

# 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,

Spring is finally here, and in a way, this year I am sure that I am not alone in feeling like there is a bit of a two-fold spring with me, and so many loved ones, receiving the Covid-19 vaccine.

Since February, MES really kept things moving despite a pandemic winter. We have hosted three webinars, with a total of 212 registrations across the three events (with generally somewhere between 35-50 active attendees, and many more watching the webinars from the online archive). At the time of writing this, we have also added an exciting "bonus" webinar this month, titled "Living on the Edge: a look into the evolutionary history of the pitcher plant fly and other arthropods that make their homes in carnivorous plants" by Peter Kann.

Some MES members also enjoyed a nice afternoon together during Charlene's maple syrup event. I especially enjoyed seeing an owl pellet found by Cathie Murray!

Our blog has also started featuring some excellent posts, including a new series by Anna Court called "Insecto-Media", featuring any openly available media (books, articles, webinars, movies, etc.) with an insect theme! Cathie Murray also provided a wonderful interview with the youngest entomologist of the month, Oliver.

We are still searching for someone interested in taking on the role of the MES blog coordinator. Please reach out to me if you are interested in the role or in submitting a blog post. Blog posts are a great way to feature lots of photos, tell short, simple, and fun stories, and to gain new MES membership, as these blog posts bring in some of the crowd from the *Maine Insects* Facebook page (which currently has over 1,500 members).

Also, on a personal note, I am excited to announce that one of the research manuscripts I wrote based on some of my Ph.D. work has recently been published in *Insects*, titled "Survey for Adventive Populations of the Samurai Wasp, *Trissolcus japonicus* (Hymenoptera: Scelionidae) in Pennsylvania at Commercial Fruit Orchards and the Surrounding Forest." I was pleased to be able to publish this as an open access article, so feel free to take a look if you are interested (a quick Google search for "Hillary Peterson *Trissolcus japonicus*" will bring it up. More on this, and another publication by MES members Dana Michaud and Dave Bourque in this newsletter!

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## These Butterflies Manage to Survive Maine's Tough Winters

by Aislinn Sarnacki

(This story originally appeared in the Bangor Daily News' "Act Out" section; used with permission.)

In March and April, while the snow is still melting from the landscape in Maine, a handful of hardy butterflies emerge to soak up the sun. Often flying on tattered wings, these delicate, colorful harbingers of spring wake before the trees even begin to bud.

Mourning cloaks are among the first to stir. With large, dark wings edged in pale yellow and adorned with blue spots, these butterflies are hard to miss. On warm days in March in April, they flutter through the forest and perch in the sun, wings open wide.



A mourning cloak butterfly, *Nymphalis antiopa*.

- Photo by Roger Rittmaster

"It always warms my heart to see a mourning cloak in the spring," said Phillip deMaynadier, a biologist who specializes in butterflies at the Maine Department of Inland Fisheries and Wildlife. "I know there are a lot of signs of spring, but there's something about how delicate and beautiful these little wispy creatures are. After such a harsh season in the north woods, it reminds me how resilient life is."

Butterflies have different strategies for making it through Maine's tough winter. Many species overwinter in their caterpillar (larva) form. Others overwinter as eggs or chrysalis (pupa). Some overwinter as adults but migrate south, such as the monarch butterfly. And a small number of butterflies overwinter as adults while remaining in Maine, tucked away in some sort of shelter as snow and ice piles up around them.

These butterflies find shelter in a variety of places, including tree hollows, under pieces of flaking tree bark, in cracks between rocks and under the shingles of buildings. Late last fall, deMaynadier watched one butterfly nestle itself between boards on the outside of his barn.

"It's a nice reminder of just how many species of butterflies are all around us all the time," he said. "Close to 100 species of butterflies are out there right now (not counting the migrant species), alongside you as you walk

through the woods and fields. They're just hidden as eggs and pupa and caterpillars in most instances."

Of Maine's 118 recorded species of butterflies, just eight species - including the mourning cloak - overwinter in Maine as adults to emerge in early spring, deMaynadier said. And all eight of those species belong to the same family: the brush-footed butterfly family.

In addition to the mourning cloak, there's the tortoiseshell butterflies, of which there are two species: the Milbert's tortoiseshell and Compton tortoiseshell. Both have striking black and orange patterns on their wings. (It was a Compton tortoiseshell that deMaynadier watched tuck itself away on the outside of his barn last year.)



The Eastern Comma Butterfly, *Polygonia comma*, showing the upper surface with irregular wing margins, and the tiny "comma" on the middle underside of the hind wing (below).

- Photos by Roger Rittmaster



Then there are the comma butterflies: the eastern comma, gray comma, hoary comma, green comma and satyr comma. With notably ragged edges to their wings, these butterflies display orange, brown and gray patterning and are hard to tell apart.

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*(Overwintering Butterflies, cont.)*

"[Comma] is a very useful and appropriate name," deMaynadier said. "Every single one of the commas I listed for Maine has a little, delicate, silvery comma mark on the middle of the hind wing, underneath."

With the land still half in winter's grasp, there aren't any flowers for these early butterflies to draw nectar from. Instead, they feed on tree sap that oozes out of tree wounds, such as the holes drilled by woodpeckers. You can also often find them flying around at maple sugar operations, where sap is drawn out of trees to make syrup.

They also feast on rotting fruit such as old berries and apples lying on the ground from last fall. And they gain nutrients from animal feces and carrion.

Because these eight butterflies overwinter as adults, they have by far the longest lifespans of all the butterfly species that overwinter in Maine. (The migrant butterflies, such as monarchs, also have long lifespans.)

"When you think about it, they're going into cavities and wood sheds in October and November, and they're not coming out until now," deMaynadier said. "And they're not done. Now that they're out, they're going to breed. This generation will expire here over the next month or so, but that still makes them about 8 months old. That's a really long lifespan for a butterfly."

Other spring butterflies in Maine, such as the spring azure and cabbage white, overwinter in pupa form. They're commonly spotted in April and May.

"Anything that overwinters as a pupa is going to be the next earliest group people would likely encounter because they have a head start on the butterflies that are in egg or larva form," deMaynadier explained.

A number of species of elfin butterflies, which overwinter as pupa, emerge in April, deMaynadier said. In that group are the brown elfin, hoary elfin and eastern pine elfin.

"They tend to be small and kind of drab but energetic little butterflies, about the size of your thumbnail," deMaynadier said. "They have subtle, intricate brown and black patterns on their wings."

In order to spot them, you have to keep your eyes peeled, deMaynadier said, but they're fun to watch. And if you happen to get an up-close view of one, they have an understated type of beauty.

So be on the lookout for butterflies this spring. As the world wakes, these delicate creatures are among the first to bask in the sun, and more will emerge as the days warm.

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**Do Butterfly Boxes Work?**

by **Bob Nelson**

Reading Aislinn's wonderful article about Maine butterflies that overwinter as adults got me wondering about the so-called butterfly boxes, which are supposed to provide safe overwintering habitat for butterflies in particular.

I probably saw my first butterfly box in the 1990s, while leading a geology field trip to Connecticut where one of the stops was in a state park that was also a wildlife sanctuary. What a cool idea, I thought. But I've not seen

many of them set out in Maine, even though I've seen them for sale here.

But Aislinn's article prompted me to do some digging. I readily found sites telling me about how beautiful they were, but invariably they were at places that wanted to sell me one (or more) of these sanctuaries. But then I found a lengthy, analytical piece from Georgia that laid out the facts (<https://georgiawildlife.com/out-my-backdoor-do-butterfly-boxes-work>).



It turns out, butterfly boxes provide great habitat for wasps, spiders, ants, sometimes bugs and flies, and (with modification) mice and birds. But there apparently is no record of any ever being used by butterflies! Check out the Georgia Wildlife site above for the complete story.

However, if someone wanted to set one or more of them up as an experiment, perhaps in multiple habitats, and then monitor them to see whether there would be any butterfly use next winter, it would indeed be noteworthy to report any success!

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**Maine Forest Tick Survey Enters Second Year**

by **Elissa Ballman**

The blacklegged tick (*Ixodes scapularis*) is the tick responsible for the vast majority of tick-borne illnesses in Maine, including Lyme disease.

For a tick that has wreaked such havoc, it is a relative newcomer to the state. The blacklegged tick first appeared in Maine in the 1980s and has continued to spread throughout the state. While most populations are located in southern and coastal Maine, these ticks are also found in central and northern Maine (although in much lower densities). It prefers to live in forests and forest edges, as it is very sensitive to changes in temperature and humidity. It especially thrives in fragmented forests where it encounters its favorite hosts (small rodents and deer) while being protected from the hot, drying sun and temperature swings.

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*(Forest Tick Survey, cont.)*

As the climate changes and Maine experiences warmer winters, earlier springs, and longer summers, the blacklegged tick will likely continue to spread across the state and be active for longer periods of time. The Maine Forest Tick Survey is a citizen-science project created to study how forest management impacts ticks and ultimately help mitigate tick-related public health risks. The main goals of the Maine Forest Tick Survey are to 1) understand the relationship between land management and ticks/tick-borne pathogens, 2) help participating landowners understand their own unique risks, and 3) develop recommendations for landowners across the state to reduce their tick-borne disease risks.



**Blacklegged tick (*Ixodes scapularis*) showing an adult female (left) and nymph. - Photo by Griffin Dill.**

To accomplish these goals, the University of Maine is partnering with private forest landowners and teaching them to scientifically collect ticks in their woods. The vast majority of citizen-science tick studies rely on passive surveillance. That is, when someone finds a tick on themselves or a family member, they send it in to the project organizers. We are taking a different approach and teaching our citizen scientists to use the same active collecting techniques that entomologists use.

Active tick surveillance takes advantage of a tick's questing behavior. The tick collector uses a piece of white cloth connected to a wooden dowel that is pulled over low-growing vegetation with a piece of rope. As the cloth passes over the top of the tick, the tick grabs on to the cloth thinking it is a passing host to feed on. Our citizen scientists are trained how to use drag cloths to collect ticks so that we

can compare tick species and pathogen rates between different forest management systems.

In addition to collecting ticks, our volunteers also provide extensive information about their property management such as date of last timber harvest and invasive plant presence, as well as forest characteristics such as understory vegetation composition, and leaf litter type and depth. Preliminary results show that properties with a timber harvest anytime in the last 20 years had significantly fewer ticks compared to properties without a timber harvest. Additionally, properties that have invasive plants (Japanese barberry, bush honeysuckle, buckthorn, or Asiatic bittersweet), have significantly more blacklegged ticks than properties without invasive plants.



**Above, dragging for ticks. Below, a happy volunteer pauses while collecting ticks from his drag cloth.**

*- Photos by Elissa Ballman.*



We knew people felt strongly about ticks, but we were amazed at how many people signed up to participate last year. In our first year, we had over 300 people apply to participate and were able to accept 125 individuals. In one summer, our citizen scientists collected data that would have taken our lab a decade to gather. We are repeating the study this July and have expanded our study to include 200 volunteers. We are currently recruiting new participants who own 5 to 1,000 acres of wooded land in Androscoggin,

*(continued on next page)*

*(Forest Tick Survey, cont.)*

Cumberland, Hancock, Knox, Kennebec, Lincoln, Sagadahoc, Waldo, and York counties.

To sign up as a citizen scientist and for more information about the Maine Forest Tick Survey, visit our website at [UMaine.edu/ForestTickSurvey](http://UMaine.edu/ForestTickSurvey).

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## Maine Stream Explorers 2021: “A Treasure Hunt to Find Healthy Streams in Maine”

by Cathie Murray

Would you like to get your feet wet, sort through dozens of tiny creatures that look like Dr. Seuss invented them, and then take great satisfaction in submitting photos and data that answer important water quality questions about Maine streams?

Yes? You would? You are a special person!

If this sounds like your idea of fun, consider signing up to be a Maine Stream Explorer! This summer, you and a partner will stand in a Maine stream, scuffing stones, submerged plants and exposed tree roots with your hands and catching the detritus with a net downstream. On the stream bank you'll empty your net into trays and start looking for aquatic insects and other creatures large enough to see, aka macroinvertebrates. You will compare what you find with a checklist full of images to determine which ones are sensitive, moderately sensitive or tolerant of water pollution or impaired water conditions. You'll take photos, submit data, clean up and return your critters to the stream. Then, pat yourself on the back for a job well done!



A volunteer sorts stream invertebrate specimens in 2020.  
- Photo by Hannah Young

### WHY WOULD ANYONE DO THIS?

To answer this question I called up Hannah Young, who coordinates the Maine Stream Explorers program for Maine Audubon.

Hannah reminded me that Maine has over 5,000 rivers and streams. Most of them are healthy, but many are at risk due to changing climate and land-use patterns. Maine's Department of Environmental Protection (DEP) is charged with monitoring stream water quality changes over time, but only has the resources to sample 50-60 streams per year. So they are turning to community science volunteers. Their sampling results help DEP prioritize its own in-depth water quality efforts.

### INSECTS ARE THE KEY

How can volunteers easily and reliably monitor stream water quality? It turns out that aquatic insects are the key. You probably know that some of Maine's most iconic streamside insects (think dragonflies, damselflies, black flies) spend their immature life stages in the water. It turns out these macroinvertebrates are like "canaries in the coal mine." They are excellent indicators of water quality because different species can tolerate more or less exposure to pollution and other environmental stressors.

Hannah shared with me how scientists looked at the 1,400+ species of macroinvertebrates that DEP has found in Maine streams over the years, chose several dozen of the most useful species, genera or orders, and then divided them into three groups:

"Sensitive" macroinvertebrates require cold, clean water and unimpaired habitat.

"Moderately sensitive" species can tolerate a bit more pollution, sedimentation and degradation.

"Tolerant" macroinvertebrates are tough. They can usually live in clean streams but they can also handle warmer temperatures and more polluted water and disturbed habitat.



A healthy Maine stream in the winter.  
- Cathie Murray photo

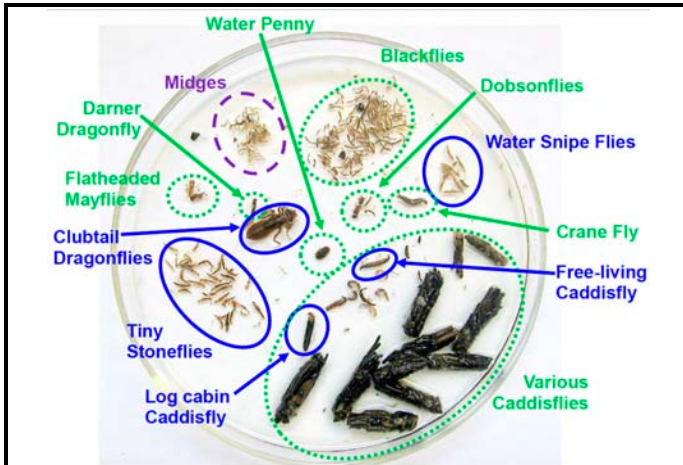
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*(Maine Stream Explorers, cont.)*

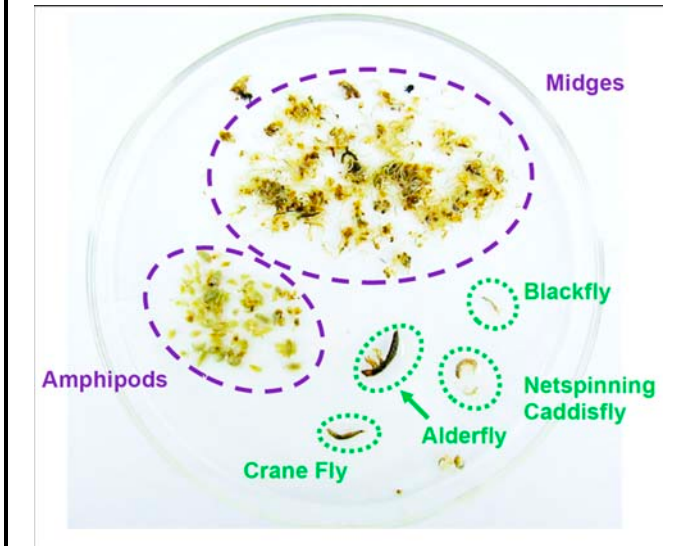
Here are some examples of how familiar macroinvertebrates sort out. All our common stoneflies are "sensitive," some mayflies and caddisflies are "sensitive" while others are "moderately sensitive." Midges, amphipods and isopods are "tolerant." Clubtail dragonflies are "sensitive" while the Darners we'd be likely to see are "moderately sensitive."

Streams that are healthy generally have more kinds of "sensitive" macroinvertebrates, along with some "moderately sensitive" and "tolerant" organisms. In a polluted stream "tolerant" macroinvertebrates will be the most abundant kind and there will be few or no sensitive organisms. As Hannah explained, the proportionate representation of these different groups gives DEP very good information about the status of water quality in the stream.

The two collections below show the dramatic difference in macroinvertebrates in a healthy stream versus a polluted one.



Above, macroinvertebrates from a stream with good water quality. Below, macroinvertebrates from a severely polluted stream. Taxa circled in blue are sensitive, those in green are moderately sensitive, while those circled in purple are tolerant. - Photos by Tom Danielson, Maine D.E.P.



**LAST YEAR'S RESULTS**

The summer of 2020 was the first year Maine Stream Explorers were in the field. Hannah noted the focus was the Sebago Lake watershed, crucial for the City of Portland's drinking water. Partners included Maine Audubon, Maine DEP, the Portland Water District and the Lakes Environmental Association.

Twenty-four volunteers completed the Maine Stream Explorer training. Volunteers included families with young children, retired folks and even a person "from away" who got so excited about it he brought his own field microscope to view aquatic insects in greater detail. They surveyed 26 streams, many that had never been sampled by Maine DEP before. At one extreme, they found 5 streams with high quality, diverse macroinvertebrates. At the other, they found several streams with only 0 - 1 sensitive or moderately sensitive organisms.



Inspecting and sorting macroinvertebrates can be a family affair! This was in September, 2020, at College Swamp Brook in Otisfield. - Photo by Kim McCubrey

**THIS YEAR**

Maine Stream Explorers is expanding this summer to include other streams in southern Maine that aren't necessarily in the Sebago Lake watershed. If you would like to be involved, put on your sun hat, your anti-tick shirt and your water shoes! Get ready to do some detective work that combines curiosity about aquatic insects with a willingness to get your feet wet, literally!

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*(Maine Stream Explorers, cont.)*

According to Hannah, this is what's involved:

Volunteers **must** register at <https://maineaudubon.org/news/events/stream-explorers-training/> and **watch two training videos** to learn how to identify the different types of aquatic insects you are likely to find, and how to conduct the survey.

[Note: The two training webinars will be live on May 5th and 6th at 7:00 p.m., or you can go through the recorded versions later, available via YouTube. Do *not* use last year's videos as the protocols have changed. MES members, even if you know a lot about aquatic insects, the protocols for collection and data entry will be critical.]

**Volunteers will be provided with a guidebook** that includes an overview of the program, details on how to conduct a stream survey, tips for identifying a select list of stream insects, survey data forms, and contact information for participating partners. We will also have recordings of the webinars and a virtual tour of a stream survey available for viewing and reference. All materials will be available digitally and hard copies may be requested if absolutely necessary.

Survey equipment kits will be available for check-out, loan and curb-side pick-up at various partner organizations and locations.

Optional field training will be held this summer in Auburn, Bridgton and Falmouth. And the MES field trip on May 22 will include field training for Maine Stream Explorers.

We encourage interested volunteers to commit to surveying at least one, but preferable two to three streams by October 2021. Each survey will take around 1.5 to 2 hours to complete, plus travel time. [Note: you can survey longer if you are having fun!] We also encourage volunteers to survey in pairs for safety reasons. You can make a family adventure of it.

Please contact Hannah Young at [hyoung@maineaudubon.org](mailto:hyoung@maineaudubon.org) for more details.

The Maine Stream Explorers project is funded by a grant from the Maine Outdoor Heritage Fund.

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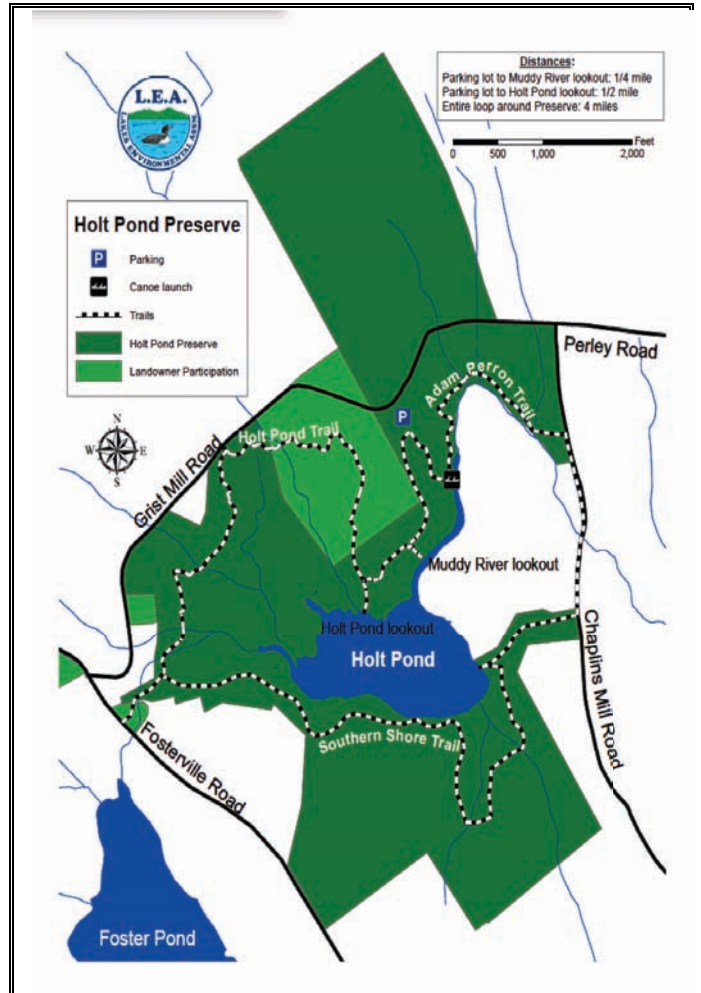
**May 22nd Field Day, Stream Team Training  
and *Williamsonia* Boghaunter Training  
Holt Pond, Bridgton (Cumberland County)  
by Charlene Donahue**

The field trip season starts off on Saturday, May 22nd, in southern Maine with a focus on aquatic insects but you are welcome to come explore anywhere at Lakes Environmental Association's (LEA) Holt Pond Preserve.

There will be Stream Explorer Training (see associated article) from 9:00-11:30 a.m., **preregistration is required** and limited number of participants. Please sign up for the training with Hannah Young at [hyoung@maineaudubon.org](mailto:hyoung@maineaudubon.org). You also need to watch two online videos *before* the field training, at <https://maineaudubon.org/news/events/stream-explorers-training/>. If there are more interested folks then can be trained in one session, those who were trained in the

morning can practice their skills by training others in the afternoon.

We can also look for early season dragonflies, including the rare Ringed Boghaunter (*Williamsonia lintneri*). For information on this insect check out the MES website <https://www.maineentomology.org/events/mes-webinar-series-ringed-boghaunter> and watch the archived webinar if you missed it. Mark Ward will be there to help us – if he is not off in another bog that day. No collecting of this species, please.



Beyond those two activities, Holt Pond Preserve has 400 acres of woods and wetlands with four miles of trails running through it. So, lots of opportunities to look for insects, observe their behavior and take photos. This is a preserve so the LEA requests that specimen collecting be kept to a minimum. Remember boots for walking in the wetlands, sunscreen, and mosquito/tick protection – and your lunch! This field day is rain or shine – aquatic insects don't care about getting wet.

**Directions: From Bridgton:** Take Route 302 East; 1 mile past Lake Region High School, turn right onto Perley Road. Follow directions from Perley Road below.

**From Naples:** Take Route 302 West; 2.5 miles from Naples Causeway, turn left on Perley Road. Follow directions from Perley Road below.

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*(Holt Pond Field Day, cont.)*

**From Perley Road:** Go 1.5 miles on Perley Road to the intersection of Chaplin Mill and Grist Mill Roads; Chaplin Mill (paved) takes a sharp (90 degree) left turn and Grist Mill (dirt) will go straight. Caution: Grist Mill Road is often unmarked and bumpy and may not be suitable for low cars. Proceed slowly! Go straight for 0.3 miles on Grist Mill, and turn left into the Holt Pond parking area. Hooray! You made it!

Charlene Donahue is coordinating this field trip; contact her if you're planning to attend or participate, by e-mail at [donahuecp15@gmail.com](mailto:donahuecp15@gmail.com) or phone at 207-485-0960.

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**June 11th Blacklight Night in Dresden  
(Lincoln County)  
Hosted by Tom Schmeelk**

Join us for an evening of moth appreciation on Friday, June 11th, in beautiful rural Dresden!

**Where:** 88 Glasheen Road, Dresden Maine.

**When:** Folks can show up at 8:00 p.m. or a little earlier to set up. We can trap until midnight or around then.

**Equipment to bring vs. what will be there:** I don't have much in the way of equipment, but we can set up a couple of sheets between trees and I do have a couple of clamp lamps. Feel free to bring any equipment you might find useful. Bring a flashlight, too - we'll be near a new moon, so it WILL be dark away from the lights!

*As a side note,* I do have roommates who go to sleep early. Being farmers they also get up early to work the markets, so if we could be on the quieter side as it gets later I'm sure they would appreciate it.

**Directions:**

**From I-295:** Take Exit 43 and head towards Richmond. You'll be on Route 197, which becomes Main Street in the downtown area. At the stop sign when you get to the Kennebec River, turn left. You'll now also be on State Route 24. About 0.45 miles north, Route 24 goes to the left, and 197 turns to the right to go across the Kennebec to Dresden Mills. Turn right here, and go about 0.75 miles, then turn right on State Route 128. Just 1.5 miles south of here, turn left onto Glasheen Road, which is unpaved. The house is the first on your right.

**From Augusta:** Take Route 9 south on the east side of the Kennebec River; Route 27 will cross over in Richmond, so you'll be on both of them. Continue to "downtown" Dresden, just after you cross the Eastern River, and turn right on Route 127. Two miles down this road, turn right onto Route 127. Go about 1.5 miles and turn left onto Route 128. Just 1.5 miles south of here, turn left onto Glasheen Road, which is unpaved. The house is the first on your right.

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**June 19th Field Day: Viles Arboretum,  
Augusta (Kennebec County)**

Join us in Augusta on Saturday, June 19th, for a fun field day at the founding-home for the M.E.S.!

The Viles Arboretum, with about 6 miles of trails, on 224 acres, has 22 living botanical collections. Open fields, meadows, and forested areas are available for exploring and collecting. Arboretum trails are open from sunrise to sunset, and the visitor is center open from 11:00 a.m. to 5:00 p.m., Wednesday to Saturday.

We'll meet at the kiosk 0.1 miles north of the actual Arboretum entrance at 9:30. The public park-and-ride lot at the Piggery Road corner here holds 60+ vehicles, so we won't affect the parking area at the actual Arboretum.

**Directions:**

**From the north:** Starting where 201 intersects Route 9 at Cony circle on the eastside of the Kennebec, head south on Route 9 (Hospital Street) for 1.1 miles, and turn left at the light onto Piggery Road. Take an immediate right into the public parking lot. The kiosk at the northwest corner has a trail that goes to the Arboretum.

**From the south:** Drive up Route 9, which becomes Hospital Street in Augusta. The Arboretum will be on your right, at 153 Hospital Street; go past it for 0.1 miles. Turn right at the light onto Piggery Road, and hang an immediate right into the park-and-ride lot.

We'll meet there and walk to the main Arboretum building, to begin the field trip. Someone will be there to open early for the occasion.

Bring collecting equipment, food and drink. If you have any questions, call Dana Michaud at 207-872-7683, or email him at [djmichaud1@gmail.com](mailto:djmichaud1@gmail.com)

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**National Moth Week: July 17-25, 2021  
by Karen Hopkins**

Spring has been a real teaser this year, with warm days and cold nights. However a friend in Windham has already collected a moth we have yet to identify. For us, this has really started the adrenaline flowing. Anyone interested in or curious about moths should know that July is the month to celebrate this beautiful and diverse group of insects. In fact, there is a whole week dedicated just to moths, the last full week of July, which this year is July 17-25. And yes, that includes both weekends!

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*(National Moth Week, cont.)*

Moth enthusiasts David Moskowitz and Liti Haramaty, with The Friends of the East Brunswick Environmental Commission (New Jersey), began holding Moth Nights in their community in 2005. These events brought a lot of attention to moths, and attracted many people of all ages who continued to pass on their experiences through blogs and photographs. In 2012, Moskowitz and Haramaty started National Moth Week, “a week-long global mothing event to promote the understanding and enjoyment of moths and to raise awareness about biodiversity” (1). Since then, the interest has grown in the U.S. and across the globe. As of 2019, 91 countries have joined in the celebration (2).

It’s a great way to spend a summer night, sitting outside with a bright light and a white sheet, waiting to see what beautiful neighbors stop by to visit! Bring out the lemonade and iced tea, invite friends, and share the joy! Do remember that moths are sensitive to noise, though. (Neighbors might be, too.)

Not all moths are drawn to lights. These moths may be attracted to bait made with mashed ripe fruit, brown sugar, molasses, maple syrup, beer and/or rum. Mix it well and leave to sit for several hours, then use a brush to paint it on trees. To reduce ants, paint it 3 to 4 feet up from the ground and avoid dripping it on the ground. After dark, quietly check baited areas with a head lamp, especially one with a red light option. While regular lights may disturb feeding moths, the red light doesn’t bother them as much.

Placing light sheets and bait in the same places for several nights will improve results, but it’s best to discontinue for intervals, for if continued for too long, will also draw birds for a breakfast buffet.

Another fun way to find moths is to search for them in the grass, weeds, garden, and trees using the head lamp. Their eyes are quite reflective and will shine like tiny headlights. And don’t forget to watch for moths during the day, as well. Day-flying moths will nectar at flowers, and many strongly resemble bees, wasps, and hummingbirds.

Happy mothing!

Public and private events can be registered at <https://nationalmothweek.org/>

For moth bait recipes and information:

<https://nationalmothweek.org/finding-moths-2/daves-recipe-for-moth-bait/>

[https://files.nc.gov/ncparks/37/MOTH\\_BAITING\\_TIPS.PDF](https://files.nc.gov/ncparks/37/MOTH_BAITING_TIPS.PDF)

**References:**

- (1) <https://nationalmothweek.org/>
- (2) <https://centraljersey.com/2019/08/27/national-moth-week-breaks-records-in-2019-after-starting-in-east-brunswick-seven-years-ago/>

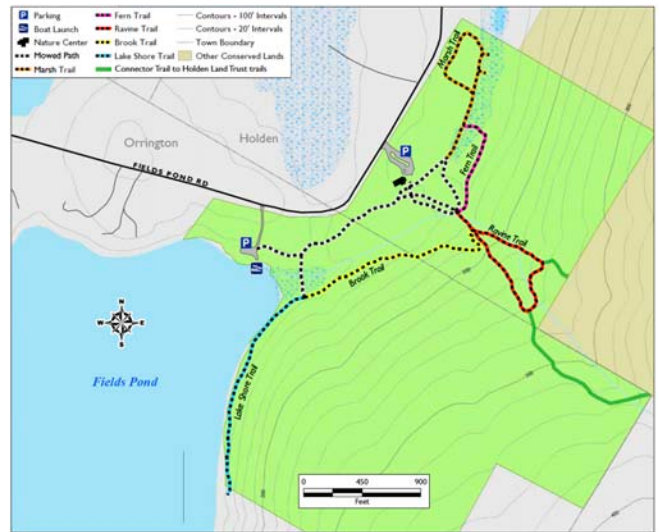
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**July 24th Field Day: Fields Pond, Holden**

Join us July 24th at 10 a.m. for an exploration of the pond and trails at Fields Pond Audubon Center. The sanctuary provides year-round habitat for wildlife ranging from salamanders and tree frogs to birds, bears, and even moose. At least 20 varieties of butterflies have been recorded at the sanctuary and July should be peak time for

*The Maine Entomologist*

grasshoppers, beetles, bees and leafhoppers to name a few more.



Our objective will be to search for any insect or arachnid that we can identify. In keeping with the wishes of the center we will do our best to identify in the hand and only collect those that will require a scope and key to identify. We will also be putting together a list of creatures we identify so please keep notes of your observations.

Our day will begin at 10am in the parking lot - look for the nets. If possible, please try to carpool as the parking lot is not huge and it could be packed on a beautiful July day. Bring lunch and plenty of liquids and we will gather by our vehicles for a mid-day break. The day will informally end around three but feel free to come early or stay later to explore.

As a courtesy, please let Pete Darling ([petedarlingii@yahoo.com](mailto:petedarlingii@yahoo.com)) know if you're planning to join us!

**Fields Pond Audubon Center  
216 Fields Pond Rd.  
Holden, Maine 04429**

**Directions:** At Exit 5 from I-395 headed towards the coast, go RIGHT on Parkway South for 0.3 mile. Go RIGHT on Dirigo Drive for 0.5 mile. Go RIGHT on Green Point Road 0.8 mile. Go LEFT on Wiswell Road 1.5 miles. At Fields Pond Road, go RIGHT 1 mile. Audubon Center is on the LEFT.

**From the North or South via I-95:** Take Exit 182A to I-395, direction of Brewer. Proceed about 3 miles (crossing over the Penobscot River) then take the “Parkway South” exit from I-395. Turn left from the exit, continue on Parkway South to a four-way junction. Turn left on Elm Street, which becomes Wiswell Road in about a mile. Continue on Wiswell Road to Fields Pond Road (on right). Nature Center is well marked on Fields Pond Road.

**From the East and the Coast:** from Route 1A take a left onto either Copeland Hill Road (in Holden) or Green Point Road (near McDonald’s in Brewer). Turn onto Wiswell Road, follow to Fields Pond Road. Audubon Center is well marked on Fields Pond Road.

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## August 7th Field Day in Old Town: Hirundo Wildlife Refuge

by Anna Court

Please join us on Saturday, August 7th, at 10:00 a.m. at the main entrance to the Hirundo Wildlife Refuge. The Refuge is near Old Town, Maine, and covers 2,402 acres along the Pushaw and Dead streams. The Refuge was founded in 1965 by Oliver Larouche from his parents' 3-acre camp, and was donated as a trust to the University of Maine in 1983 by Larouche and his family.



The parking lot for the Hirundo Wildlife Refuge is marked with a large red sign.  
(Google Earth street view image from 2019.)

There are seven miles of hiking trails in the Refuge, so we'll start our Field Day experience by agreeing on which ones to explore.

Odonata (dragonflies and damselflies) photography or collecting should be excellent, given the presence of streams and the time of year. Other insects will be out and about, too, of course. We'll meet rain or shine. Bring a lunch, water and boots appropriate for wet habitats.

**Address/Directions:** 1107 West Old Town Road, Old Town, Maine. To get there: take Exit 197 from Interstate 95 and drive about 4.5-5 miles on Route 43 towards Hudson. Park in the Refuge entrance parking lot, which will be on your right and marked with a big red sign.

Please let us know if you are coming. The Field Day coordinators are Anna Court and Tinia Graham. Please e-mail Anna ([annaagnesleecourt@gmail.com](mailto:annaagnesleecourt@gmail.com)) if you plan to attend.

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### M.E.S. Members Publish New Papers

Two new scientific papers have recently appeared that share some of the discoveries of M.E.S. members.

Treasurer Dana Michaud and fellow life member Dave Bourque spent thousands of hours combing through the "bycatch" from a three-year study of the insects in Baxter State Park following an EF1 tornado that ripped up the forest in July, 2013. They then spent countless additional hours identifying the specimens. The result was a phenomenal 54 additional beetle species added to the list of those known to live in Maine, two of which represent the first U.S. records of species previously known in Maritime Canada. Their paper\*, coauthored by Marc DiGirolomo and Chris Blackington of the U. S. Forest Service in Durham,

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New Hampshire, was published in the *Coleopterists Bulletin*, an international journal devoted to beetles.



Hillary Peterson's favorite laundry basket became a yellow sticky-card storage unit during her dissertation research.

President Hillary Peterson also had a new paper\*\* come out this spring, on one aspect of her doctoral dissertation studies. She surveyed in central Pennsylvania for an introduced "Samurai Wasp" that is a known parasitoid on the adventive Brown Marmorated Stink Bug. Yellow sticky cards were put out in numerous fruit orchards, and the wasps that were collected were identified. She and her coauthors were able to show that the wasp is indeed apparently becoming established, and will hopefully become an effective control on the stink bug. Hillary's paper was published in the international journal *Insects*.



The Samurai Wasp, *Trissolcus japonicus*.  
(Image from AAAS: [tinyurl.com/9u6unm9c](http://tinyurl.com/9u6unm9c))

Bob Nelson (BeetleBob2003@gmail.com) has pdf copies of both papers if anyone would like one.

\* DiGirolomo, M., C. Blackington, D. Michaud and D. Bourque, 2021. New Coleoptera Records from Maine, USA: 54 Species from Bycatch Collected in Baxter State Park. *Coleopterists Bulletin*, v. 75, pp. 161-172. <https://doi.org/10.1649/0010-065X-75.1.161>

\*\* Peterson, H.M., E. Talamas, and G. Krawczyk, 2021. Survey for Adventive Populations of the Samurai Wasp, *Trissolcus japonicus* (Hymenoptera: Scelionidae) in Pennsylvania at Commercial Fruit Orchards and the Surrounding Forest. *Insects* v. 12, #258; 11 pp. <https://doi.org/10.3390/insects12030258>

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## Successful Bio-Control of Winter Moth Reported

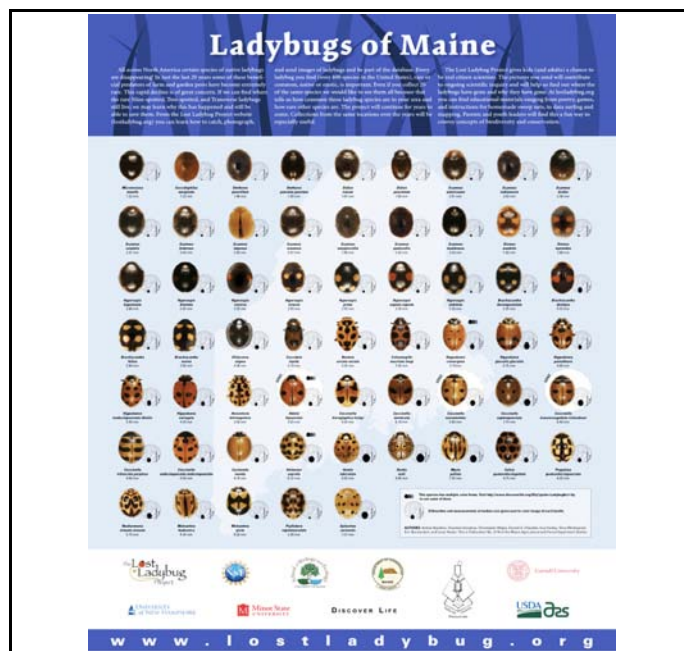
The paper “Successful biological control of winter moth, *Operophtera brumata*, in the northeastern United States” by Joseph Elkinton, George Boettner, and Hannah Broadley\*, has just been published on-line. This work details how the invasive winter moth was brought into balance within the forest ecosystems in the eastern United States.

Of particular note is the fact that the specialist tachinid parasitoid *Cyzenis albicans*, can complete its life cycle only in winter moth, not in any other (even closely related) species. This type of specificity is what scientists look for when choosing a potential biocontrol agent so that there are not unintended consequences to the wider ecosystem.

Although the paper focuses primarily on Massachusetts, the Maine Forest Service partnered with Elkinton in researching winter moth and releasing the biological control agent *C. albicans* in Maine. Bob Nelson ([BeetleBob2003@gmail.com](mailto:BeetleBob2003@gmail.com)) has the pdf if anyone would like one.

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\* Elkinton, J. S., G. H. Boettner, and H. J. Broadley, 2021. Successful biological control of winter moth, *Operophtera brumata*, in the northeastern United States. *Ecological Applications* 00(00):e02326. 10. 1002/eap.2326 .

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### Lost Ladybugs!

A number of years ago, MES members Andrei Alyokhin, Charlene Donahue, and Donald S. Chandler, along with other non-members, participated in the creation of a Ladybugs of Maine poster for the Lost Ladybug Project. The project continues and there are still posters available, either as a downloadable pdf file or printed copies that are stored at the Maine State Museum Annex. There are no funds for mailing them, but if you want a printed copy you can contact Charlene Donahue (e-mail

[donahuecp15@gmail.com](mailto:donahuecp15@gmail.com) or by phone at 207-485-0960), and either arrange to pick one up or pay to have it mailed.

For more information on participating in the Lost Ladybug Project check out

<http://www.lostladybug.org/index.php>.

The poster pdf can be downloaded at

[http://www.lostladybug.org/file\\_uploads/LadyBug-Maine6.pdf](http://www.lostladybug.org/file_uploads/LadyBug-Maine6.pdf)

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### Stocking Dragonflies to Control Mosquitoes

When discussions arise about ticks and mosquitoes, there is an inevitable question about how to get rid of them. Optimally, anyone involved in trying to control either group should apply an integrated pest management (or IPM) strategy.

In essence, IPM usually involves multiple methods of control, with the sum effect often far more productive than if just one method was used. For example, IPM targeting mosquitoes might employ chemical sprays, personal protection for people, and reduction of source habitat (stagnant water) in peri-domestic habitats (i.e., environments close to human residences). A key component of many IPM plans is the use of biological controls that may be perceived as more natural and less damaging than chemical sprays that have a higher potential for affecting non-target organisms such as native pollinators (bees, butterflies, flower-flies, and others).

That is the thought behind the practice of stocking wetlands with immature odonates (dragonflies and damselflies) to predate on mosquito larvae and pupae. As odonates are highly predatory in both immature and adult stages, this seems, in theory, like a reasonable idea. However .....

A study conducted by the Maine Medical Center Research Institute and the Maine Department of Inland Fisheries and Wildlife looked at this very issue. In 2012, we conducted a pilot study (since published in *Northeastern Naturalist*\*) that examined the presence and density of immature odonates in artificial water bodies (kiddie play pools) and how it might impact survival of resident mosquito larvae throughout the summer season. We monitored mosquito abundance in the pools stocked with 4, 2, or no odonates (a scientific control). Overall, there was no appreciable effect on mosquito larval survival, with container breeders such as *Aedes triseriatus* and woodland species such as *Aedes canadensis* found most reliably, across the range of stocked odonate densities.

Another aspect of the project was to examine the abundance of adult mosquitoes where odonates had been stocked in wetlands in southern Maine. We trapped mosquitoes in York and Cumberland counties and found that across wetland types (vernal pools, permanent freshwater ponds, and floodplains), adult mosquitoes were just as abundant in proximity to areas where odonates were stocked as where they were not, suggesting that there was no appreciable human benefit of adding odonates to wetland communities.

In addition to the lack of documented impact to mosquito populations, there were several troubling results

(continued on next page)

(Stocking dragonflies, cont.)

from the study:

1. Maine consumers were at risk of unintentionally introducing non-native odonates to wetlands by purchasing from out-of-state suppliers. Indeed, among the 20 odonate species that we identified to species from two out-of-state shipments totaling approximately 2000 nymphs, we found that 6 species (30%) were not native to Maine.
2. There was little guidance on where to release the immature odonates, with no regards to their specific habitat requirements. For instance, a landowner wanting to stock vernal pools might receive species with a long development time, evolved for permanent ponds or lakes. The vernal pools in which they were placed might disappear before the odonates have a chance to mature, leaving them to expire.
3. Along with odonates, shipments contained plant fragments, snails and other contaminants that could pose a threat to the health of the State’s aquatic ecosystems.
4. Finally, there are legal considerations. Maine’s laws regarding the possession and importation of wildlife (including invertebrates) are among the strictest in the country. With few exceptions, it is illegal to import invertebrates into Maine without a permit issued from MDIFW – a fact that is overlooked by some members of the public who may not consider invertebrates as “wildlife”.

While the motivation for importing dragonflies as biological control agents for mosquito control is commendable, our research indicates there are important efficacy, ecological, and legal concerns associated with the practice. We hope that our findings informs well-intentioned landowners of the potential problems with the practice, motivating them to explore other means to control nuisance mosquitoes.

- **Chuck Lubelczyk, Maine Medical Center Research Institute**
- **Phillip deMaynadier, Maine Department of Inland Fisheries and Wildlife**
- **Allison Kanoti, Maine Department of Agriculture, Conservation and Forestry**

\* Lubelczyk, C. B., S. P. Elias, P. G. deMaynadier, P. M. Brunelle, L. B. Smith, and R. P. Smith, Jr. 2020 Importation of Dragonfly Nymphs (Odonata: Anisoptera) to Control Mosquito Larvae (Diptera: Culicidae) in Southern Maine. *Northeastern Naturalist* 27(2): 330-343.

[Bob Nelson has a pdf copy if anyone would like one]

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**Insect List for Appledore Island, Kittery,  
Maine: July 19, 2019  
by Charlene Donahue**

The following is the list of insects collected and identified from the joint field day of the Maine Entomological Society, the Cambridge Entomological

Society, and the Vermont Entomological Society on Appledore Island, Kittery, Maine, on July 19, 2019.

Collecting was done primarily with sweep nets and by hand, with some yellow pan traps deployed as well. Over 280 different taxa in seven orders and 108 families were identified, and Don Chandler submitted 170 of them! This is the start of an insect list for the island.

Thirteen people participated, with seven submitting identifications (some of the others gave their specimens to the primary collectors). We were on the island for six hours on a very hot summer day and had a great time despite the heat - and a few dive-bombing seagulls.

**Order Coleoptera**

**Alleculidae**

*Isomira* sp.

**Anthribidae**

*Ormiscus walshii*

**Brentidae**

*Nanophyes marmoratus*

*Neapion herculeanum*

*Perapion curtirostre*

**Buprestidae**

*Agrilus politus*

*Agrilus ruficollis*

**Cantharidae**

Cantharidae, sp. indet.

**Carabidae**

*Amara cupreolata*

**Cerambycidae**

*Cyrtophorus verrucosus*

*Strangalia luteicornis*

**Chrysomelidae**

Alticini, genus indet.

*Chaetocnema* sp., 3 specimens

*Chrysolina quadrigemina*

*Megacerus discoideus*

*Neogalerucella calamariensis*

*Paria quadrinotata*

*Phyllotreta cruciferae*

*Phyllotreta* sp. indet.

*Sumitrosis rosae*

*Tricholochmaea* sp. indet.

**Cleridae**

*Isohydnocera curtipennis*

*Phyllobaenus difficilis*

*Phyllobaenus humeralis*

*Phyllobaenus pallipennis*

**Coccinellidae**

*Harmonia axyridis*

*Scymnus* sp. indet., 2 specimens

**Corylophidae**

*Helopsis marginicollis*

*Orthoperus scutellaris*

**Curculionidae**

*Anthonomus signatus*

*Anthonomus* sp. indet., 2 specimens

*Auleutes nebulosus*

*Myrmex chevrolati*

*Scolytus rugulosus*

Scolytinae, genus indet., 1 specimen

Curculionidae, genus indet., 1 specimen

**Dermestidae**

*Anthrenus fuscus*

*Dermestes undulatus*

**Elateridae**

*Ampedus rubricollis*

*Melanotus dichrous*

**Histeridae**

*Atholus falli*

(continued on next page)

(*Appledore insect list, cont.*)

**Kateridae**  
Kateridae, genus indet., 1 specimen

**Latridiidae**  
*Melanophthalmus* sp.

**Melandyridae**  
*Microtonus sericans*  
*Scotochroa scotochoirdes*

**Mordellidae**  
*Falsomordellistena pubescens*  
*Mordella marginata*  
*Mordellaria serval*  
*Mordellistena bifasciatus*  
*Mordellistena pubescence*  
*Mordellistena* sp.  
Mordellidae, genus indet., 2 specimens

**Nitidulidae**  
*Epurea* sp.

**Phalacridae**  
*Olibrus* sp.  
*Stilbus* sp.

**Ripiphoridae**  
*Ripiphorus* sp.

**Scarabaeidae**  
*Popillia japonica*

**Scirtidae**  
*Cyphon* sp.  
*Scirtes tibialis*

**Staphylinidae**  
*Stenus punctatus*

**Order Diptera**

**Agromyzidae**  
*Agromyza* sp.  
*Japanagromyza viridulum*  
*Liriomyza* sp.

**Asilidae**  
Asilinae, genus indet., 1 specimen

**Bombyliidae**  
Bombyliidae, genus indet., 1 specimen

**Calliphoridae**  
*Lucilia* sp.

**Chloropidae**  
*Apallates* sp.  
*Diptoxa* sp.  
*Gaurax dubius*  
*Meromyza americana*  
*Oscinella* sp.  
*Thaumatomyia glabra*  
*Thaumatomyia pulla*  
Chloropidae, genus indet., 8 specimens

**Chryomyiidae**  
*Gymnochiromyia concolor*

**Coelopidae**  
*Coelopa frigida*

**Cyclorrhapha (suborder)**  
Cyclorrhapha, genus indet., 1 specimen

**Dolichopodidae**  
*Chrysotus*, sp. indet., 3 specimens  
*Condylostylus* sp.

**Dolichopodidae**  
*Gymnopterus* sp. indet., 2 specimens  
*Thrypticus* sp.  
*Xanthochlorus helvinus*  
Dolichopodidae, genus indet., 1 specimen

**Drosophilidae**  
*Scaptomyza adustum*  
*Scaptomyza graminum*

**Empididae**  
*Empis* sp.  
Empididae, genus indet., 1 specimen

**Ephydriidae**  
*Hydrellia formosa*  
*Hydrellia* sp.  
*Leptopsilopa atrimana*

*Notiophila*, sp. indet., 2 specimens  
*Parydra quadrituberculata*  
*Scatella* sp.  
Ephydriidae, genus indet., 3 specimens

**Hybotidae**  
*Platypalpus* sp.  
*Stilpon* sp.

**Lonchopteridae**  
*Lonchoptera furcata*

**Milichiidae**  
*Madiza glabra*

**Muscidae**  
*Schoenomyza dorsalis*  
*Stomoxys calcitrans*  
Muscidae, genus indet., 2 specimens

**Opomyzidae**  
*Geomyza tripunctata*

**Phoridae**  
Phoridae, genus indet., 1 specimen

**Sciaridae**  
*Bradysia* sp.

**Sepsidae**  
*Enicomira minor*  
*Sepsis* sp.

**Sphaeroceridae**  
Sphaeroceridae, genus indet., 1 specimen

**Stratiomyidae**  
Stratiomyidae, genus indet., 1 specimen

**Syrphidae**  
*Eristalinus aeneus*  
*Orthonevra nitida*  
*Toxomerus geminatus*  
*Toxomerus marginatus*  
Syrphidae, genus indet., 1 specimen

**Tephritidae**  
*Rhagoletis cingulatus*

**Ulidiidae**  
*Euxesta notata*

**Order Heteroptera**

**Belostomatidae**  
*Belostoma flumineum*  
*Lethocerus americanus*

**Hydrometridae**  
*Hydrometra* sp.

**Lygaeidae**  
*Lygaeus* sp.  
*Oncopeltus fasciatus*  
Nininae, genus indet., 1 specimen

**Miridae**  
*Amblytylus nasutus*  
*Calocoris* sp.  
*Dicyphus* sp.  
*Lygocoris*, sp. indet., 2 specimens  
*Lygus plagiatus*  
*Megaloceroea recticornis*  
*Sthenarus rotermundi*  
*Trigonotylus coelestialium*  
Miridae, genus indet., 1 specimen

**Nabidae**  
*Nabis americorufus*

**Notonectidae**  
Notonecta sp.

**Pentatomidae**  
*Banasa dimidiata*  
*Cosmopepla bimaculata*  
*Cosmopepla* sp.

**Rhopalidae**  
*Arhyssus lateralis*

**Saldidae**  
*Micranthia humilis*  
*Saldula* nr. *orbicularis*

**Thyreocoridae**  
*Corimelaena lateralis*

(continued on next page)

(Appledore insect list, cont.)

**Order Homoptera**

**Cercopidae**

*Aphrophora alni*  
*Aphrophora quadrinotata*  
*Neophilaenus lineatus*  
*Philaenus spumarius*

**Cicadellidae**

*Agallia constricta*  
*Amplicephalus littoralis*  
*Anoscopus serratulae*  
*Aphrodes bicincta*  
*Arthaldeus pascuellus*  
*Balcanocerus fitchii*  
*Balcanocerus provancheri*  
*Balclutha impicta*  
*Ceratagallia agricola*  
*Cicadula saliens*  
*Doratura stylata*  
*Draeculacephala zaeae*  
*Empoasca fabae*  
*Errastunus ocellaris*  
*Erythrindula lawsoniana*  
*Eupteryx melissae*  
*Graminella nigrifrons*  
*Graphocephala picta*  
*Helochara communis*  
*Idiocerus cognatus*  
*Macrosteles quadrilineatus*  
*Psammotettix lividellus*  
*Scaphoideus female*  
*Scaphytopius acutus*  
*Typhlocyba pomaria*

**Delphacidae**

*Delphacodes puella*  
*Isodelphax basivitta*  
*Kosswigianella lutulenta*  
*Muiridelphax arvensis*  
Delphacidae, gen. indet., 7 specimens

**Membracidae**

*Campylenchia latipes*  
*Echenopa* sp.  
*Entylia carinata*

**Psyllidae**

*Trioza* sp.  
Psyllidae, gen. indet., 2 specimens.

**Order Hymenoptera**

**Andrenidae**

*Andrena* sp.  
Andrenidae, gen. indet., 1 specimen

**Aphrophoridae**

*Philaenus spumarius*

**Apidae**

*Bombus bimaculatus*  
*Bombus griseocollis*  
*Bombus impatiens*  
*Bombus* sp.  
*Ceratina calcarata*  
*Ceratina* sp. indet., 2 specimens  
*Xylocopa virginica*

**Bethylidae**

Bethylidae, genus indet., 1 specimen

**Braconidae**

*Agathis* sp.  
*Apanteles* sp.  
*Chelonus* sp.  
Braconidae, genus indet., 15 specimens

**Colletidae**

*Hylaeus* sp.

**Crabronidae**

*Crossocerus* sp.

**Dryinidae**

Dryinidae, genus indet., 1 specimen

**Encyrtidae**

*Metaphycus* sp.

Encyrtidae, genus indet., 8 specimens

**Eulophidae**

*Clasterocerus* sp.

*Tetrastichus* sp.

Eulophidae, genus indet., 9 specimens

**Eupelmidae**

*Eupelmus vesicularis*

**Eurytomidae**

Eurytomidae, genus indet., 4 specimens

**Figitidae**

Figitidae, genus indet., 2 specimens

**Formicidae**

*Formica exsectoides*

*Formica neogagates*

*Formica obscuriventris*

*Formica subsericea*

*Formica* sp.

*Lasius alienus*

*Myrmica alaskensis*

*Myrmica rufa*

*Stenamma brevicornis*

*Temnothorax ambiguus*

*Temnothorax texanus*

Formicidae, genus indet., 4 specimens

**Gasteruptionidae**

*Gasteruption assectator*

Gasteruptionidae, genus indet., 1 specimen

**Halictidae**

*Augochlorella aurata*

*Lasioglossum*, sp. indet., 5 specimens

*Sphecodes* sp.

**Ichneumonidae**

Ichneumonidae, genus indet., 8 specimens

**Megachilidae**

*Coelioxys octodentatus*

*Heriades* sp.

*Hoplitis* sp.

*Megachile* sp.

Megachilinae, genus indet., 1 specimen

**Megaspilidae**

Megaspilidae, genus indet., 1 specimen

**Mymaridae**

*Gonatocerus* sp.

*Polynema* sp.

**Pemphredonidae**

*Passaloecus monilicornis*

*Passaloecus singularis*

**Platygastridae**

*Amitus* sp.

*Inostemma* sp.

*Synopeas* sp.

*Trichacis* sp.

Platygastridae, genus indet., 7 specimens

**Pompilidae**

Pompilidae, genus indet., 1 specimen

**Pteromalidae**

*Perilampus* sp.

Pteromalidae, genus indet., 9 specimens

**Scelionidae**

*Holoteleia* sp.

*Idris* sp.

*Macroteleia* sp.

*Teleas* sp. nr. *lamellatus*

*Telenomus*, sp. indet., 2 specimens

*Trimorus*, sp. indet., 2 specimens

**Tenthredinidae**

Allantinae, genus indet., 1 specimen

*Euura* sp.

**Thyreocoridae**

*Corimelaena* sp.

**Torymidae**

*Torymus* sp.

(continued on next page)

(*Appledore insect list, cont.*)

**Vespidae**

- Polistes fuscatus*
- Stenodynerus anormis*

**Order Lepidoptera**

**Attevidae**

- Atteva aurea*

**Crambidae**

- Chrysoteuchia topiarius*
- Urola nivalis*

**Erebidae**

- Bleptina caradrinalis*
- Lycomorpha pholus*

**Geometridae**

- Eusarca confusaria*

**Lycaenidae**

- Celastrina* sp.
- Lycaena phlaeas*

**Nymphalidae**

- Danaus plexippus*
- Junonia coenia*
- Phyciodes cocyta*
- Vanessa atalanta*

**Pterophoridae**

- Geina* sp.

**Pyralidae**

- Hypsopygia olinalis*

**Tortricidae**

- Acleris albicomana*
- Argyresthia oreasella*
- Bactra furfurana*
- Dichrorampha vancouverana*
- Evora hemidesma*
- Olethreutes valdanum*
- Rhopobota finitimana*

**Zygaenidae**

- Harrisina americana*

**Order Neuroptera**

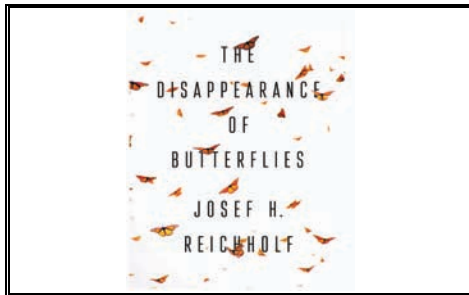
**Chrysopidae**

- Chrysoperla rufilabris*

**Coniopterygidae**

- Coniopteryx* sp.

\* \* \* \* \*



**Book Review: by Dana Michaud**

*The Disappearance of Butterflies*, by Josef Reichholf; translated from the German by Gwen Clayton, 2021; Medford, MA: Polity Press; 256 pages, hardcover; ISBN-13:978-1-5095-3979-6. (\$35 list price)

Dr. Reichholf, although originally a "birder", began studying Lepidoptera in the 1950s while living in Germany. In his 50 years of studying various moths and butterflies, along with data collected by other entomologists, Reichholf documented that since the 1960s, populations of many Lepidoptera, as well as many other insects, have dropped dramatically over the following decades by as much 80%. Many once-common insects have now become rare or disappeared entirely from sections of Germany.

In Part 1, "The Biodiversity of Lepidoptera", Reichholf reveals that in the 1950s, as a "Birder", he grew into a naturalist, becoming an entomologist as he explored the amazing world of insects. Using a 15-watt UV neon light to gather moths at various locations, over the many years, the trends of disappearance began to show up in the '80s, when once common species became scarce or rare, citing the beautiful "death's head sphinx" as one of them.

Working on a few obscure aquatic moths in the family Crambidae for his Ph.D., Reichholf discovered the life cycle of these strange moths who feed on aquatic plants like pondweed and water lily leaves. The total aquatic biology ends with the hatching 20-30 cms (8-12 inches) under water of the adult moth, that then floats upwards to the surface in an air bubble! He goes on to reveal that those same gravel pit ponds he studied, in various areas, have now all been filled in and destroyed over the many years, yielding to development.

In the following chapters, the benefits to moths of being attracted to lights is explored. Their attractions to human sweat, cow dung, and dead toads are a few things that are touched upon, as well as toxic host plants. Reichholf blames agriculture as one of the main reasons for the losses of many species, citing over fertilization (from both animal and human slurry), pesticides, herbicides, and monocultures. Nettles, a plant that flourishes in soils rich in nutrients, are high in nitrogen, a result of over fertilization. The various species of Lepidoptera that feed on nettles are covered.

In "The Great Migration of the Butterflies," the painted lady, *Vanessa cardui*, arrives in early May. Like our Monarch, the painted lady's migration route has slowly yielded a complicated route covering 15,000 km over a few generations. The migrations of hundreds of millions of butterflies has been well-documented since 1878; the 2009 influx into Britain alone was over 10 million individuals.

The next four chapters start off with poisonous Lepidoptera, whose caterpillars consume enough chemicals through their food to confer toxicity to the adults. Reichholf examines the well-known cabbage butterfly (*Pieris rapae*) and its close relatives, as well as a few striking moths who have similar "protection." The final two chapters in Part 1 cover some overwintering Lepidoptera, the recently established in Maine "winter moth" and the "comma" butterflies.

In Part 2, "The Disappearance of Lepidoptera", Reichholf, after having explored the many species covered in Part 1, explains the challenging task of assessing species numbers. For example the species identifications must be done by specialists using correct nomenclature in order to ensure accurate documentation. The ID's of all concerned must be done by specialists to help in documenting everything, using correct nomenclature.

The 43 colored photos of the various species and habitat degradations are inserted prior to the chapter "The Decline of Moths and Butterflies". This 18-page chapter reveals the radical drop in species richness from the late 1960s to 2017, explaining both habitats involved and the many sources of the data analyzed.

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*(Book review, cont.)*

The following four chapters deal with the reasons so much has either been lost, or altered. The Metropolis, the monocultured countryside, communal maintenance procedures, and finally light pollution have all contributed. Although the city has a better species assortment, it is only because the sterilized countryside yielded even less diversity. The majority of forests have been cut down and replaced with monocultures, the same as the fields, yielding to a few grains such as corn or wheat. These are frequently also coated with pesticides, herbicides, fungicides, and fertilizers from human and animal slurries. The inner cities have all the edges mowed to grow grass and are illuminated at night needlessly. The fact that insects survive is based on the food plants available.

There are three short chapters after his summary, which I found unusual. Perhaps Germans don't end books in their summaries, because his summary ended on p. 219; the next three chapters end on p. 237. He then adds two more pages, titled "Two Findings in Place of an Epilogue" as his final entry.

Reichholf in this post-Summary section explains what can be done to mitigate the losses, and the consequences of doing nothing. If losing insects isn't bad enough, if they go, so go the birds, amphibians and spiders as well. He ends the book with two sentences that say it all. "Butterflies are miracles. We should not let them disappear from our world."

Words of wisdom often fall on deaf ears. Let's hope these do not.

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### Got Flies?

If you have flies of the families Sciomyzidae or Heleomyzidae in your collection that need identifying, there is someone willing to do it. Don Chandler let Charlene Donahue know that his colleague Bill Murphy recently identified Don's material. Bill says, "It's great fun, and I'm at the "top of my game" right now. There might not be another dipterist around for decades who's as familiar with these families as I am currently."

So if you have specimens in these families needing identification, just contact Bill Murphy at [murph3000@gmail.com](mailto:murph3000@gmail.com)

### Zigzag Elm Sawfly Update

In the November 2020 Issue of the newsletter, we reported on the first detection of zigzag elm sawfly, *Aproceros leucopoda* (Hymenoptera: Argidae), in North America. We're back now to renew our request that you stay on the lookout for this insect. We ran the photo below in the November issue, which shows the highly distinctive feeding pattern of the larva on elm leaves.

Véronique Martel with the Canadian Forest Service and Olivier Morin with the Canadian Food Inspection Agency

are working on a project funded by SERG-I to: 1) delineate the range of the sawfly in Canada (with additional trapping sites in the U.S., including Maine); and 2) collect samples for population genetic analyses. The Maine Forest Service and USDA-APHIS (Animal and Plant Health Inspection Service) will each set up a trapping site here in Maine (perhaps with help from cooperators).



Larva of elm zigzag sawfly (*Aproceros leucopoda*) munching through an elm leaf. - Photo by Gyorgy Csoka, Bugwood.org

In addition, Véronique urges MES Members and others interested to look for signs of this sawfly to help with their work on population genetics. If you see think you've spotted zigzag elm sawfly in Maine, please reach out to us with pictures of the damage and location information ([foresthealth@maine.gov](mailto:foresthealth@maine.gov), 207-287-2431), and if possible capture one or more larvae and preserve them in alcohol.

You can read an update on the sawfly here: [http://publications.gc.ca/collections/collection\\_2021/rncan-nrcan/Fo113-1/Fo113-1-126-2021-eng.pdf](http://publications.gc.ca/collections/collection_2021/rncan-nrcan/Fo113-1/Fo113-1-126-2021-eng.pdf).

### COMING M.E.S. EVENTS in 2021

(See the MES web site at

<https://www.maineentosociety.org/events> for additional information on any event, which will be posted as soon as it's received.)

- May 22:** Aquatic insects, Holt Pond, Bridgton. Coordinator: Charlene Donahue (485-0960)(see p. 7).
- June 11:** Moth Night, Dresden (Lincoln County). Coordinator: Tom Schmeelk (see p. 8).
- June 19:** Viles Arboretum, Augusta (Kennebec County). Coordinator: Dana Michaud (see p. 8).
- July 24:** Fields Pond, Holden. Coordinator: Pete Darling. Date to be announced (see p. 9).
- August 7:** Hirundo Wildlife Refuge, Old Town (Penobscot County). Coordinators: Anna Court and Tinia Graham (see p. 10).
- September 11:** Cherryfield - blueberry barrens (Washington County). Coordinator: Bob Nelson.
- October 2:** MES Annual Meeting at Bob & Nettie Nelson's home in Clinton. Collecting from 10:00 - noon, then "pot luck" lunch, business meeting @ 1:30 p.m. Coordinator: Bob Nelson.

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