *within* the larva.

We also learned about research on the morphological differences in setae across *Andrena* bee species and sexes from Santino Marchesano, structure and function of the facial fovea in Andrenid bees from Shyloh Favreau, and potential biocontrol agents of blueberry gall midge from Monique Raymond.

After enjoying the many treats folks brought, and some coffee and lunch, we delved into one of two activities – dissections of cockroaches, or a "Petri dish challenge." My favorite fact of the day was learning that insect antennae only have two muscles at the base, and when more control is needed (such as an Ichneumonid investigating a spot to lay her eggs), hemolymph is pumped in for more control!

István also gave a very descriptive session working hard to "un-romanticize" the lock and key hypothesis of species mating, having everyone in the room in a rollercoaster of emotions between laughing and shuddering. Thank you to Tom Schmeelk and Mike Parisio for all the efforts (and lunch meetings) to work with me to plan this awesome event!

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***Scutigera coleoptrata* (Linnaeus).**
- Photo by Joseph Berger, Bugwood.org

You Should Let This Bug Live In Your House

by Julia Bayly

What is fuzzy, striped, has 30 legs and is likely living quietly in basements around Maine?

No, this is not a set-up riddle for the next Stephen King novel or upcoming horror film. It's very real and, according to one of Maine's top insect experts, nothing of which to be afraid.

Scutigera coleoptrata - the house centipede- is one of the more beneficial bugs-in-residence for a homeowner, according to Clay Kirby, insect diagnostician with the University of Maine Cooperative Extension.

"They are a predator of insects," Kirby said. "So if you have pest bugs in the house, the centipedes will focus on those bugs [and] that is why some people will take the extra effort to capture them and gently throw them outside if they don't want them around rather than smashing or spraying them."

Recognized by its segmented body, stripes and those 15-pairs of legs, the house centipede is happiest on its own, Kirby said, and prefers dark, moist areas.

"They like cover," he said. "Basements are the number one place you will find them, but they also like any nooks or crannies that are cool and high in humidity."

Left to their own devices, a house centipede is a somewhat solitary arthropod that prefers to be a silent guest and not interact directly with the human occupants of a dwelling.

They don't attack people, they don't chew on woodwork or paper and are generally good tenants, Kirby said.

"These guys are really good because they will eat a number of pests," Kirby said. "The only downside is if you do see a large number of [house centipedes] it means there is a food source attracting them in numbers and that could indicate you have a larger insect problem you need to address."

Kirby would like for people to cut the house centipede some slack.

"Some people's tolerance for bugs in their homes is lower than others, and that is their prerogative," he said. "What we don't want is people unknowingly killing a bug that is beneficial."

Kirby said there are certain members of the arthropod world - like *Scutigera coleoptrata* - that if people know how much good they do, they might adopt a live-and-let-live philosophy.

"For these people, if they knew the benefits of house centipedes, they would think twice about smashing it with a fly swatter," Kirby said. "It's really worth getting the word out on these."

Hatching out in the spring — which is why people start seeing them in the summer — House Centipedes eat ants, silverfish, beetle larvae, spiders and roaches.

Even Kirby has to admit the house centipede won't win any beauty pageants.

"What really impresses people about them is their appearance with all those legs and longish body," he said. "That, and when you see them they can give you a start, because they run extremely fast."

In fact, house centipedes can move 16 inches per second.

"That really adds to the startle impact," Kirby said.

For those who don't want the centipede scuttling around their basements or corners, Kirby said there are ways to keep them at bay.

"It's a multi-pronged approach," he said. "The first thing is to eliminate their food source."

That can be done, he said with a targeted approach by a certified pest management professional.

Homeowners can also create a non-welcoming environment by reducing the hiding places centipedes would use.

"They love clutter," Kirby said.

Since the centipedes prefer humidity, Kirby suggests using a dehumidifier and finally, taking a long term approach by conducting a close inspection of a dwelling foundation inside and out to identify and seal up any cracks or crevices the centipedes - or other insects - are using to get in.

But given their shy, non-threatening nature and predation on other pests, Kirby hopes more Mainers will become fans of the house centipede.

"If you do see one and it sees you it will run fast in the opposite direction," he said. "And they really are a very striking organism."

This story originally appeared in the Bangor Daily News, with a different photograph, in July, 2018; reprinted July 24, 2022.

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Two Wasps and a Moth

by Charlene Donahue, Dana Michaud and Kathy Claerr

Do you know what is going on in YOUR backyard?

Kathy Claerr was observant and found a complex interaction taking place in her garden, in a decorative "birdhouse." Her first observation was that black and yellow wasps, probably yellowjackets, were building a nest in the box that was about the size and shape of a half-gallon milk carton. Of course, she was a bit too interested in them, got too close and got stung.

(continued on next page)

(Two wasps & a Moth, cont.)

So, she backed off and continued to watch and photograph the nest over the summer. At first it was just yellowjackets flying in and out and as they are predators of other insects including garden pests (the nest was in a garden after all), she was happy to let them live their lives – keeping a respectful distance from their home.

***Dolichovespula arctica* wasps in Kathy Claerr's birdhouse, invading the nest of the yellowjackets (*D. arenaria*).**

A few weeks later Kathy noticed another kind of wasp entering the nest along with the yellowjackets and that the yellowjackets went in but none came out... Huh. The second type of wasps were larger, and black and white. Bald-faced hornets (*Dolichovespula maculata*) maybe? Beekeeper Brian Mason reminded me that they will prey on weak colonies of bees and probably wasps.

Come October and after a frost, no more wasp activity was seen. So Kathy brought the box to the MES annual meeting, where Bob Nelson opened it up to reveal two types of dead wasps and live bee moth (*Aphomia sociella*) larvae and pupae.

Dana Michaud took the nest home, dissected it and identified the smaller wasps as *Dolichovespula arenaria* - yellowjackets as suspected. The larger wasps were *D. arctica* that are obligate parasites of *D. arenaria*. The *D. arctica* have no worker caste and depend on the yellowjackets to rear their young. The queen *D. arctica* allows the yellowjacket queen to continue laying eggs until there are enough workers to take care of the intruder's young, and then kills the host queen. Eventually the colony would have only a queen *D. arctica* and her male progeny.

The third inhabitants of the nest were the inquiline bee moths. They live in bee and wasp nests, feeding on both the debris in the nest and on larvae. Inquilines are supposed live commensally with their hosts, doing no harm, but in small nests they may decrease the vigor of the colony. There were young larvae, mature larvae and pupae at the top of the nest, maybe trying to stay out of sight of the wasps down below. The small larvae may not survive the winter but the larger ones should have pupated and made it through – if we had not destroyed their home.

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Paul Grey: Citizen Scientist

by Charlene Donahue

An interesting article from the *Country Journal* of March, 1988, about a Maine carpenter and lepidopterist was recently passed on to me, and I thought MES members might be interested in reading it.

Paul Grey lived in Enfield, Maine, and made his living as a carpenter, playing guitar and pursuing his life-long passion for moths and butterflies – *Speyeria* butterflies in particular. This article is a fascinating look at Grey's life and how a person can make a valuable contribution to science. I found at least one paper he co-authored, as well as a species with his name as one of the authorities, along with many subspecies. Some of his material is at the Maine State Museum, as he was a friend of Tony Roberts and shared specimens with Tony.

From: Dos Passos, Cyril F., and Lionel Paul Grey, 1947: Systematic catalogue of *Speyeria* (Lepidoptera, Nymphalidae) with designations of types and fixations of type localities. *American Museum Novitates*, no. 1370; 30 pp.

Speyeria carolae (dos Passos & Grey, 1942)
Speyeria cybele letona dos Passos & Grey, 1945
Speyeria hesperis dennisi dos Passos & Grey, 1945
Speyeria nokomis wenona dos Passos & Grey, 1945
Speyeria coronis simaetha dos Passos & Grey, 1945
Speyeria zerene myrtleae dos Passos & Grey, 1945
Speyeria callippe elaine dos Passos & Grey, 1945
Speyeria callippe harmonia dos Passos & Grey, 1945
Speyeria egleis secreta dos Passos & Grey, 1945
Speyeria atlantis canadensis (dos Passos, 1935)
Speyeria hesperis tetonia dos Passos & Grey, 1945
Speyeria hesperis viola dos Passos & Grey, 1945
Speyeria hesperis hutchinsi dos Passos & Grey, 1947
Speyeria hesperis dennisi dos Passos & Grey, 1945
Speyeria hesperis lurana dos Passos & Grey, 1945
Speyeria hydaspe minor dos Passos & Grey, 1947

Contact Bob Nelson for a copy of either the *Country Journal* article or the original *Novitates* paper.

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First Field Day of the Season: Whitefield - Saturday, March 25th!

Saturday, March 25: Whitefield (Lincoln County) - Maple Syrup and Insect Collecting at Charlene Donahue's home. Join us from 10:00 a.m. - 4:00 p.m. at 460 Mills Road, in Whitefield.

Maple syrup buckets often contain a fascinating assemblage of insects, plus there are insects on tree boles, in the woodpile and tucked in other nooks and crannies this time of year. There is a seep open all winter down near the Sheepscot River at the foot of the slope, and wetlands across the road. Plus, we have a bee yard.

In years past, we've found thousands of springtails atop the snow, and watched stoneflies pop to the surface of the Sheepscot River. You never know what early fauna will show up!

Come visit a backyard sugar operation, enjoy the company and collect a bug or two or maybe more.

Dress for the weather and be sure to wear boots; bring snowshoes if conditions permit, as well as your lunch and drinks. If the sap cooker is running, there are usually people hanging out, and it's a laid-back time (until a batch of syrup is ready to come off!).

DO PLEASE contact Charlene Donahue if you're planning to attend: call 485-0960, or by e-mail at **donahuecp15@gmail.com** .

Directions: Take Route 17 east out of Augusta. Go 12 miles, and then turn right onto Route 218 (Mills Road); Charlene's house is 0.8 mile down the road, on the right. It's a cream-colored cape, with a garage with rounded doors.

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Tardigrades? What the Heck are *Those*?

by Bob Nelson

In looking over the course offerings for this coming season at Eagle Hill in Steuben (see p. 5), the first entomologically related course in their offerings really caught my attention: Tardigrades. I don't know that I've ever seen one, though I probably have actually seen them many times and not paid proper attention. But I've always been fascinated by what I'd heard about them.

They ARE small, typically only ½ mm long as adults, though some species get to over 1 mm long. And they're transparent to translucent as living animals. But I used to run enormous quantities of both leaf litter and moss through Berlese funnels, which should have yielded numerous specimens. Some studies have found as many as 75,000 tardigrades in one liter of forest duff.

What's a tardigrade? They're also called water bears or even moss piglets, tiny little eight-legged pudgy creatures with a single open round mouth in the front (see the photo). As living animals in their own phylum (Tardigrada), they typically only live a few months, and are no more resilient than many other thin-skinned soil-dwelling invertebrates. Different species may eat smaller organisms, algae, or decaying plant matter, and some are even predators on other, smaller tardigrades.

They're considered a "sister group" to the antenna-possessing invertebrates, the arthropods and the onychophorans (velvet worms). And based on morphological variations, there are three recognized classes of Tardigrades; there are over 1300 described species.

What makes tardigrades special, however, is their dormant state - when they partially dehydrate and enter a stage referred to as a tun. In this state, they have been shown to be able to survive extreme desiccation for a decade or more, and they can tolerate radiation at levels that would kill any of us, as well as extremely high and low pressures and temperatures. They've been found high in the Himalaya and deep in marine basins, as well as on all continents including Antarctica.

Their resilience in the tun state has resulted in their getting a lot of research attention in recent years. Multiple tests in space have been conducted utilizing tardigrades - and they've even been exposed to the vacuum of space and survived. When the Israeli lunar module Beresheet crashed on the moon's surface in 2019, there was concern at first that the tardigrade tuns that were part of its study cargo may have survived. But at least that hypothesis has been laid to rest by more recent experiments that showed they probably could not have survived at what was expected to have been the impact velocity.

What breaks the tun stage for tardigrades? Liquid water! So there is some concern about possibly putting any of them into a Martian probe, since Mars of course has water beneath the surface - as ice. However, without any other organic matter as food, they'd likely not survive long, even if they were introduced. Maybe .... ☺

Much more can be learned about tardigrades with a simple Internet search. Wikipedia has extensive coverage of them, and there are numerous other articles, news items and photos that have been posted in recent years. **PLUS**, there's a great course being offered at Eagle Hill in June!

***Colorized S.E.M. tardigrade photograph; approximate length, 0.5 mm. (from* https://www.nbcnews.com/mach/science/what-tardigrade-ncna1065771)**

Eagle Hill Institute Has Summer Course Schedule Set

The Eagle Hill Institute in Steuben has their extensive summer field seminar schedule pretty much settled. Though they may add additional courses, six that are currently planned may be of particular interest to M.E.S. members:

June 11-17	Tardigrade Biology, Ecology, Field Sampling and Identification, with Emma Perry
June 25-July 1	Natural History of Native Bees: Biology, Ecology, Identification, and Conservation, with Nicholas Dorian and Max McCarthy
July 16-22	The Worlds of the Ants: Natural History, Cultural History, and Research Perspectives, with Aaron Ellison
July 23-29	Spider Biology, Ecology, Field Sampling, and Identification, with Kefyn Catley
August 13-19	EPT Taxa: The Ephemeroptera, Plecoptera, and Trichoptera as Bio-indicators, with Steven Burian
August 13-19	Microlepidoptera: Diversity, Ecology, Field Sampling, and Identification Techniques, with Jason Dombroskie

Several M.E.S. members have taken courses at Eagle Hill in the past and reported that they were extremely valuable experiences.

The complete list of course offerings may be found at tinyurl.com/yc6jkrmx.

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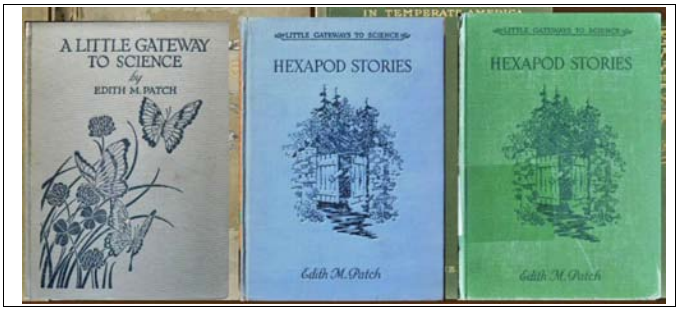
Anna Court, Nina Beckwith, Dana Michaud, Kathy Claerr, and Jon Wallace were among the many attendees actively engaged in studying the morphology of preserved specimens at the Winter Workshop in January. (See President's Corner, page 1.)



The Hexapod Library

by Frank Woodard (foxtowerfarm@gmail)

What's interesting to me about "Little Gateways to Science; Hexapod Stories" by the late world-renowned entomologist, educator and author Edith M. Patch, isn't the charming life histories of common insects that encourage school-age children to look around and discover some of the wonders of nature for themselves, and by doing so, develop an appreciation for nature. What's interesting is how Edith Patch managed to get a publisher to print a children's book with seven pages of references!

After reading Patch's first book, *Dame Bug and Her Babies*, I wanted to learn more about her. It was while reading *Without Benefit of Insects* by K. Elizabeth Gibbs, the biography of Dr. Edith M. Patch, that I learned her book *Hexapod Stories* included references and notes on how to keep insect pets.

I'm fond of beat up library books and musty used bookstores. I tried to find a copy just so I could see the notes. I found the fourth to seventh editions locally or viewable online (see photo above), yet none of them had the references. Obviously Gibbs had seen an earlier edition. Then I went to my "go-to" source for out-of-print science fiction: I started searching for *Hexapod Stories* at abebooks.com.

While a variety of her books were available, none of the sellers had an edition with references. I checked every single week for a couple months, until a five-dollar copy showed up one day with no publication date mentioned. For five bucks I expected a later edition of a beat up school copy so at least I'd have the text. When it arrived I discovered it had her references and notes! The reason it didn't have a publication date is it was a salesman's copy (center photo above), leftover first editions with the date removed and a newly designed cover added. Mary Bird, from the Friends of Edith Marion Patch, confirmed that while the first edition has a different cover (left photo above), my contents were the same. The sales people did a great job and the book became a huge success!

In her references, Patch created an entire library, a "Hexapod Library", to inspire kids who wanted to discover more about insects. What can kids learn today from the now

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musty tomes written for young adults a century ago? It's still true science even today, right? I've already discovered that the choices Patch made for the Hexapod Library aren't just fun facts. I've been exploring the Hexapod Library and it's more like an entire course in nature study that's really fun. Perhaps the books still have much to offer us non-scientists today (see below!).

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The Lepidoptera Ladies

by Frank Woodard (foxtowerfarm@gmail)

How does one keep children entertained and out of mischief in a world without electric boxes? Fun books of course! Two fun books I found in the "Hexapod Library" are "Moths and Butterflies, A Revised and Enlarged Edition of Insect Lives; Or, Born in Prison" by Julia P. Ballard (1890), and "Caterpillars and Their Moths" by Caroline Gray Soule and Ida M. Eliot (1902).

Please note that since the time these old books were published, some of the insect names have changed. *Dannais achippius* we now know as *Dannais plexippus*. The common name "Gypsy moth" has now become the "Scrubbing Bubble Moth" (or something like that.. it's hard to keep up! Actually, they're now officially known as "Spongy moths.").

I learned a little bit about the authors on-line. Ballard was a minister's wife who moved frequently. She wrote several books exploring Biblical concepts, publications about temperance, and poetry. Her book is filled with her many amazing illustrations.

New England-based Caroline Gray Soule made a name for herself as a Lepidopterist, and frequently contributed to Science journals such as "Psyche: A journal of Entomology" and "Entomology News." She was well known for her skill at raising Lepidoptera, and worked with entomologists to solve species' mysteries. Ida Mitchell Eliot and her partner Anne Bracket worked in education, together founding a girls' school in New York in 1872. Eliot had previously been an editor for a book of poems. Soule and Eliot's book used the best photographs they could produce in 1902.

My impression is that Ballard worked in a modest study in her home where she kept a limited number of specimens in assorted glass containers. She worked with what caterpillars she could find, wherever she was, or received live specimens mailed by friends. She was just as enamored with and exuberant about studying the Ichneumon "flies" (actually wasps) that showed up. Ballard teaches her young readers to admire and respect insects. On catching butterflies she stated, "Not at all. They may do very well if you care for nothing but their present beauty...", and then gave instructions on how to raise caterpillars.

Ballard recommended using a microscope to view the fascinating details, and gave instruction in basic anatomy, life stages, collection methods and how to kill and mount perfect specimens using cyanide. She discussed twenty-nine species of Lepidoptera, two ichneumons and a sawfly. She recorded detailed descriptions of her specimens changing colors and patterns through the stages of development to the final imagoes. Her records included the insects' personalities, for Ballard had a whimsical side. Her first chapter is titled "Born in Prison," and described a pair of cabbage butterflies waking up in a glass prison - from the critters' perspective. Ballard book also has fun facts such as:

*The parasitic Ichneumon can lay a thousand eggs inside a plump caterpillar, and all of the one thousand offspring will emerge from the caterpillar's pupa!

*When the bulrush plant of New Zealand is devoured by the Bulrush Caterpillar, the plant gets its revenge. The plant lodges a seed on the caterpillar's wrinkled neck, that subsequently kills the caterpillar. The seed then uses the caterpillar's body to sprout, creating a root in the exact shape of the caterpillar, that becomes a nutty-tasting treat enjoyed by local people.

Soule and Eliot's "Crawlery," an unheated room lined with shelves filled with numerous discarded tins, pasteboard boxes and wooden boxes, seems to have been a madhouse at times! There were kids frequently appearing, hoping to earn pennies for their finds or to view the mounted specimens. (A bucket of sawfly larvae was worthless, but a pale green caterpillar with a horn could earn three whole cents for penny candy!)

All this was while the ladies were trying to feed and water caterpillars, record their changes and clean up after the kids' treasures, as well as specimens they had collected themselves or received in the mail.

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(Lepidoptera Ladies, cont.)

Soule and Eliot dedicated their book to the children who begged them to write it. It was intended to help beginners avoid their mistakes from over twenty years of discovering how to raise Lepidoptera in order to study the life histories of insects in captivity. They started with caterpillars and learned how to breed them, including tying adult females outside on leashes! They discussed the life stages of moths, insect anatomy, how to collect specimens and how to kill and mount perfect specimens using gasoline. Soule and Eliot focused on forty-three moths, but touched upon related species as well as their parasites. Their descriptions include very detailed observations of the specimens, from egg to imago, but not much about the insects' personalities.

All three authors promoted the possibility of new discoveries to be made. Soule and Eliot regretted their lack of education, after being unable to identify a specimen that two years later was "discovered" by an entomologist to be *Feniseca tarquinius*, the only butterfly with a carnivorous caterpillar, and which is part of the Maine fauna.

I wish I'd found these books when was a kid! I'm of the age that as a kid I'd get library books and try to do fun things but was often stymied because I had no money. I once got interested in cross country skiing. I cobbled together skis made from cutting down wooden downhill skis found in a barn and used sticks as poles. I was able to ski about a week before they broke. Thus ended my dream of becoming an Olympic skier.

Yet both these books can still teach kids the scientific methodology to discover new things about insects, and it doesn't cost a cent! Still today much is unknown about the life histories of many insects. Still today new discoveries await! Still today, these books could inspire a child to dream of becoming a scientist and then help the dream come true.

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Jennifer Lund, Maine's Apiarist: A Profile

by Anna Lee Court

Jennifer Lund gave a talk on wasps in the M.E.S. monthly webinar program in the Fall of 2022. I attended and was so impressed with her organization of the material and her enthusiasm for her subject that I decided to profile her for the Newsletter. I interviewed her at the M.E.S. Winter Workshop in January, 2023.

Jennifer Lund is the Maine State Apiarist in the Department of Agriculture, Conservation and Forestry, Division of Animal and Plant Health. Many states have Apiarists, Jennifer says, but budget cuts from time to time have reduced that number. She and other state apiarists belong to a national non-profit, the Apiary Inspectors of America. The state Apiarist position, Jennifer reports, is half regulatory and half education of beekeepers and the general public. Jennifer says she likes both functions and with seven years in the job, she has had lots of experience in both.

The regulatory part of the State Apiarist job is huge. The purpose of the Apiary Program is to prevent the introduction and/or spread of honey bee diseases, parasites, and undesirable genetic material in both resident bees and those brought in for crop pollination or honey production. Maine has 40,000 to 50,000 hives brought in each year to pollinate the blueberry crop and supply backyard beekeepers, and Jennifer is responsible for inspecting a sample of these hives to make sure they are healthy. From early May to June, she is on the road visiting the sites where hives are being placed, mostly Down East.

On site, Jennifer will pull out frames from a sample of the hives and assess them for clinical signs of disease. Occasionally, she will take a sample with a Q-tip and send it off to the USDA Bee Research Laboratory. She rarely sees serious bacterial diseases.

Jennifer is also responsible for inspecting any bees that come in to supply commercial and backyard beekeepers. Maine has about 1,200 backyard and 27 commercial beekeepers, who buy bees from local suppliers who then pick up bees out of state and bring them back to Maine. Jennifer works closely with these local suppliers and inspects the bees as they come in.

Jennifer Lund enjoying her work.
- photo from https://www.mainepublic.org/show/maine-calling/

All beekeepers in Maine have to register their operations. Compliance is high, Jennifer reports, and the beekeeping community is small. Everyone knows each other and is very cooperative. She does a lot of outreach so that beekeepers know both the registration requirements and also what diseases she is finding in hives in an area. She warns beekeepers to keep an eye out for these.

The other part of the Apiarist's job is public education. Jennifer gives about 40 to 60 talks a year to beekeepers and to students and the general public. Her topics include hive autopsies, wasps, native bees, hive management for successful overwintering, and more. She doesn't need to market herself; people know she is available and just ask.

How did Jennifer come to specialize in bees? She took the long way around. Certainly she was fascinated by insects by the time she was six and started collecting in her

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(Jennifer Lund, cont.)

back yard in Brewster, New York. She developed some good practical jokes using insects, too. She remembers the drama at her 8th birthday party where she placed an Ichneumonid wasp she'd collected and killed on her birthday cake.

For college, Jennifer went to the State University of New York College of Environmental Science and Forestry at Syracuse for a degree in environmental biology with a concentration in entomology. She started a master's program there studying pheromone communication in Asian long horn beetles, but left before finishing her degree. Next came research at Cornell in fungal pathogens of Asian longhorn beetles, and then pest management of the plant bugs that invade cotton fields at University of Arkansas.

When her husband accepted a position in the Wildlife Department at University of Maine at Orono, Jennifer became a technician working with Professor Ellie Groden on the control of European fire ants in coastal Maine. Funding eventually ran out on that project, so Jennifer moved on to do field work for Professor Frank Drummond on the causes of colony collapse disorder in honey bees. By the time that project was ended, she was working with nearly 100 hives on and around campus.

Jennifer completed her entomology master's degree at the University of Maine, and then the Apiarist position opened up when State Apiarist Tony Jadzcak retired. He was State Apiarist for 30 years and had a warm rapport with beekeepers. He was a hard act to follow, Jennifer said, but local beekeepers accepted her quickly.

Jennifer loves her job and it shows!

Colorful beehives in a Maine meadow. Different colors and/or patterns help individual bees to properly identify their own hive.
- University of Maine Cooperative Extension photo

May 13th Field Day - Ringed Boghaunter at Long Pond Bog, South Berwick

Join us for a marvelous late spring field day at the Rocky Hills Preserve in South Berwick, as we check out a new site for the potential presence of Ringed Boghaunter dragonflies (*Williamsonia lintneri*), one of the rarest of North American dragonflies. The species was last seen at this location in 2003.

We'll assemble at the parking lot for the Preserve at 10:00 a.m. Bring wetland boots, insect repellant, lunch, drinks, collecting gear, etc. The terrain is hilly, and the hiking trails are identified as "difficult" on the Preserve web site (https://gwrlt.org/rocky-hills-preserve/); it's approximately a mile from the parking lot to the boggy margins of York Pond.

The parking lot is just off State Route 236; geographic coordinates are 43.198, -70.790. To get there, from southbound I-95, take Exit 2. At the end of the offramp, turn left onto State Route 236 (Dow Highway). Go 7¾ miles and turn right onto Punkintown Road.

Coordinator for this field day is Pete Darling (petedarlingii@yahoo.com).

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A Writing Workshop for Naturalists - Jump-Start your Newsletter Piece

Saturday, April 15, 2023, 10:30 a.m. - 2:30 p.m., Fire Station Community Room, Hallowell

***PRE-REGISTER* BY SUNDAY, April 9 by purchasing registration at the M.E.S. web site: https://www.maineentosociety.org/events**

For More Information: email Kathy Claerr at **kclaerr1@comcast.net**

A writing expert will help us share our entomological or natural history experiences with others. Think about what you might like to write up for a newsletter: an interesting field observation? A new technique? Short biography of an underappreciated entomologist? A photo quiz? Poem? Perhaps there's a topic about which you're clueless but curious – here's an opportunity to learn and pass on what you find.

In this half-day workshop, we begin by reading and discussing some sample pieces, moving beyond our initial

(continued on next page)

(Writing Workshop, cont.)

reactions of "I like it" (or "I don't") to uncover the authors' choices about how to frame their subject, reach their intended audience, and structure their writing.

Using this awareness of the many choices an author makes, we ask participants to work on a piece of their own writing. Participants should come with a project in ***any*** stage of development (an idea, an outline, notes, or a draft).

We'll do at least one round of "workshopping" everyone's efforts, at whatever stage they're at. This means we'll share our projects in a small group and give constructive feedback to each other.

Each participant should end the day with a draft naturalist's project for a newsletter and a network of fellow readers and writers willing to offer support and feedback as they move that project to completion.

We will take a mid-workshop break for lunch.

Please bring:

1. A project or idea you'd like to work on.
2. A laptop or wifi-capable device if you have one, even if you plan to write using pencil and paper.
3. Bag lunch, and travel mug.

Workshop leader:

- *Seri Lowell, former Science Writing Specialist at Bates College and Editorial Associate at the* ***Journal of Mammalogy****.*

Directions to Hallowell Fire Department on Coos Lane

(Site coordinates: Lat. 44.292, Long. -69.798.)

From the North

I-95S Exit 109 for U.S. 202/ Western Avenue, at Augusta. Proceed east on U.S. 202/ Western Avenue about 1.4 miles. At the round-about, exit for State Street / Route 201 South. Proceed about 1.5 miles to Winthrop Street in Hallowell. Turn right on Winthrop Street. Proceed up the hill. Coos Lane is about 0.5 miles on the right. The Fire Department is on the left of Coos Lane.

From the South

I-95 N Exit 102 ***or*** I-295 N Exit 49, near Gardiner. Turn onto Route 126 East toward Gardiner. Your turn will be **left** off of the exit from I-95, or **right** off the exit from I-295. Proceed a little more than 4 miles (depending upon which exit you have taken) into Gardiner. Turn left onto U. S. 201 North. Proceed 4.3 miles to Winthrop Street in Hallowell. Turn left onto Winthrop Street. Proceed up the hill. Coos Lane is about 0.5 miles on the right. The Fire Department is on the left of Coos Lane.

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M.E.S.'s "Science Guy" Web Site Updated

We announced in the November issue that long-time M.E.S. member Jon Wallace has a fascinating web page up and running, that features his broad spectrum of scientific interests:

https://scienceguymaine.com/

Jon has updated the web site and uploaded scores of his incredible insect photos. Click on "Macrophotography" at the head of the page to see them!

MES Webinar Series: The Aleocharine Beetles (Staphylinidae - rove beetles) of New Hampshire (and Maine) by Don Chandler

March 9, 2023; Cost: FREE!

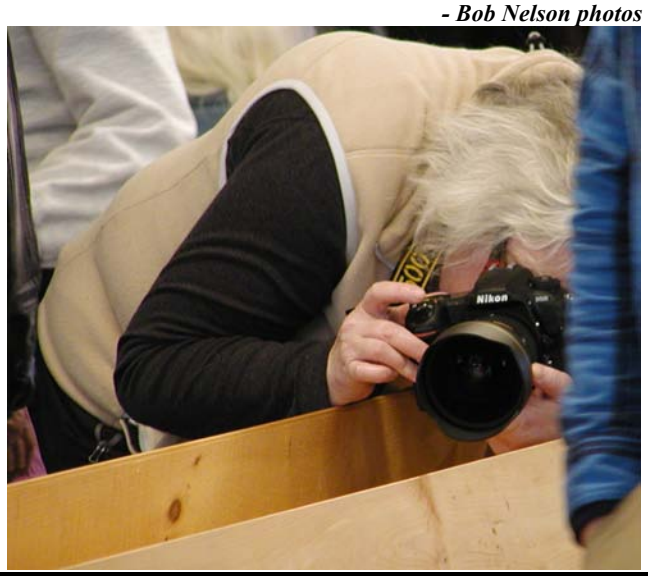
To the uninitiated, the Staphylinidae, or Rove Beetles, look to most people like small earwigs, without the "pincers" at the back. Anyone who's worked in a garden has encountered these, sometimes in large numbers. In diversity, this is the largest family of beetles in the world.

The largest subfamily (Aleocharinae) of this family is still poorly known in the United States. The biology, diversity, collecting techniques, and reasons why the subfamily has been so poorly known will be discussed, as well as the promise for expansion of knowledge for the diversity of Maine as is currently being done for New Hampshire and has been down for Canada. To register, go to the M.E.S. events web page:

(https://www.maineentosociety.org/events)

***Above*, István Mikó explained the tough, elastic properties of resilin in insect cuticle (the blue in the images) at the Winter Workshop. Its function in insect eyes is as yet unknown. *Below*, Julia Bayly filming the cockroach race at the Winter Workshop. To see her video clip of the race, go to the Bangor Daily News story she wrote, at tinyurl.com/28cjjask .**

- Bob Nelson photos



"I *Know* I saw that in the newsletter *SOMEWHERE*!"

An Index to M.E.S. Newsletters now exists!

Do you ever find yourself wondering where, and in what issue, you saw an article you remember from the M.E.S. newsletter? Well, you can wonder no more! A very long and demanding effort has been put forth to produce an Index to all past issues, through 2022, and which will be continually updated as new issues appear. A big ***thank-you!*** to Charlene Donahue, who spearheaded this effort, with assistance from Anna Court. Contact Charlene Donahue (donahuecp15@gmail.com) if you'd like a copy!

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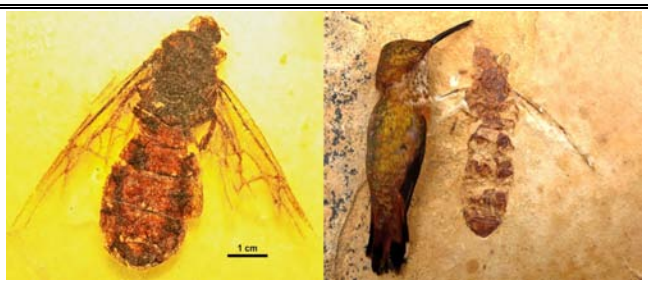

***Titanomyrma gigantea* from Germany (left) and *Titanomyrma lubei*, from Wyoming, with a rufous hummingbird for scale.**
Wikimedia commons photos

What an Ant!

by Bob Nelson

A new article in *The Canadian Entomologist** provides a fascinating insight into past climatic regimes, based on fossil winged queen giant ants that apparently migrated freely across the Arctic from Europe to North America (though the continents were much closer together back then than they are now).

The ant genus *Titanomyrma* was described in 2011 by Archibald and several coauthors, based on specimens from German and Wyoming sedimentary deposits dating back nearly 50 million years. Queens of this genus, the largest ant known, either fossil or modern, were the size of small hummingbirds.

In the modern world, ants with large queens are found in tropical environments with high temperatures and little seasonal variation, whereas smaller ants are found in most environments other than the Arctic tundra. The discovery that this genus of giant ants was to be found in both Europe and North America suggests at least episodic tropical warmth between the two continents, including the intervening Greenland corridor. This most recent paper describes a new specimen that apparently lived in a cooler upland environment, though distortion of the specimen makes it impossible to know its actual size in life or whether it represents a new species.

I have a copy of the original paper for anyone who would like one.

* S. Bruce Archibald, Rolf W. Mathewes and Arvid Aase, 2023: Eocene giant ants, Arctic intercontinental dispersal, and hyperthermals revisited: discovery of fossil *Titanomyrma* (Hymenoptera: Formicidae: Formiciinae) in the cool uplands of British Columbia, Canada; Canadian Entomologist, v. 155; published on-line on 6 February, 2023.

Oh, SHIRT!

Time to get your M.E.S. shirts if you don't already have them - available in the traditional pattern (left) or the 25th Anniversary "birthday shirts" (right). The few remaining **birthday shirts** are on special clearance prices - t-shirts (S-M-L-XL) are $7 & XXLs are $10; sweatshirts are $13, or $16 for XXLs. (The XXLs can make very nice nightshirts! ☺) Birthday t-shirts are available in pale blue or pale green; birthday sweatshirts in blue only.

The **traditional shirts** are in various pale colors and are $12 (S-M-L-XL); XXLs are $18; sweatshirts are $15, or $21 for XXL's.

To get your shirt(s), contact Dana Michaud, Treasurer (**djmichaud1@gmail.com** or by phone at 207-872-7683).

Prices are all for shirts picked up from Dana. If you wish to have them mailed to you, please add $7 for each T-shirt or $10 for each sweatshirt. Unfortunately, the USPS doesn't give us any discounts!

COMING M.E.S. EVENTS in 2023

(***See the MES web site at https://www.maineentosociety.org/events for additional information on any event, especially upcoming webinars - which will be posted as soon as information is available.***)

March 25: Maple Syruping & Early Insects, Whitefield (Charlene Donahue)(see p. 4)
April 15: Insect Writing Workshop (Kathy Claerr)(See p. 8)
May 13: Ringed Boghaunter Field Day, southern Maine (Pete Darling)(See p. 8)
June 3: Field Day, Florida Lake, Freeport (Roger Rittmaster)
June 24: Field Day, Oak Hill Conservation Area, Fayette (Dana Michaud)
July 8: Field Day, Camden Snow Bowl, Camden (Roger Rittmaster & Kathy Murray)
August 5: Field Day, Lubec (Bob Nelson)
September 9: Field Day, Good Will - Hinckley trails, Fairfield
September 30: Annual Meeting, Clinton (Bob Nelson)

The Maine Entomologist **is the quarterly newsletter of the Maine Entomological Society. Dues are $15 per year, or $18 if paid via PayPal through our web site (https://www.maineentosociety.org/join). Checks should be made payable to the M.E.S. and sent to Mr. Dana Michaud, M.E.S. Treasurer, at 3 Halde Street, Waterville, ME 04901-6317 (e-mail: djmichaud1@gmail.com). If you're unsure about your dues status, please contact the Treasurer.** ***Individual articles reflect the opinions of the authors and mention of any specific commercial products or businesses should not be construed as formal endorsement by the M.E.S. of any such product or business.***