

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 are having a lovely autumn season this year! Settling into the “off” season (as in, the time where we wait until Spring to enjoy our field days again), I want to remind all MES members that there is still plenty to look forward to during these colder months!

We kicked off our second annual “Webinar Season” strong with an excellent presentation by our own “Beetle Bob” Nelson - *Tiger Beetles: The Often Colorful “Butterflies” of the Beetle World*. The presentation was recorded and will be available on the online webinar archive shortly! There is also talk in the works on planning our annual winter workshop – while no theme has been chosen quite yet, I will hint that there might be something aquatic in the works.

I would like to take a moment in this column to share *two* incredibly exciting things that have been going on in my life since the previous newsletter.

Firstly – I started a new position in early September with the Maine Department of Agriculture, Conservation and Forestry as the Integrated Pest Management Specialist for the state. I have *VERY* large shoes to fill, as many of you probably know that this role was held previously by our own Kathy Murray. I am honored and excited to fill this role now for the State of Maine.

Integrated Pest Management (IPM) entails the use of a system-wide approach in solving, or more importantly, preventing negative interactions between humans and insects. For example – it is better to install a door sweep and ensure your screens aren’t ripped to keep insects out of your kitchen, than to let the insects show up and then try to control them! Ultimately, it is so important to remember that *we* live in *their* world.

Within this role I am providing guidance and support for IPM in Maine schools, agricultural settings, urban settings, and pretty much anywhere humans and insects might cross paths. I have already enjoyed this role very much and look forward to seeing where this career leads me.

Secondly – I am expecting my own little “bug” on the way, with a due date of April 14th! I have now survived the dreaded first trimester and will likely have to attend the early field days in spirit next summer. I look forward to this huge journey and can’t wait to share my love and passion for the insect world with this little boy!

Enjoy this November newsletter, and I wish you all a lovely holiday season.

Table of contents

- 🔍 Minutes of 2021 Annual Meeting (p. 2)
- 🔍 Earwigfly (!) in Whitefield (p. 3)
- 🔍 Tagging Monarch Butterflies (p. 4)
- 🔍 Fight Night on the Farm! (p. 5)
- 🔍 Citizen Science in Maine Tick Survey (p. 6)
- 🔍 The Truth About “Spider Bites” (p. 8)
- 🔍 Sweat Bees Play Well With Others (p. 9)
- 🔍 Allegheny Mound Ants (p. 10)
- 🔍 New Book on Aleocharine Staphylinids (p. 11)
- 🔍 Got Unwanted Natural History Collections? (p. 12)
- 🔍 Coming M.E.S. Events (p. 12)

DUES REMINDER!

M.E.S. dues are payable on a calendar-year basis. If you haven’t already done so, please renew now for 2022 to guarantee uninterrupted receipt of the Newsletter; you’ll find an insert inside (or as a separate e-mail attachment). Treasurer Dana Michaud’s name and mailing address are also at the bottom of this page for your convenience. **Dues are \$15 per year** (\$18 if paid on-line through the web site, via PayPal), and may be paid up to two years in advance. **Please note that effective January 1st, 2022, LIFETIME MEMBERSHIPS will be increasing in price from \$200 (\$210 on-line via PayPal) to \$300 (\$315 on-line).**

Minutes of MES Annual Meeting:

October 2, 2021

Submitted by Anna Court, Secretary

Seventeen MES members and guests attended the 2021 MES annual business meeting at Bob and Nettie Nelson's home in Clinton on October 2. This was the 24th annual meeting of the Society.

Business Meeting Called to Order. MES President Hillary Petersen called the annual business meeting to order at 1:30 p.m. Attending were: Nina Beckwith, Kathy Claerr, Anna Court, Peter Darling, Charlene Donahue, Gail Everett, Karen Hopkins, Theresa and Liz Mazurkiewicz, Esther Merry, Dana Michaud, Cathie Murray, Kathy Murray, Bob Nelson, Nettie Nelson, Hillary Peterson, and Frank Woodard.

Peterson opened the meeting with a brief report on her first year as president. She said that it has been very rewarding for her personally and in terms of progress for the organization. She noted particularly that attendance at MES webinars has been excellent and that our Facebook Group page, Maine Insects is very popular. (See details below).

Anna Court reported that we had 26 new members join MES in 2021; and 23 in 2020.

Approval of Minutes.

ACTION: Minutes of the September 26, 2020 Annual Meeting were approved without correction.

Treasurer's Report: General Fund. Treasurer Dana Michaud presented the Treasurer's Report which showed a balance of \$3,408.32 in the general account as of August 31, 2021. Income came primarily from dues, including the fees of a number of new Life Members, and the Winter Workshop.

Treasurer's Report: Scholarship Fund. Michaud reported that the balance in the Scholarship Account was \$4335.75 on August 31, 2021. A grant of \$1,000 was made in the 2021 fiscal year to University of Maine for MES member Wesley Hutchins who was working with Professor Amber Roth on a project tagging Monarch butterflies.

ACTION: The Treasurer's Report was audited by Nettie Nelson and approved by the members

Discussion: MES Internet Activity. Hillary Peterson reviewed MES' internet activity. She said that attendance at **webinars** in 2021 was high and feedback has been excellent.

ACTION: Hillary Peterson, Cathy Murray, Mike Parisio, and Charlene Donahue presently arrange for and facilitate the webinars and will continue to do so. The goal is to have a webinar each month. Anna Court said she would add the webinars and attendance at each to the data she keeps on MES activities.

Hillary said that since the new **MES web page** went live on 11/28/2020, we have had 4,500 visits to the home page. She posts MES events (webinars, field days, winter workshop) there and she believes attendance at these events is improved by doing so. It was suggested that more of the MES newsletters be posted on the MES site. Currently

issues from 2007 to 2017 are on the site now. Charlene Donahue will be working with Hillary to ensure that these get posted to the website this year. Memberships through the PayPal option on the website has generated \$1,900 in dues income since the site went live. The site has had six blog posts so far. The group suggested that blog posts include photos and descriptions of MES field days. Hillary said she needed a member to volunteer to facilitate the blog posts. Kathy Murray has been doing this during the past year but would like to hand the responsibility to someone else.

ACTION: Hillary said she would check on getting the more recent newsletters on the MES site. Esther Merry volunteered to act as the Blog Manager. She will reach out to members to provide content. Leaders of Field Days would be responsible for writing up the event or finding someone else to do it. Kathy Claerr volunteered to prepare a memo to Field Day leaders on how to write up the event as a blog posting.

The **Facebook Maine Insects group site** has also been very popular. Hillary is the moderator for the site. There are currently 4,100 members, 3,603 of them active. We have had 159 new members since Sept. 1 and 2023 posts since June. Most of the posts are of Maine insects. There have been 11,618 comments and 15,000 reactions. The group said that we should advertise membership in MES on the Facebook page.

ACTION: Hillary Peterson will continue helping moderate the Facebook group site, Maine Insects. She will set up a new feature that designates experts for identification requests and put on material to advertise membership in MES.

NEW BUSINESS

Election of Officers. The group discussed the need for a new method of nominating members for positions that would open up the process.

ACTION: The members agreed to call for nominations in the August MES newsletter and provide a form and descriptions of the responsibilities for each office. There will also be a committee to solicit nominations. Bob Nelson made a motion, which passed unanimously, to re-elect the current officers for a new term which will begin immediately after the 2021 Annual Meeting and continue to the 2022 Annual Meeting. The following officers were elected unanimously.

President: Hillary Peterson

Vice President: Michael Parisio

Secretary: Anna Court

Treasurer: Dana Michaud

Members-at-Large: Cathie Murray and Kathy Murray

Newsletter Editor: Bob Nelson.

Discussion: Life member dues increase. The group discussed increasing Life memberships from \$200 (\$210 if using PayPal) to \$300 (\$315 if using PayPal). Bob Nelson noted that life membership fees in organizations were
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Annual Meeting Minutes (cont.)

routinely 20 times annual membership fees. A \$300 life membership fee meets that criterion. If the fee were raised to \$300, \$20 of that fee would go to the scholarship fund.

ACTION: The group voted to increase the Life membership fee to \$300 (or \$315 with PayPal), starting January 1, 2022. Annual membership dues will stay at \$15 (\$18 with PayPal).

Discussion: Bylaws Review. The group discussed the need to review and update the Bylaws.

ACTION: A motion was presented and passed to form a committee to review and update the Bylaws. Kathy Claerr, Anna Court and Gale Everett agreed to serve on this committee and suggest revisions to be approved by vote the full membership. The vote needs be completed at least three weeks prior to the Annual Meeting. Charlene Donahue agreed to circulate the version of the Bylaws that she has (most current) to members of the committee.

Discussion: Winter Workshop. The group discussed the winter workshop to be held in January. Aquatic insects was suggested.

ACTION: The Executive Committee will meet and decide on the topic and whether the workshop will be conducted via Zoom or actually meet in person. Tom Schmeelk has agreed to coordinate this event.

Discussion: Outreach. The group discussed additional outreach to attract new members. Several possibilities were mentioned: the Common Ground Fair, the Agricultural Trade Show at the Augusta Civic Center (January), and advertising membership on the MES Facebook page.

ACTION: It was agreed that advertising membership on the MES Facebook page would have the best outcome. Hillary Peterson agreed to add that material. The existing brochure can be used for that purpose.

MES Field Trips and Activities. The following events are planned.

October 7th: Tiger Beetles Webinar; Bob Nelson.

November: Aphids in the time of global change Webinar; Leader: Andrei Alyokhin.

January 22nd: Winter Workshop. Presenter will be Dr. Jeffrey Heilveil, addressing aquatic entomology; Leader: Tom Schmeelk.

March 26th: Maple Syrup and Insect Collecting Field Day, Whitefield; Leader: Charlene Donahue

April: Pinning workshop; Leader: TBD

May: Field Day, southern Maine, Ringed Boghaunter Dragonfly search; Coordinator: Hillary Peterson (will need someone to volunteer to actively lead the field day when it occurs).

June 4: MES 25th Anniversary Celebration, Viles Arboretum; Leader: Dana Michaud.

June 18th: Field Day, Sousa Preserve, Burnham; Leader: Bob Nelson.

July 9th: Field Day, Coastal Land Trust property; Leader: Kathy Murray.

August 13th: Field Day, Location TBD; Leader: Pete Darling.

September 10th: Field Day, Brunswick area; Leader: Kathy Claerr.

October 1st: Annual Meeting, Clinton; Leader: Bob Nelson.

Adjourn. The group voted to adjourn the meeting at approximately 3:30 p.m. After the meeting, the results of the raffle, organized by Charlene Donahue, of insect-related objects and books were announced. This activity raised \$100 for MES.

* * * * *

An Unusual Find Indeed!
by Charlene Donahue

I made an unusual find when we were making sugar syrup for the honey bees this September (the flowers did not appear to have enough nectar for the bees to fully stock their hives with honey for the winter). We were using the maple syrup evaporator to heat the water for the syrup and I went out to drain the water the next day and noticed an insect floating dead in the water. As the evaporator is just feet from my "antlion sanctuary" (aka - the equipment shed with a sand base) without looking closely at the insect, my first thought was that it was an antlion adult. So, I scooped it out of the water, dried it and pinned it up. I brought it in to the museum to take a closer look. Dana Michaud took one look and corrected me, "No, this is a much better find - it's an earwigfly!!!"



The earwigfly - *Merope tuber* - found in Whitefield.
- Photo by Charlene Donahue

Earwigflies in North America are all one species, *Merope tuber* Newman, family Meropeidae in the order Mecoptera (Scorpionflies). Meropeidae is a very small family with only two known genera and three species worldwide. *Merope tuber* is found in eastern North America, *Austromerope poultoni* Killington in Australia and *Austromerope brasiliensis* was recently discovered in Brazil (Machado et al., 2013). It is thought that the two genera were separated back when the supercontinent Pangaea broke up in the Mesozoic Era, 176 million years ago.

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Earwigfly in Whitefield (cont.)

Not only are there very few species of earwigflies, but they are relatively uncommon as well. Once thought to be rare, it now seems that that may be more an artifact of collecting techniques. As more malaise traps and other passive methods have been used, more earwigflies have been found. Earwigflies are nocturnal and most often found in deciduous forest near water, and probably spend the day under logs, rocks or bark on trees (Dunford et al., 2016).

The physical attributes of *M. tuber* suggests that adults spend time on or in the ground. In particular they have a jugum that locks the wings to the thorax to ease pushing through soil or other substrates (Hlavac, 1974). They also are dorsally flattened and have relatively short legs and antennae.

Adults are reportedly found from June through September. This matches up with the three specimens that I know of from Maine. I found a male in Whitefield on September 19, 2021, and Dana discovered two in material collected from log emergence traps set in the Penobscot Experimental Forest in Bradley, Maine. A male was captured July 24, 2002, and a female on August 22, 2002.

There is not much more known about these unusual insects. The larvae have not been discovered yet and their life-cycle is unknown. There is always more to investigate and learn in the world of insects!

References:

Dunford J. C., L. A. Somma and D. Serrano, 2016. Current disposition of earwigflies, *Merope tuber* Newman and *Austromerope poultoni* Killington (Mecoptera: Meropeidae), in the Florida State Collection of Arthropods. *Insecta Mundi*, 0467: 1–14 ZooBank Registered: urn:lsid:zoobank.org:pub:626F7323-1E6B-48F8-8CEF-AE663E7702DF.

Hlavac, T. F. 1974. *Merope tuber* (Mecoptera): A Wing-Body Interlocking Mechanism. *Psyche: A Journal of Entomology*, vol. 81, Article ID 045917. <https://doi.org/10.1155/1974/45917>.

Machado R., R. Kawada and J. Rafael, 2013. New continental record and new species of *Austromerope* (Mecoptera, Meropeidae) from Brazil. *ZooKeys* 269: 51-65. <https://doi.org/10.3897/zookeys.269.4255>.

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Tagging Monarchs: Slowly and Carefully!

by Wes Hutchins

I'm a sophomore wildlife ecology student at the University of Maine, and this past summer, I conducted a project regarding monarch butterflies at the Fields Pond Audubon Center in Holden.

To do this, I affixed tiny tracking devices to monarchs, and now I can track their general movements from my laptop. A large antenna was installed on the side of the building at the Audubon Center to pick up the tracking devices attached to wildlife (there are a couple projects involving tracking wildlife at the Audubon Center, and this tower was used to track a few different species).

The question that I attempted to answer was "how long to monarchs stay in the area where they lived as caterpillars?" Before this project could get started, I first had to obtain the technology that I would need and, of

course, some monarchs that were heavy enough to carry tags (a study conducted by some researchers in New Hampshire, with the same technology that I was using, determined that monarchs had to weigh 0.45 grams or more to be tagged).



The tracking device utilized in the Monarch study.

- Photo by Jacob Hutchins.

The head of this project is Dr. Amber Roth from the School of Forest Resources at UMaine. Using scholarship money of mine from the university and a generous scholarship from MES, she placed the order for five tracking devices from the company Lotek. Each tag is about the size of a large grain of rice and each tag had a roughly four-inch-long, hair-like antenna coming out the back of it (see photo).

After I got the tags, the next thing to do was to register them with the Motus Wildlife Tracking System, the site where data from any registered Lotek tag or antenna can be seen by anyone. The antenna on the side of the building at Fields Pond was registered on Motus too, but I was not involved with this part (there are a couple different projects involving Motus technology going on at the Center right now). To register the tags, a recording of each tag's unique "ping" had to be created and uploaded to the Motus site. The tags were turned on with a special device simply called a tag activator. Once the tags were activated and recorded using software on my laptop, the tags were deactivated with the tag activator to preserve battery life. Now that I had basically told the Motus antenna what to listen for, the time had come to attach them to heavy adult monarchs.

Every week starting in July, I drove up to Fields Pond and searched amongst all their milkweed for monarch caterpillars. Because only large monarchs were able to be tagged, I collected more than I needed; thirteen total individuals were collected as the weeks went by.

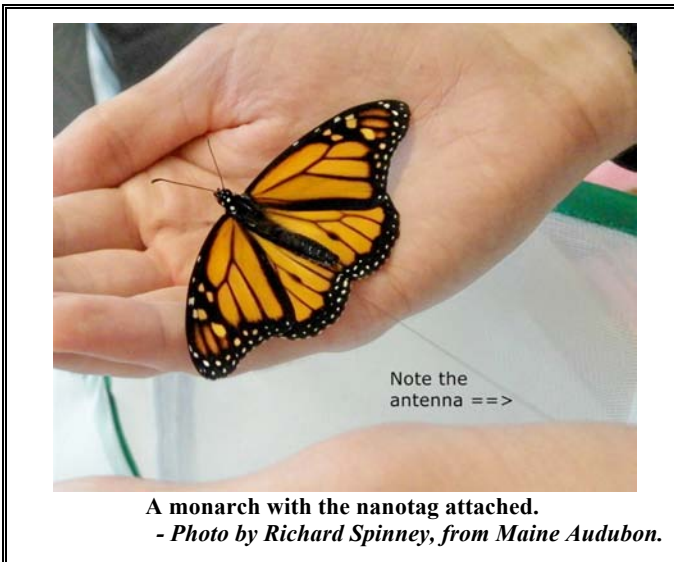
The first couple caterpillars that I collected completed their entire life cycle before the tags had even arrived in the mail yet, so I just let these ones go at the Center. Once the tags arrived and were registered, it was time to start weighing the monarchs as they emerged from their chrysalises to see if they could be tagged. The butterflies were weighed by placing them in an envelope and weighing that on a sensitive kitchen scale. The weight of the empty envelope was then subtracted from the weight of the monarch plus the envelope.

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Tagging Monarchs (cont.)

If the monarch weighed 0.45 grams or more, then it was deemed worthy to carry the tags, which each weighed about 0.12 gram. Most monarch adults weighed much more than 0.45 grams, some even topping a gram. The tags were stuck to heavy monarchs, and the extra adults were released at the Center after emergence.

How does one go about tagging a fragile butterfly? The short answer is “very carefully and slowly.” Each tag was affixed with Krazy glue to the underside of the abdomen, close to where the abdomen meets the thorax. I held each monarch in my left hand, with my thumb and middle finger holding its thorax. I used my pointing finger to keep the monarch’s legs out of the way. I then used my right hand to dip a tag into an infinitesimally small puddle of Krazy glue and then pressed the tag onto the abdomen for about 15 seconds.



A monarch with the nanotag attached.
- Photo by Richard Spinney, from *Maine Audubon*.

After being tagged, each monarch was kept indoors overnight in a large mesh tent to allow them some time to get used to wearing the tag and practice flying around without the disturbance of wind or predators. Then, the next day, each of the tagged monarchs was released at the Center where it had been collected days before.



A monarch at Fields Pond that has been tagged, in its protective mesh tent prior to release.
- Photo by Jacob Hutchins.

Right now, all five of my tags are out in nature on the abdomens of strong monarch adults. Data from the giant antenna at Fields Pond show that all five butterflies have left the area, but none have been subsequently detected elsewhere. The average time that it took for an adult monarch to migrate away from where it “grew up” once it was released at the place where it was raised was 3.6 days. Three of the monarchs stuck around for two days, one only stayed for one day, and one of them surprisingly stayed for 11 days before moving away. It is not yet clear why this one monarch stayed at Fields Pond for so long.

So what happens next? I will continue to check on the monarchs as they fly south and see if they get detected by any other Motus towers across the country. The University of Maine offers grants to undergraduate researchers; I might apply for one of those and do this again next summer.

Thanks for reading!

A Maine Audubon story also highlights Wes's work at Fields Pond, and can be read at tinyurl.com/cv84u8d6

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**Fight Night on the Farm -
Dragonfly vs. Butterfly
(Remembrance of a summer past)**

a sorta true story by Frank Woodard

(photos by Frank Woodard)

[originally published in the Summer, 2021, edition of *Mainly Agriculture*]

Place your bets now! Who do you think will be the Champion of the Maine Meadow? In this corner meet Dragonfly! Mean, fast and deadly! When Dragonfly was a larva swimming around in fast moving streams and rivers, he was a voracious killer! As a larva he had two, count them, two collapsible jaws filled with teeth like the monster in the movie *Alien*.



Now he's a flying harbinger of Death! He uses his great eyesight to spot his victims as he waits on a twig, patrols in circles or hovers over a bit of territory he has claimed as his

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Fight Night at the Farm (cont.)

own, then makes a lightning-fast attack using his incredible maneuverability.

In that corner, meet Butterfly! Lovely, delicate, and tasty! When butterfly was a caterpillar he was a plump, delicious eating machine. Everybody loved him (for lunch) from birds to hornets to the vicious Allegheny mound ant. Butterfly had to hide underneath leaves and eat as much as he could as fast as he could in order to become fat enough to become an adult.

Now he flutters about sipping sweet nectar and using his keen sense of smell to seek out the sweet perfume of his soul mate. His one great strength is his beautiful wings. Not only is he a great flier capable of long migrations, but he uses his wings to sense the slightest disturbance in the air around him. Last chance to place your bets!

While the betting is finishing up, allow me to thank our sponsor for bringing this exciting sporting event to the Farm. A few years ago I learned of the Wild Seed Project (wildseedproject.net).

Heather McCargo helped me discover New England Aster, a late-blooming flower that is a tremendous help for pollinators just before they go to ground in the Autumn. She also introduced me to the concept of "Do Not Mow."



As a lazy farmer who hates spending time and money mowing, the idea of "Rewilding" the two small fields on the farm so there will be more flowers, birds and insects seemed worth a try. Indeed within a few short years, there has been a dramatic increase in wildflowers and wildlife here on the farm. Not only birds, bees, butterflies and dragonflies, but also predators from snakes to foxes. Thus it became inevitable that the two largest insects would clash!

DING! Let the fight begin!

Dragonfly starts by hovering in his corner. Butterfly catches a scent of possible love in the crowd, forgets about the fight and starts searching for romance. When Butterfly gets within ten feet, Dragonfly attacks, accelerating from zero to sixty over ten feet in a few hundreds of a second and then...WHOOSH! It's a MISS! Butterfly dodges at the last possible microsecond!

Butterfly says "uh oh!" and tries to flee, making two strokes of his wings in the time it takes Dragonfly to turn around. Then Dragonfly attacks butterfly's tender underbelly, accelerating from zero to forty over three feet in a couple hundredths of a second and then... WHACK! It's a

HIT! Butterfly uses his mighty wing to knock Dragonfly down and sideways!

Dragonfly is angry now and Butterfly only has time to flap his wings once before Dragonfly rights himself and once again attacks, accelerating from zero to twenty in one foot and then... WHACK! It's a HIT! Dragonfly is knocked for a loop!

Now dazed and confused, Dragonfly slowly retreats to his corner and throws in the towel. With two hits to none, we now know who the Champion of the Maine Meadow is!

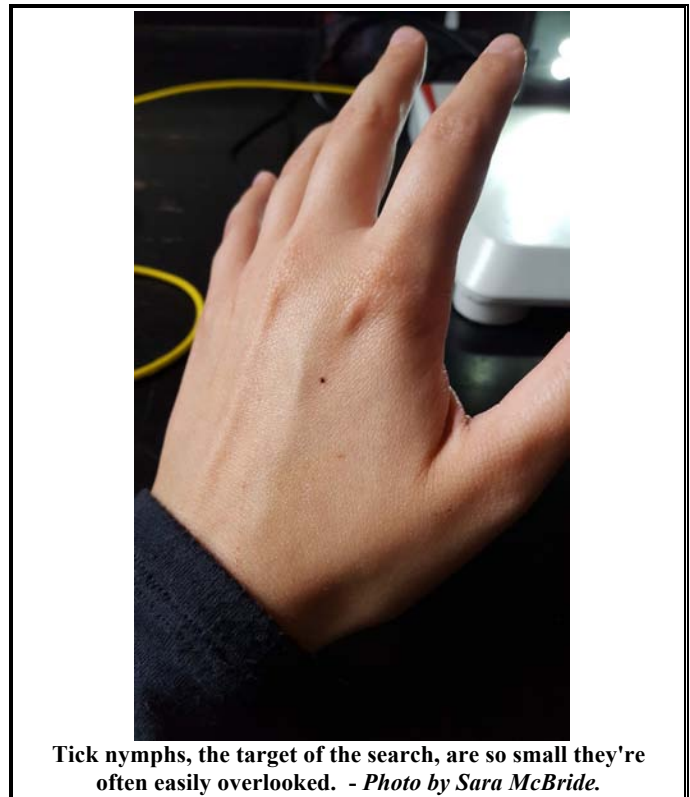
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Community Science Landowners Are Combating Ticks in Maine

by Elissa Ballman

Summer in Maine is known for its outdoor recreation opportunities. While you can commonly find people hiking and exploring our wooded vacationland, a group of Mainers spent the last two summers on a more unusual activity: looking for ticks on their wooded properties. Nearly 300 volunteers donated their time and ticks (though most people were very willing to part with their ticks) to the Maine Forest Tick Survey over the last two summers.

One of the project's volunteers, Karl Beiser of Kennebec County, explained that he got involved because "Tick-borne illnesses are a serious concern for folks who own land in Maine. Cutting firewood, mowing fields, working in my tiny orchard and just walking in the woods expose one to a threat that is relatively new in midcoast Maine. The sampling exercise gave me a more detailed understanding of what to look for and when to look for it in the course of the year."



Tick nymphs, the target of the search, are so small they're often easily overlooked. - Photo by Sara McBride.

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Maine Tick Survey (cont.)

The Maine Forest Tick Survey is a community science project led by researchers at the University of Maine whose goals are to determine how land management impacts ticks, as well as to educate landowners about their own personal tick-borne risks. The ultimate goal of this project is to create recommendations on how landowners can reduce their own tick-borne risks and prevent tick-related illnesses.

The Maine Forest Tick Survey is unique in that it trains landowners to collect ticks using the same “active surveillance” methods used by professional researchers. Most community science tick projects rely on “passive surveillance”, which means people only submit ticks when they happen to find them on themselves. While this is valuable data, active surveillance allows us to collect more ticks across a single area, which gives us a better idea of what is in someone’s woods.

To collect ticks, we have to think like a tick. When ticks go looking for a meal, they climb to the top of leaf litter and low-growing vegetation and patiently wait for their next meal to walk by and then hitch a ride. To capture them while they wait, we have to trick them into thinking we are a passing animal. To do this, we drag a piece of flannel cloth over leaves and vegetation and the ticks grab ahold of the cloth. Instead of getting a blood meal, the tick is picked off the cloth and ends up in a vial of alcohol to be identified and tested for pathogens.

One of our participants, Brittany Gagnon of Penobscot County recalled, “I was mostly shocked by the actual number of ticks in just a small area of my property. I knew we had many but I had never imagined THAT many!”



The most frequently encountered ticks in Maine are dog ticks and blacklegged ticks (commonly referred to as deer ticks). The blacklegged tick is the most important tick in the state that transmits the pathogen that causes Lyme disease, as well as several other disease-causing pathogens including those responsible for babesiosis and anaplasmosis.

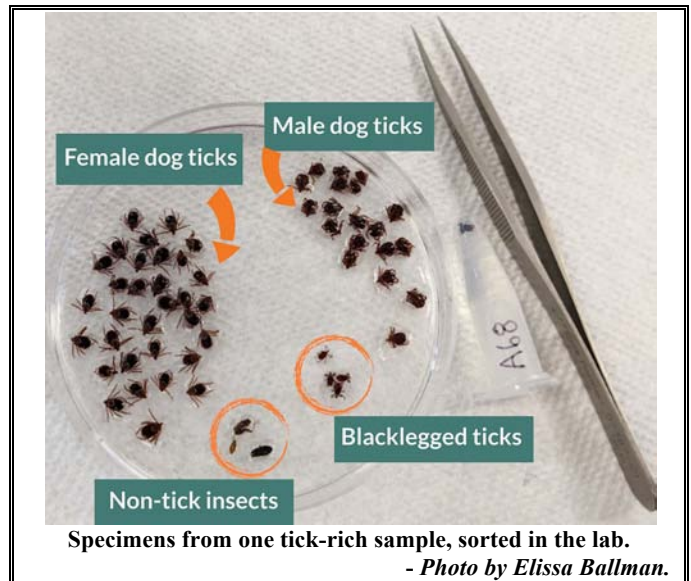
If you think ticks are a lot worse now compared to when you were growing up, you’re right! Maine was free of

blacklegged ticks until the 1980s, and even then they were primarily found in small areas in far southern and coastal Maine. As a result of warmer weather over time, this tick has spread inland and north across the state and increased in density, bringing its pathogens with it. Unfortunately, the blacklegged tick will most likely continue to spread throughout the state and increase in density, creating an ongoing health risk to our communities.

Blacklegged ticks are associated with forests on which they rely for the proper humidity, temperature, hosts to feed on, and places to hide when not actively looking for a blood meal. To combat tick-borne disease health risks, we need to understand how land management impacts ticks.

Mainers manage their woods in a wide variety of ways, ranging from large commercial timber harvests, to managing land for wildlife, to leaving things exactly the way they are. These activities can alter the temperature, humidity, wildlife activity, and in turn, alter the tick population. The blacklegged tick is primarily found in forested areas and although they may look tough, they are actually quite sensitive to temperature and humidity levels. In addition to collecting ticks on their properties, volunteers filled out extensive surveys about their property management history, and forest characteristics such as canopy cover, leaf litter depth, and invasive plant species.

We are busy sorting through thousands of tick submissions back at the Vector Ecology lab at the University of Maine. Check out our website for the results as we continue our work: UMaine.edu/ForestTickSurvey.



The work is on-going, but preliminary analyses show that properties that had a timber harvest anytime in the last twenty years have significantly fewer blacklegged ticks compared to properties that have not had a timber harvest during that same time period. Invasive plant species also impact the tick population, as properties with invasive plants have significantly more blacklegged ticks. This was especially true for properties that have invasive barberry and bush honeysuckle and is very apparent in low-density tick years like in 2020.

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Maine Tick Survey (cont.)

None of this work would have been possible without the tremendous effort of our volunteer citizen scientists. Although not many people think to spend their summers here in Maine seeking out ticks, many of our volunteers found it to be an enjoyable experience. Patrick Morin of Cumberland County said he chose to participate “To spend time with my daughter, as we both enjoy the outdoors [and] to learn more about ticks and to contribute in general to the project.”

The Maine Forest Tick Survey is just one of hundreds of citizen science opportunities out there. If you have a natural curiosity about the world around you, and have a little time to donate, you can make a big impact in scientific research. When we asked volunteer Deb McAuliffe of Waldo County if she had ever participated in citizen science before she said she had not, but she “found it very interesting and would like to do more. I had never been introduced to the opportunity before and will look for more opportunities to participate.”

If you, too, are interested in finding citizen science opportunities to participate in, check out SciStarter.org or Zooniverse.org. You don’t need to be a professional researcher to make a big impact in the science community.

At least five M.E.S. members participated in the tick survey this year, and at least two also participated in 2020.

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An adult male grass spider (family Agelenidae) showing the enlarged palps that are critical for species-level identification.

- Photo by Dana Wilde.

The TRUTH About "Spider Bites"

by Dana Wilde

(No humans were harmed in the making of this column.)

So I’m looking through a Facebook page about insects and spiders. Creepy, I know, but amazing pictures show up surprisingly often in these places.

Anyway, I spot a nice photo of a wolf spider, and underneath it is a long thread of comments. Usually it’s better for your mental health not to look at the comments. But sometimes spider posts are seeking an identification, and sometimes I’m confident enough to help. So I skim

down the thread. In this one, someone asks the almost inevitable question: Does this spider bite?

Some commenters unhesitatingly answer yes. Others say no. Others recommend killing the spider before it can bite you. As often happens, somebody brings up the notorious brown recluse spiders. On this particular Maine-based thread, one person says something like: “I’m finding more and more people are seeing brown recluse spiders in Maine.”

Among a lot of misguided comments, this one really stands out. I start thinking, maybe I need to try, once again, to set the record straight on spider bites with facts from the actual world of arachnology. So here goes.

Bites

Spiders hardly ever bite humans. Most spiders’ jaws are not strong enough to break human skin. Almost all spiders’ first line of defense against huge dangerous beings like humans is to run away; almost no spiders make defensive attacks.

Spiders do not drink human blood or eat human flesh. If you’ve got an itchy welt on your arm, it was pretty surely not inflicted by a spider. Mosquitoes, deer flies, black flies, horseflies, bedbugs, fleas, gnats, ants, ticks, or any number of other mini-monsters who do want to eat you are far more likely to be the culprit.

Sometimes, a cornered spider with no option to run away might try to bite you. Among the spiders in Maine whose jaws are strong enough to break your skin are some wolf spiders, some jumping spiders, some grass spiders, and sac spiders. In the unlikely event that one of them did try to bite you, you may not even feel it and might never know it happened. If your system has the right allergic delicacy to a spider’s venom, you might get a swelling. Sac spiders have a reputation for being able to give you a welt, but the fact is, there’s hardly any documented evidence of it.

No spiders who live in Maine are capable of fatally biting humans.

Brown recluse spiders

Brown recluse spiders do not live in Maine. Their range is middle-south continental U.S., north to about mid-Illinois. They are almost never seen here. The last time a brown recluse spider was verified in Maine was in the 1980s. Maine’s foremost spider expert, Daniel Jennings, investigated the finding and determined the brown recluse spider pair were stowaways in a car that had recently driven from Oklahoma.

Brown recluses do have a bite medically significant to humans. But they do not seek out and bite people; they bite when they feel threatened and can’t run away. When they do bite humans, the result in almost all cases is at worst an itching welt. In a small percentage of cases, the welt may persist and require medical attention. In less than 1% of brown recluse bites, a severe reaction may develop, including damage to blood cells, renal failure, even death. But this is rare.

The likelihood of seeing a brown recluse spider, let alone getting bitten by one in Maine, is practically zero.

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Spider bites (cont.)



An actual male brown recluse spider from Oklahoma, showing the characteristic "violin" pattern on the cephalothorax.
- Photo by Mark Dreiling, from <https://bugguide.net/node/view/61786>

Black widow spiders

There are several species of widow spiders with medically significant bites, but none of them lives in Maine. Their range runs farther north than the brown recluses, and every so often a widow spider who stowed away in a car or freight is reported here. A study made by Dr. Jennings in the late 1980s reported that while it's not impossible for widow spiders to live here in Maine, it's extremely unlikely because of the difficulty of their finding conditions warm enough to survive winter. As winters keep getting milder, this could change, of course. But for now, it is pretty certain that black widow spiders are not established here.

Widow spider bites, like brown recluse bites, are fatal in less than 1% of bites on humans. In fact, widow spiders are notoriously shy spiders who tend to run away and hide on the least provocation, like their cousin the common house spider which is seen practically ubiquitously in Maine and elsewhere. Only one black widow bite has ever been reported in Maine, and even in that case the spider is believed by investigators to have been misidentified.

Why are there so many rumors about dangerous spiders?

In the U.S., few people had even heard of brown recluse spiders before World War II. Around then some researchers got wind of spider bites in the South causing reactions like those of a spider in South America. They investigated, found the culprit was a cousin of the Chilean recluse spider, and along the way noted that in a few cases, people had died. In the 1950s, magazines and newspapers got hold of the research and played up the fatalities – even though there were hardly any.

News media built on these stories, so prevalently that people started thinking there was a recluse or widow spider

around every corner. The medical community, seeking to cover all the bases, started including symptoms of bites in medical manuals. Doctors began diagnosing welts and swellings as spider bites even when no spider had been seen, which, as far as anyone can tell, was usually.

The arachnologists knew all along the spider bite lore was wildly exaggerated, but had little success pushing back against stories and resulting rumors that played on people's natural fears. A study in Italy in 2020 of media reports about spiders found that 70% of the reports contained errors; 32% were sensationalistic; and almost none consulted an expert.

Then we have social media, where completely false information is confidently passed along as factual. I did not engage the discussion, but I'm pretty sure the guy who was "seeing more and more reports of brown recluse spiders" in Maine was speaking somewhere south of the truth. Whether deliberately or not, I don't know.

Don't kill your spiders. They're actually your allies in your garden and in your battle against the little devils who do try to eat you.

*Dana Wilde is the author of "A Backyard Book of Spiders in Maine", available from North Country Press (<https://www.northcountrypress.com/a-backyard-book-of-spiders-in-maine.html>). His new book, *Winter: Notes and Numina from the Maine Woods* has just recently been released, also at North Country Press.*

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A specimen of *Lasioglossum* (Halictidae) in Corea, on a flower of *Helenium* (sneezeweed). Maine has over 50 species of *Lasioglossum*, which are not easy to tell apart.
- Photo by Margie Patlak

What Makes Sweat Bees Play Well With Others
By Margie Patlak

When a sweat bee recently landed on one of my sneezeweed flowers, I did some exploring on the internet and discovered this small bee is helping answer a big question - how social behavior evolved in both insects and mammals like us.

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Sweat Bees (cont.)

Some species of sweat bees (*Lasioglossum albipes* and *Halictus rubicundus* - this latter a member of the Maine fauna) show remarkable flexibility in how social they are. Populations in northern colder regions are solitary, with nests consisting solely of one queen who provisions her progeny. Populations farther south, which are able to produce multiple broods, show the greater social behavior seen in bumblebees, with labor divided between egg-laying queens and their altruistic daughters, that tend their younger siblings and don't generate their own progeny.

This suggested the obvious experiment to figure out what exactly makes sweat bees play well with others - plucking solitary sweat bees from the north and transplanting them down south where they have social brethren and vice versa. Would solitary bees become social when environmental conditions permitted them to create two broods? And would the social bees develop solitary behavior when cold conditions precluded multiple broods? Or were the social habits of the two populations engrained in their genes and not likely to change when they were moved to a new locale?



UK researchers engaged in such experimentation found that though some *H. rubicundus* northern populations adopted the more social ways of their more southern populations when transplanted into their vicinity, the reverse rarely occurred. Scientists suspect that because the northern populations sometimes experience warm seasons enabling more than one brood, the sweat bee retained a genetic switch to turn on more social behavior when the opportunity arises. Sweat bees probably evolved this ability because they are more likely to be successful rearing their young if they band together to do so, as mother bees often don't survive until their young reach maturity.

Researchers at Harvard University then deciphered that this genetic master switch, called *syntaxin 1a*, was less active in the solitary, as opposed to social, sweat bee populations of the same species. This gene regulates the secretion of oxytocin, the so-called attachment hormone because it prompts altruism, attachment, nurturing, cooperation, recognition of individuals, and empathy in a number of different mammals, including us. Mice missing *syntaxin 1a*, for example, have lower levels of oxytocin and abnormal social behavior - they don't interact with new mice entering their cage the way normal mice would. And researchers have also tied a lack of oxytocin secretion or *syntaxin 1a* activity to a number of asocial behaviors in people, including autism.

I now have a greater appreciation for sweat bees and the genes we share with them!

References:

Field, Jeremy, Robert J. Paxton, Antonella Soro, and Catherine Bridge, 2010. Cryptic plasticity underlies a major evolutionary transition. *Current Biology*, v. 20, p. 2028-2031.
Kocher, Sarah D., R. Mallarino, and Benjamin E. R. Rubin, *et al.*, 2018. The genetic basis of a social polymorphism in halictid bees. *Nature Communications*, v. 9, p. 4338
Pennisi, Elizabeth, 2018. Is this bee solitary or social? The answer may depend on an autism-linked gene. *Science*, Oct 18, 2018, [tinyurl.com/25m6k9my](https://www.tinyurl.com/25m6k9my).
Fujiwara, Tomonori, Masumi Sanada, Takefumi Kofuji, and Kimio Akagawa, 2016. Unusual social behavior in HPC-1/syntaxin1A knockout mice is caused by disruption of the oxytocinergic neural system, *Journal of Neurochemistry*, vol. 138, pp. 117-123.
Nakamura, Kazuhiko, Yasuhide Iwata, Ayyappan Anitha, *et al.*, 2011 Replication study of Japanese cohorts supports the role of STX1A in autism susceptibility, *Progress in Neuro-Psychopharmacology & Biological Psychiatry*; vol. 35, no. 2, pp. 454-8.

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The Mound Ant Mystery
by Frank Woodard

I often see ant scouts in the kitchen early in the summer. Perhaps a little brown or black one, or maybe a big juicy red and black Allegheny Mound Ant. I ignore them as they'll soon run back to their nest and report that there's absolutely nothing the farmer cooks that is worth eating.

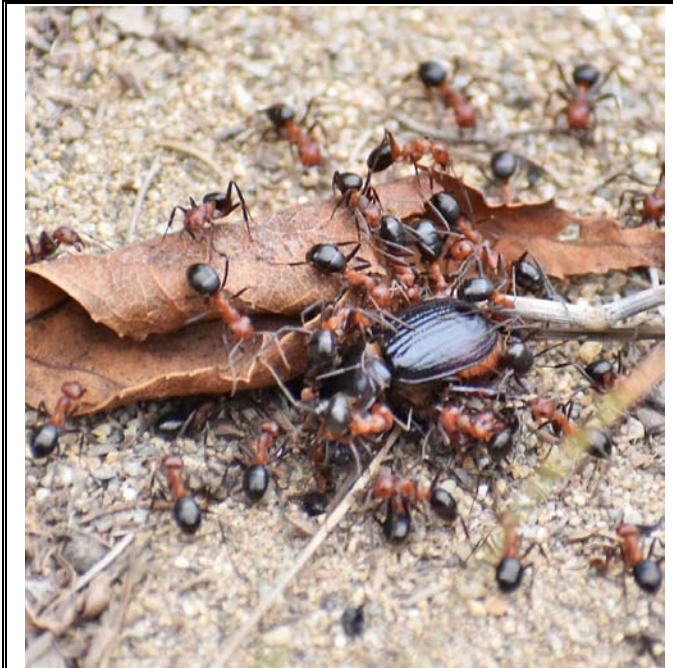
But then one autumn day, shortly after I'd refinished my kitchen floor and the paint was still pretty and shiny, I walked in upon a disaster zone. My nice shiny new floor was littered with evenly distributed Allegheny Mound Ant body parts! I found one live ant walking around. What is going on?

I of course immediately consulted my farm reference library. According to Wilhelm Goetsch in his book *The Ants*, a closely related species, the Wood Ant (*Formica rufa*), builds thatched mounds in the sunshine as a nice warm nursery for their brood. The ants are voracious predators with good eyesight, produce a poison they inject into their victims, and a single nest can destroy thousands

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Allegheny Mound Ants (cont.)

of caterpillars, butterflies, beetles, flies and other small insects that are harmful to man like ticks daily.



Allegheny Mound Ants attack a beetle, probably a plant-feeding scarab of the genus *Serica* ("May Beetle"). Maine has nine known species of *Serica* in its fauna.

- Photo by Frank Woodard

I like having Allegheny Mound Ants around. I always mark new mounds in my meadow so I don't damage them. Some mounds have lasted for fifteen years and are so big I can only wrap a yard stick part way around it. Some disappear after two years. Yet nothing in my library explains why there are body parts neatly arranged all over my kitchen every day.



A large Allegheny Mound Ant mound; colored segments on the carpenter's rule are each one foot (30 cm) long.

- Photo by Frank Woodard

Next I went to the County Extension Service website. At extension.umaine.edu/blueberries/factsheets/insects/ I found that the Allegheny Mound Ants (*Formica exsectoides*) are considered a beneficial insect on the farm, especially in blueberry fields. Allegheny Mound Ants are vicious predators that keep actual crop pests under control. They can cause very minor damage because they clear foliage around their nests, but their value as natural pest control far exceeds any damage they do. OK, but last time I looked there were even more body parts in the kitchen, and now two workers arranging the parts as if they're making a sculpture garden.

Finally Wikipedia explained how Allegheny Mound Ants produce formic acid. They use the acid to kill plants near the nest, and it gives the ants a citrus taste. That would explain why at least once a season the crows bring their fledglings by during flight practice and teach the kids that Mound Ants makes a nice tasty treat. OK, good to know if I'm hungry, but I don't want to eat them. I just wanted them to stop messing up the kitchen.

Time for some Citizen Science! Over a few days I found and followed the culprits, under a crack in the perfectly adequate but not quite perfect trim, up through the wall and finally into a large nest in the two-foot-thick attic insulation. It was an epic two hour battle cutting out the nest! It filled a giant contractor garbage bag. While Allegheny Mound Ants can't break most skin, the one that got me on the lip hurt pretty good! It was during the following few days of vacuuming up strays that it rained and I learned there was a tiny crack in an elbow of the plumbing vent system that over many years had created a nice warm damp nesting spot. The bodies neatly distributed in my kitchen were the result of nest cleaning!

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M.E.S. Member Co-Authors New Book on Aleocharine Staphylinidae

by Bob Nelson

M.E.S. member Reggie Webster and a team of coauthors have just published a landmark volume on a very difficult group of insects - the Aleocharine Staphylinids*. This is one of the largest of the subfamilies of Staphylinidae, if not *the* largest subfamily, with over a thousand known species in the U.S. and Canada. Taxonomically, they are difficult - and the fact that most are 3-5 mm long doesn't facilitate widespread enthusiasm.

The book is available in a digital pdf format for \$169; a hard copy will cost \$219.99. The cost may put it out of reach of all except the most serious researchers, but good research libraries should all have copies available.

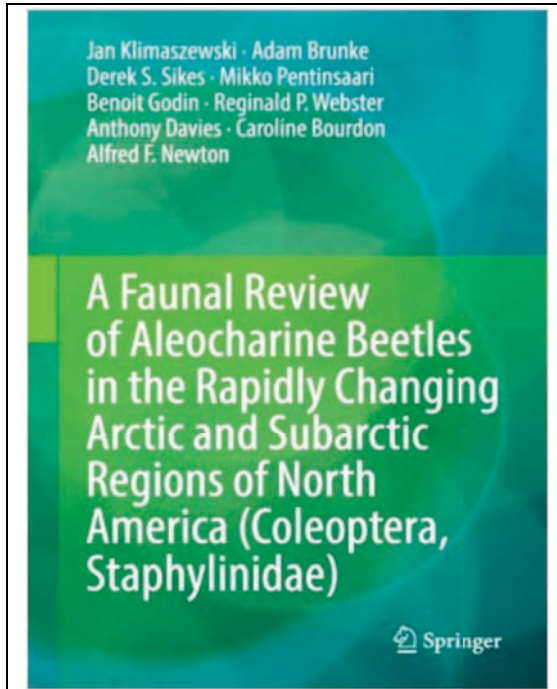
Some of the individual chapters cover:

- *A Historical Review of Research on Aleocharinae of the Arctic and Subarctic Ecoregions of North America and an Overview of the Study Region*
- *Effects of Global Warming on the Distribution and Diversity of Arctic and Subarctic Insect*
- *Aleocharine Beetles as Indicators of Environmental Change*

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Aleocharine Staph Book (cont.)

- *Faunal Analysis and Discussion*
- *List of Recorded Arctic and Subarctic Aleocharine Species of North America and Their Composition*
- *Key to Aleocharinae Tribes of Arctic and Subarctic North America*



These are then followed by chapters on each of the 12 tribes in the subfamily. Most include keys to genera, some include keys to species. For each species included in the tribe, the following is provided: a morphological diagnosis, distribution, information about habitat and methods of collection, key references, color images of the habitus, and black and white images of the genitalia (median lobe of the aedeagus, spermatheca) and terminal segments of both sexes.

* Klimaszewski, Jan, Adam Brunke, Derek S. Sikes, Mikko Pentinsaari, Benoit Godin, Reginald P. Webster, Anthony Davies, Caroline Bourdon and Alfred F. Newton, 2021. *A Faunal Review of Aleocharine Beetles in the Rapidly Changing Arctic and Subarctic Regions of North America (Coleoptera, Staphylinidae)*. Springer Nature; 712 pp.

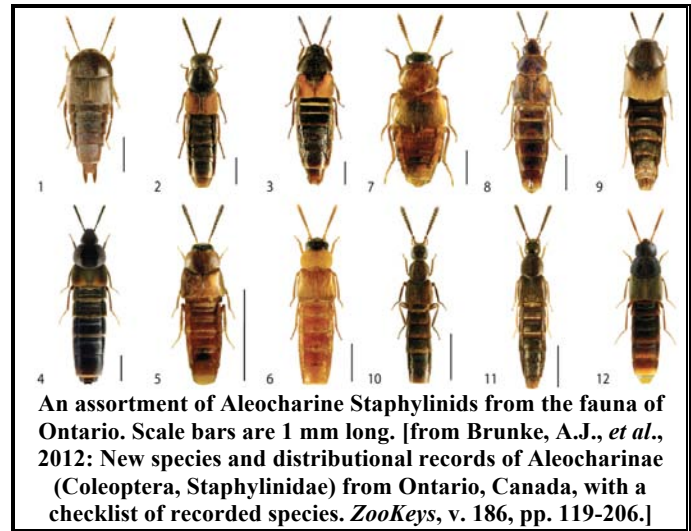


Check out the design for the new 25th Anniversary M.E.S. T-shirts and sweatshirts! Should be GREAT holidays gifts for the entomologists in your life!

Order on-line or with the membership renewal form!

Note: ALL back issues of the newsletter, through 2019, are now uploaded on the M.E.S. website!

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.



An assortment of Aleocharine Staphylinids from the fauna of Ontario. Scale bars are 1 mm long. [from Brunke, A.J., et al., 2012: New species and distributional records of Aleocharinae (Coleoptera, Staphylinidae) from Ontario, Canada, with a checklist of recorded species. *ZooKeys*, v. 186, pp. 119-206.]

Got Collections? *An Important Reminder*

The Maine State Museum is the repository for natural history collections from the State of Maine. Collections focused on a particular location or subject can often add to the larger picture of what is and was living in Maine.

Natural history collections can never be replaced, as they are a reflection of the time and place where they originated. If you, or someone you know, is a collector or has a collection of insects or lichens, shells, bones, etc., that they have amassed/acquired over the years in Maine and no longer want to keep, check with Paula Work, Natural History Curator at the MSM, to see if the museum is interested in it. Contact Paula at paula.work@maine.gov or by phone at 287-8109.

COMING M.E.S. EVENTS in 2021-2022

(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.)

November 18: Webinar on Aphids, with Andrei Alyokhin
December 9: Webinar - TBA
January 13: Webinar - TBA
January 22: Winter Workshop - Aquatic Entomology
February 10: Webinar - TBA
March 10: Webinar - TBA
March 26: Maple Syrup and Insects, Whitefield (Charlene Donahue)
April: Pinning Workshop, TBS
14 April: Webinar - TBA
May: Field Day, southern Maine (Pete Darling)
June 4th: 25th M.E.S. Birthday Celebration - Viles Arboretum, Augusta
June 18: Field Day, Sousa Preserve, Burnham (Bob Nelson)
July 9: Field Day, Coastal Land Trust (Kathy Murray)
August 13: Field Day, site TBS (Pete Darling)
September 10: Field Day, Brunswick area (Kathy Claerr)
October 1: Annual Meeting, Clinton (Bob Nelson)