

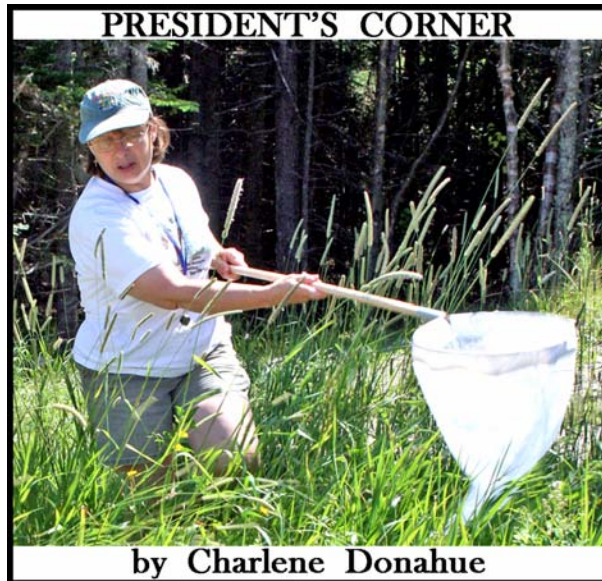
The Maine Entomologist

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

The Official Newsletter of the Maine Entomological Society

Vol. 23, No. 2

May, 2019



PRESIDENT'S CORNER

by Charlene Donahue

Looking for insects in early spring can be pretty weather-dependent. The M.E.S. field day on March 23rd was pretty cool, so there was not much activity. Three weeks later, April 13th was much better, with temperatures into the 60s so that we were making maple syrup in our bare feet! That was a first and we found lots of insects that day.

Straining the sap before putting it in the pan (we thoroughly cleaned it before using) was a must. Collembola (springtails) were most numerous, with Dolichopodidae (long-legged flies) a close second. Spiders, wasps, a few stoneflies, moths, non-luminescent Lampyridae (fireflies) - probably *Ellychnia corrusca* - were active, as well as others. There was lots of fun sharing the insect fauna with the sap cookers of all ages.

With the concern about declining insect populations in the press these days (and this week the United Nations announced that the decline in biodiversity is on a par with climate change in affecting the health of the planet), the Maine Entomological Society is getting more requests for presentations and field days from various groups. You will see a number of those requests for assistance in this newsletter. Please consider volunteering to help out. You do not have to be an expert, you probably know more than anyone else in the group requesting help. We have a number of Maine Naturalists in MES now who have jumped in with both feet to share their insect knowledge with others. Be assured that "I don't know" is a perfectly acceptable answer! None of us know it all but we can look for the answers.



Dolichopodidae flies, and a few moth wings, caught in sap pan (just water) on April 13, 2019 in Whitefield, Maine.

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A young entomologist-in-training is fascinated by a Cerambycid (longhorn beetle) larva on April 13, 2019 in Whitefield, Maine.

As we move into spring, please think about declining insect populations and what you can do to help mitigate the problem. Things you can do: don't use pesticides, buy organic, plant native plants, mow less and let the flowers bloom. You will be receiving a SurveyMonkey request from Maine Audubon about information on Maine insect populations. Please reply if you have something to contribute, I know this will not apply to everyone but it's impossible to know who has information, skills or who knows of hidden gems.

Thank you for your help.

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An Exotic Tick Invades the U.S. - Over Half of Maine Is Expected to be Good Habitat

by Bob Nelson

A new species of tick exotic to the U.S. has been reported in multiple eastern states, and appears to be spreading rapidly. Tulle Frazer brought a general-audience news article to Charlene Donahue's attention, and Charlene forwarded it on to me. A quick internet search yielded some disquieting information, beyond the scientific paper cited in the article that Tulle had found (Rochlin, 2019).

The Asian longhorned tick, *Haemaphysalis longicornis*, was first found in New Jersey on a single sheep in 2017, though it is not known how it originally entered the U.S. (Beard, et al., 2018) The pest is widespread in Asia, and has become established in Australia, New Zealand and other Pacific Islands, including Hawaii, as well. Females are capable of laying up to 2000 eggs after a large blood meal - and are parthenogenic, requiring no mating whatever. Thus a single tick can produce an entire major outbreak on its own.



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Dorsal view of a female Asian longhorned tick, *Haemaphysalis longicornis*; length about 2 mm. (Nymphs are smaller than poppy seeds!)

- image from <https://www.smsl.co.nz/NZBEL/Ticks.html>

The tick is particularly of concern because it is capable of carrying multiple tick-borne viruses and other pathogens, including in its home range a close relative of the Heartland Virus of the American Midwest. The Rochlin paper reported the results of a sophisticated study of the environmental constraints on the species in its native range, then overlaid this information onto a map of North America to determine the potential range of spread of the species. The southern half of Maine, as well as most of the U.S.A. east of the Mississippi River, was deemed potentially suitable habitat for this to become established.

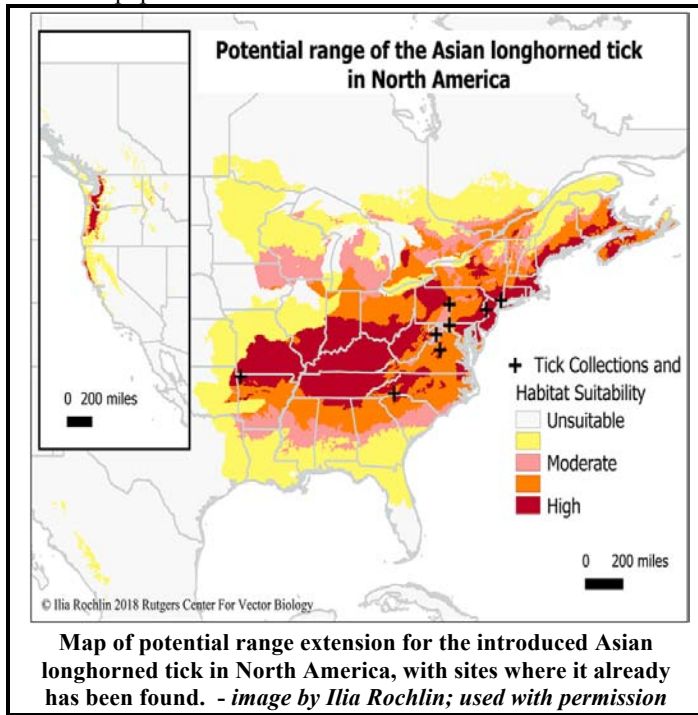
Following that initial discovery in New Jersey in 2017, by August of 2018 this species had been found on animals in Arkansas, Connecticut, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Virginia and West Virginia.

Reported hosts include domestic cats, cattle, dogs, horses, sheep and goats, as well as a coyote, white-tailed deer, gray fox, groundhog, Virginia opossum, and raccoon, and two humans.

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New Exotic Tick (cont.)

The species is clearly spreading rapidly and happy with a wide variety of domestic and wild hosts. It would seem to be only a matter of time before it will show up in Maine, so we should all be on watch. Anyone desiring a digital copy of the Rochlin paper can e-mail me.



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Rochlin, I., 2019: Modeling the Asian Longhorned Tick (Acari: Ixodidae) Suitable Habitat in North America. *Journal of Medical Entomology*, v. 56, no 2, p. 384–391 (doi: 10.1093/jme/tjy210)

June 1st Field Day - Hutchinson Pond, Manchester (Kennebec County)

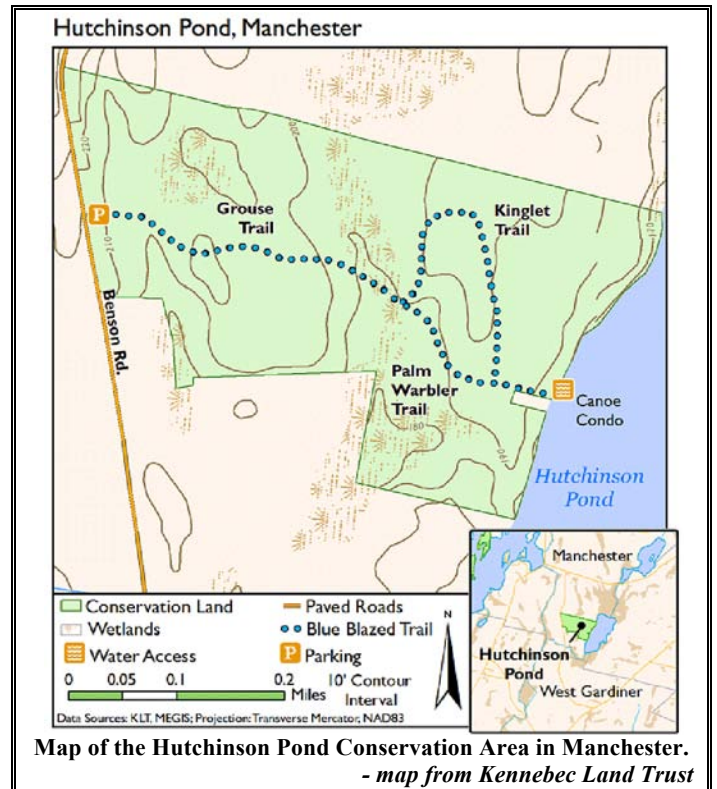
Join us on June 1st at the Hutchinson Pond Conservation Area in Manchester to explore this Kennebec Land Trust property and help to expand the KLT's knowledge of the insect fauna of this property, which was acquired in 2011. With 29 acres of wetlands and vernal pools, mixed woods, 2765 feet of stream frontage and 1600 feet of undeveloped shoreline on Hutchinson Pond, there's a lot to explore!

Bring your bug repellent, collecting gear, lunch, drinks, and anything else you may need for the day. The main trail from the parking lot to Hutchinson Pond is ½ mile long and is an easy walk. There are five vernal pools, three of which are considered of particular importance as they host breeding populations of wood frogs and spotted salamanders.

We'll gather at 10:00 a.m. at the parking lot on Benson Road. To get here, take the U.S. Route 202 exit from I-95 and go westwards, towards Manchester. You'll pass all the

various Augusta auto sales lots (Charlie's, etc.) and rise up a hill, then drop down into Manchester. At the 2nd light, turn left onto the Pond Road. Go 3.5 miles on this, and then turn left onto Collins Road. Take the first right onto Benson Road, and go ~0.9 miles. The parking lot will be on the left.

Dana Michaud (872-7683) is in charge of coordinating this field day.



June 29th M.E.S. Field Day in Waterford (Oxford County)

Come one and all for a great field day, guaranteed, in beautiful Oxford County!

When? **29 June, 2019.** Location: Gail Everett's property at 802 Sodom Road, in Waterford (Oxford County).

From the north or east, take exit 75 (Auburn) from the Maine Turnpike and turn LEFT at the end of the ramp, toward Auburn. In a mile or so, turn left onto Route 11, which will soon join Route 121. Follow 121 to its junction with Route 26 in Welchville, then turn right (north) onto Route 26. Continue to Norway and follow the directions for coming from the south.

Habitats include the "tamed" area around the RV (lawn and small garden), weedy roadsides, swamp, a large field along the river, several woods roads/snowmobile trails, and the Portland Pipeline crossing with considerable wet-meadow habitat and a small pond. Note that this is a HIGH-TICK area and you should bring your favorite tick defense. I will have extra bug spray, but tall boots are a good idea.

Directions: From the south, take exit 63 (Gray) off Maine Turnpike and go north on Route 26 to Norway, where routes 117/118 intersect. Bear left on 117/118 and drive through the

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Waterford Field Day (cont.)

town of Norway. Where the two routes divide at the lake, turn left onto 117. In 1/4 mile, turn right onto Sodom Road and drive about 3 miles to Crooked River bridge. At 0.2 mile past the bridge, look for a black mailbox on the right.

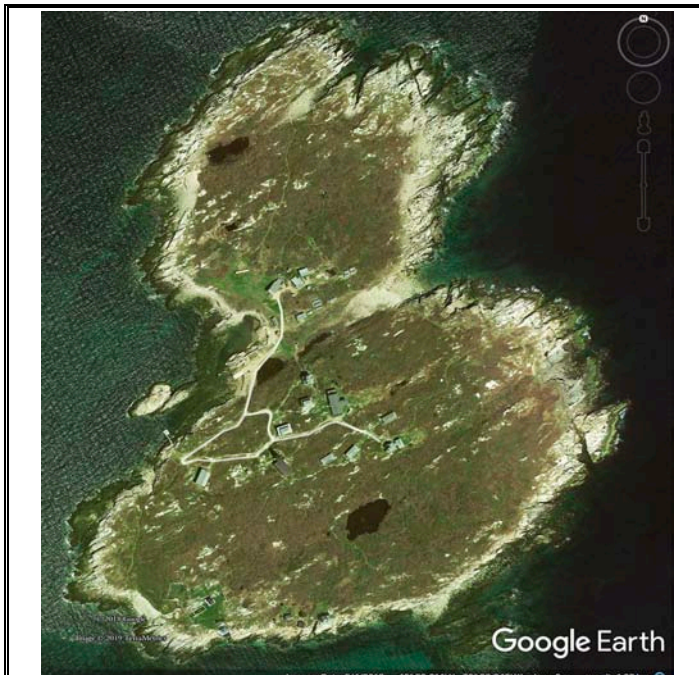


Google Earth street view of Gail's driveway at 802 Sodom Road.

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**July 20th Field Day:
Appledore Island, Isles of Shoals**

Join us for a joint M.E.S. - Cambridge (MA) Entomological Society - Vermont Entomological Society field day on SATURDAY, JULY 20th on Appledore Island, on Isles of Shoals at the Shoals Marine Laboratory. **Space will be EXTREMELY LIMITED** on this trip, with each Society being allotted just SEVEN slots. Participants will be asked to contribute \$20 each towards the cost of running the marine taxi to the island and back to shore.



Google Earth image of Appledore Island, showing the facilities of the Shoals Marine Laboratory. The strong SW-NE lineations are the result of the rock structure on the island.

The 45-minute trip to the island will be on the R/V John B. Hesier. The boat will depart from the UNH pier in Newcastle, NH, at 9:45 a.m. on the morning of the 20th, and depart the island to return to shore at 4:00 p.m. Participants should arrive at the dock at least *30 minutes prior* to the morning departure. Everyone should bring lunch, all collecting gear, insect and tick repellent, etc., plus suitable clothing for unexpectedly chilly weather (and perhaps even a thundershower). Specific information will be sent to all participants once the lists have been finalized, including instructions on how to get to the dock. There will also be waiver forms to sign prior to departure.

Overnight accommodation requests cannot be taken until late June, when the island staff will know how many students will be at the station for established summer courses. It is possible, but not guaranteed, that several such requests may be accommodated. If so, there will be a \$96 per person charge to cover lodging, dinner on Saturday night, and brunch on Sunday morning. Such requests will be considered on a case-by-case basis.

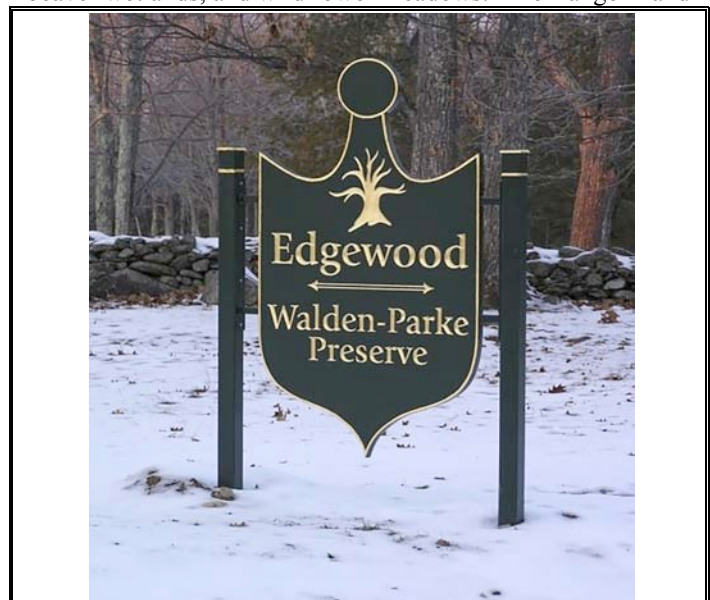
M.E.S. members desiring to participate should contact Charlene Donahue (via e-mail at donahuecp15@gmail.com or via phone at 207-485-0960) with a request to be placed on the list.

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August 3rd Field Day with Bangor Land Trust

On Saturday, August 3rd, join us at Walden-Parke Preserve for a joint field day with Bangor Land Trust. We will meet at 10:00 a.m. at the reserve kiosk at the end of Tamarack Trail. Bangor Land Trust expects a large group from their members as past programs have been very popular. Directions are below.

This 410-acre preserve, located on the north side of Bangor, is ecologically diverse. It includes conifer and hardwood forests in both early succession and mature phases, beaver wetlands, and wildflower meadows. The Bangor Land



This sign on Essex Street marks the entrance to Walden Parke Way. It won't be surrounded by snow, but should be a welcome marker to let you know you're on the right track to get here!

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Walden Parke Preserve Field Day (cont.)

Trust acquired the properties in 2005 and 2011 and has held many educational programs there. There are extensive marked trails on the preserve, but no facilities such as forest toilets.

Bangor Land Trust will allow insect collecting, so participants should bring collecting equipment as well as boots for walking in the marshes, sunscreen, and nets or spray for the sometimes troublesome mosquitoes. There are ticks in the area as well. Participants should also bring lunch. There are no restaurants in the area.

To get there, take the Broadway exit from I-95. If coming from the south, turn left and go towards Bangor. At the first light, turn left onto Stillwater Road. Turn left at the next light onto Essex Street. Travel 4 miles north on Essex. After passing Church Road on the left, turn right onto Walden Parke Way. There is a green and white Bangor Land Trust sign at that intersection. There is also an entrance sign that says Edgewood Subdivision. Follow Walden Parke Way until you get to Tamarack Trail and turn right. At the end of Tamarack Trail is a parking circle and the Walden-Parke Preserve Kiosk. Park in the circle and meet at the kiosk.

For more information or to say you will attend, email Anna Lee Court at annaleecourt@yahoo.com.

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**Notes on the Status of Wintering Monarchs (*Danaus plexippus*) in Mexico (2018-2019):
the Good News**

By Robert E. Gobeil and Rose Marie F. Gobeil

The first indication that it might be a good season for the Monarch was in early August (2018) when we started seeing Monarch caterpillars feeding on the few milkweed plants we have growing along the edges of our gravel driveway in Saco, ME. We have been monitoring these milkweed plants for over ten years and this is the first time we see Monarch caterpillars feeding on them (Fig. 1).



Fig. 1. Monarch caterpillar feeding on milkweed in Saco, Maine, on August 9, 2018. Photo by Rose Marie F. Gobeil.

We posted a photo of the caterpillars on our Facebook page (mainebutterflies.com) and immediately started

receiving reports of Monarchs from other regions of Maine. Facebook readers commented that they were seeing many Monarchs and finding large numbers of caterpillars on milkweed plants. These early reports were encouraging signs that the Monarch might have a successful breeding season.

By late August, information on the numbers of migrating Monarchs in the U.S. and Canada started to appear in the media. In Michigan, on the shores of Lake Huron, over 1,000 Monarchs were seen on August 22, 2018. This was the highest count in one day since record-keeping began in 2010 at that site. Observers also indicated that they saw tens of thousands of Monarchs at Tawas Point, Michigan, on August 23-25th, 2018 (Howard 2018). In Canada, on Sept. 7, 2018, an observer in Muirkirk, Ontario, located in the northern portion of Lake Erie, estimated that 10 to 15 thousand Monarchs were moving through the area per hour. The number of Monarchs was so high that they appeared to be a black cloud in the sky as they headed southward (Howard 2018).

In the mid-Atlantic states, Borchelt (2018) stated that the 2018 fall migration was one of the best flights in a decade in that area. Surprisingly, however, on Cape May in New Jersey, which is a major gathering point for migrating Monarchs, the counts were lower than usual. During the 2018 migration, they counted an average of 47.1 Monarchs per hour compared to an historical average of 69.9 per hour (CMMMP 2018). They noted that on the peak migration day (Oct. 3rd), they counted 271 monarchs per hour. This is one of the few locations that recorded below normal numbers of Monarchs.

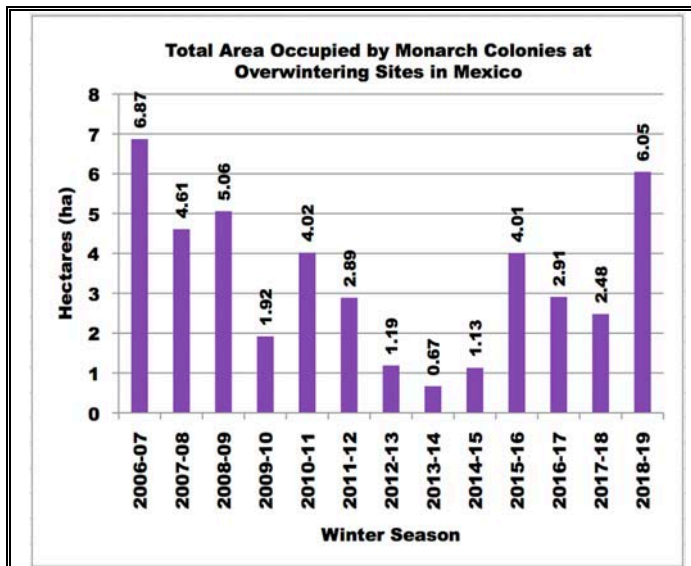


Fig. 2. Chart showing area occupied by Monarch colonies at wintering sites in Mexico (2006-7 to 2018-19 wintering seasons). Data based on various sources including the Monarch Butterfly Biosphere Reserve and the World Wildlife Fund Mexico.

In late January (2019), the Mexican government announced the size of the wintering population of Monarchs in Mexico and the news was good (Agrawal 2019). They found that the population of Monarch butterflies wintering in central Mexico was up 144 percent compared to last year. The butterflies occupied roughly 14.95 acres (6.05 hectares) while last year's population covered an area of only 6.12 acres (2.48

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May, 2019

Overwintering Monarchs (cont.)

hectares). This is the largest area since the 2006-2007 wintering season (Fig. 2). The population size was estimated at around 300 million overwintering butterflies.

Normal weather conditions with no extreme temperature changes or storms in the U.S. during the 2018 Monarch migrations (spring and fall) may account for the increase in the population size. Even though the Monarch wintering population increased last winter, it is still way below the high of 44.93 acres recorded during the winter of 1996-1997.

Chip Taylor, Director of the Monarch Watch organization which tracks Monarch migration each fall, cautions that it might be too early to celebrate this year's high numbers (Kahn 2019). He mentions that last spring was unusually cool in Texas allowing the butterflies a few extra weeks to hatch their eggs which in turn increased the entire migratory population heading north. Taylor says that climate change with increasingly warmer temperatures "makes a repeat successful season highly unlikely" and that we can't expect to have perfect weather conditions again.

As we previously discussed in several articles on the Monarch published in MES newsletters, we continue to believe that global warming is probably the greatest threat to the Monarch population (Gobeil & Gobeil 2016, 2018). This was especially evident during the fall migration in 2017, when large numbers of Monarchs were recorded along the flyways heading to Mexico. Most observers expected a higher wintering population based on these high counts of migrating Monarchs. The migration, however, was delayed by unusually warm weather conditions so many of the Monarchs apparently did not have time to reach Mexico before colder temperatures set in. This resulted in a low wintering population in Mexico during the 2017-18 wintering season.

A recent study by Saunders et al. (2019) indicates that "greener autumns", meaning the amount of nectar sources available during the fall migration period as the Monarchs travel in southern corridors heading to Mexico, leads to higher wintering colonies. They also found that a high summer abundance of Monarchs on northern breeding grounds tends to correlate with an increase in the size of the wintering population in Mexico. They noted, however, that if weather conditions are very dry during the fall migration, leading to reduced nectar sources, the size of the wintering population will be reduced.

With high numbers of Monarchs now leaving their wintering grounds in Mexico, it will be interesting to see if we have another surge in the Monarch population during the summer of 2019. As in previous years, the entire process may again be dependent on weather conditions affecting breeding grounds in southern states as various generations of the Monarchs head north to eventually reach Maine. Within a few months, we will know the answer.

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It's Not Just the Pollinators – Promoting A Balanced Ecosystem Roger Rittmaster, M.D.

We know that the number and diversity of insects is decreasing. And we know we're to blame – at least in part. Although we can't change the world, we do have influence on our little piece of the world: our yards, fields and woods.

The energy of any ecosystem starts with the sun. Animals have no way of directly harnessing the sun's energy to convert it to food. Only plants have chlorophyll, and only they can use the sun's energy to turn carbon dioxide and water into carbohydrates. If we're going to create or maintain a healthy ecosystem, it must start with the plants.

But not any plant will do. Plant nurseries are fond of selling us pest-free plants. But, what does that mean? Generally, the plant is pest-free because it is foreign, exotic, and our native insects can't eat it. One might argue that it has wonderful flowers, like butterfly bushes (*Buddleia* sp.), that attract lots of insects. True enough, but only a minority of insects are pollinators, and, if we want to support a diverse ecosystem, we need plants that insects can also eat. Those herbivorous insects, in turn, provide food for the birds and other wild animals that we cherish.

Here's an example. *Ginkgo biloba* is a popular ornamental tree that originated from two small areas of China. How many caterpillars in Maine can use it as a host plant? You guessed it: zero. Most herbivores feed only on a single species of plant or on a small group of related plants. Why? Because most plants have evolved to produce a host of toxic compounds to limit damage from herbivores. Herbivores, in turn, have evolved resistance to specific compounds and even use these compounds for their own defense.

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Balanced Ecosystem Promotion (cont.)

Take, for example, the monarch caterpillar that feeds on milkweeds. Milkweeds contain cardiac glycosides that are lethal to most insects. A few herbivores, such as monarch caterpillars, can tolerate and ingest the glycosides, which make them unpalatable or toxic to many potential predators.

Getting back to trees, the following table illustrates the number of caterpillar species in the Northeast that feed on different genera of native trees:

Plant	Host plant for how many caterpillars?
Willow	434
Oak	431
Birch	422
Prunus (cherry, etc.)	421
Poplar	364
Vaccinium (blueberry, cranberry)	290
Maple	282
Alder	279
Apple	276
Pine	249
Spruce	177
Gingko	0

Data from
<https://www.nwf.org/NativePlantFinder/Plants/Trees-and-Shrubs/>

You might wonder how, if native trees have so many “pests”, they are able to survive? These herbivorous pests have their own predators that control their populations. In fact, the populations of each native plant and animal in our backyard ecosystem is limited by the species around it.

If we want a robust, healthy ecosystem, we need to start with native plants with which our native insects have co-evolved. Exotic plants may be “pest-free”, but they are ecological wastelands. We need to serve up the buffet of native plants on which our insect-friends feast.

Close to where I live is a perfectly manicured lawn. Nary a dandelion to be seen in the spring. I shudder to think of the herbicides and insecticides used to maintain that lawn. And how much of that chemical soup ends up in nearby streams and eventually in our rivers, lakes and oceans?

Several years ago, a friend asked me to do an informal survey of the insects around his house on Appleton Ridge. There were zero insects on the shrubs that should have been covered in them. I asked him whether he recently used an insecticide on his property. He proudly stated that he never does. And then he remembered that the previous week the blueberry field that abuts his property was sprayed. Should we be surprised that the worldwide population of insects has plummeted?

Fields in Maine are an unnatural treasure. Why? Because any field if left to its own devices will rapidly become a forest. We need to mow, bush-hog or prune out the trees in the field in order to maintain it. On the other hand,

fields, especially those surrounded by forests, are a mecca of insect diversity. It’s worth maintaining them. My backyard is a 1-acre field that the previous owner bush-hogged every fall. Now, each fall I spend a couple of hours cutting out the native trees and invasive plants, such as multiflora rose (*Rosa multiflora*) and glossy buckthorn (*Rhamnus frangula*). It gets easier every year. The reason that I do it by hand is that I want the native shrubs such as arrowwood (*Viburnum dentatum*), wild raisin (*Viburnum cassinoides*) and winterberry (*Ilex verticillata*) to grow. I have photographed over 300 species of moths in our backyard, a testament to the diversity of species that inhabit the field.

Our local Land Trust (Coastal Mountains Land Trust) maintains several large fields that used to be mowed whenever was convenient for the mower. Now, wherever possible, 1/3 of each field is mowed once every three years. The mowing is done in late October, which allows the insects to complete their life cycles. It also avoids the person mowing being attacked by yellow jackets whose hive had just been run over.

Of course, everything we do to our surroundings has consequences. My field has become a haven for wild raspberries, because their second-year canes have a head-start on the wildflowers that start fresh every year. The wild raspberries don’t produce much fruit, but they have attracted a bumper crop of raspberry cane borers (*Oberia bimaculata*), a beetle that girdles the tips of first-year canes. When I planted a 20-foot row of cultivated raspberries in the middle of our lawn, the cane borers thanked me for the lush new crop of juicy canes. Fortunately, there are enough raspberry plants to share with everyone but the Japanese beetles!

Hopefully, these thoughts will convince you of what you’ve heard many times before: plant native, avoid chemicals and cherish the insects as your friends.

Long-time M.E.S. member Roger Rittmaster is also a Maine Master Naturalist.

INSECT TRIVIA TIME: *Approximately how many caterpillars do you think it takes to raise a clutch of chickadee chicks? Think carefully, then compare your answer with what you'll find on the last page of the newsletter, in the box just above the list of coming M.E.S. events!*

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It’s that time AGAIN! Insect Adventures Day at the Orono Public Library

It may not really be your kind of thing, but you really should stop by the Orono Public Library on **Saturday, June 8th**. It’s Insect Adventures! Day from 10:00 a.m. to 12:00 noon, at the Orono Public Library, 39 Pine Street, Orono, Maine 04473.

This is a fun event, even if you just visit with other members. MES will staff outdoor collecting at the Library’s annual entomological event. Geared toward children, but enjoyed heartily by parents and curious entomological enthusiasts who stop by, we help name and talk about the insects collected on the Library grounds.

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Insect Adventures Day (cont.)

For the younger age group, a simple ID, such as a ground beetle, or bumble bee vs. honey bee, etc., is fine—no great taxonomic skill is needed. MES clothing and hats will be on sale (do you have your sweatshirt?), and membership info/applications are available. We have gained new members from this event, and it would be great to have current members on hand to talk about the Society, as the rest of us keep pace with the kids' collecting.

For more information, phone Kathy Claerr at **207-666-3551** or via e-mail at **kclaerr1@comcast.net**. Please drop a note if you plan to attend.

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HELP WANTED!

MES has been asked to assist with the following events. Any of these events would be a great opportunity to pair up with someone else to share your interest in insects. Let Charlene Donahue know (**donahuecp15@gmail.com** or via cell phone at 207-485-0960) if this is something you think you might want to do.

- 1) **Children's Days** event at the Maine Forest and Logging Museum in **Bradley** (just north of Bangor) on **Wednesday, May 22nd and Thursday, May 23rd** from 9:00 a.m. to 1:00 p.m. each day.

Victoria Hansen has an **aquatic insect** demonstration and needs help on those two days. She has dip nets from University of Maine, trays and cups and spoons. We just need people to help give the kids an idea what they're looking at. You will learn along with the children!

The event is designed to give the kids an appreciation of both the history being recreated by the museum as well as one for the Maine woods and some of what can be found there.

If you can volunteer on either or both of those days please give Victoria a call or email as soon as possible.

Contact: Victoria Hansen via phone at 207-866-0048 or via e-mail at **vhansen@myfairpoint.net**

Website for the Maine Forest and Logging Museum: **<http://www.maineforestandloggingmuseum.org/about-2>**

- 2) **Moth Night on Islesboro Thursday, July 25th**, during **National Moth Week**, starting at 8:00 p.m., hosted by the Islesboro Land Trust. They are going to set up lights and sheets and bait some trees. They are looking for some people to help identify what is flying at night.

Charlene Donahue will be staying overnight at a friend's VERY rustic camp and they could host a few others there as well. The last ferry over runs at 5:00 p.m. We could also take people via the water taxi (\$120 for up to 6 people) for the return trip back to the mainland Thursday night, for those who walk on to the ferry for the trip over. Islesboro is too large to be walk-able so we would need to work out logistics, but that is okay if you want to participate.

Contact: Charlene Donahue via e-mail at **donahuecp15@gmail.com** or via cell phone at 207-485-0960

- 3) Join us for an **insect monitoring day at Scarborough Marsh on July 27** from 9:00 a.m. - noon.

Help us survey the habitat around the Scarborough Marsh Audubon Center on 92 Pine Point Road in Scarborough. We will be in the lower and upper salt marsh and a small stand of trees. We have been doing this survey for 10 years and our data is shared with scientists via iNaturalist, to help determine the health of the marsh and to notice any changes or new trends that are developing. Our day will begin with an orientation to the marsh. Snacks will be provided. For more information call 207-883-5100 or e-mail **smac@maineaudubon.org**. Linda Woodard, Director of Scarborough Marsh Audubon Center; 20 Gilsland Farm Road, Falmouth, ME 04105

- 4) **Families in the Outdoors: Bugs!** This will be at the Piscataquis County Soil and Water Conservation District's Demonstration Forest in **Williamsburg Township** (between Brownville and Sebec) on **Saturday, August 24th**, from 9:00 a.m. - 12:00 noon.

They would like someone to talk about insects in Maine and lead an insect walk looking for insects, total time one hour. Charlene Donahue via e-mail at **donahuecp15@gmail.com** or via cell phone at 207-485-0960

Website for Piscataquis County Soil and Water Conservation District's Demonstration Forest

<http://www.piscataquisswcd.org/demonstrationforest/>

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Insects and Native Plants - *It's even trickier than you'd think!*

by Bob Nelson

Roger Rittmaster touched on a very important topic in his earlier article, relating to the importance of maintaining natural environments to enhance insect biodiversity. This concept has tremendous implications beyond just the maintenance of the insect populations.

Prof. Douglas Tallamy at the University of Delaware has, with his students, amassed a tremendous amount of data in recent years on the importance of maintaining these native plant and insect communities as they pertain to the survival of many species of birds in the suburban and urban environments.

In 2008, his team produced a key paper¹ comparing the insect and bird faunas of properties planted with exclusively native taxa, vs. those with more conventional suburban landscaping, including exotics. Their data showed that "Native properties supported significantly more caterpillars and caterpillar species and significantly greater bird abundance, diversity, species richness, biomass, and breeding pairs of native species. Of particular importance is that bird species of regional conservation concern were 8 times more abundant and significantly more diverse on native properties." (Quote is directly from their abstract.)

More recently, a 2018 paper² presented data showing that suburban yards with less than 70% native biomass had such reduced insect populations as to negatively impact

(continued on next page)

Insects and Native Plants (cont.)

reproductive success in Carolina chickadees, because parental birds had to switch to less-preferred (and less nutritious) arthropods to feed their young. Nitrogen analysis of chickadee blood plasma indicated that in plots dominated by non-native vegetation, predatory arthropods such as spiders were a higher proportion of the diet than plots with native vegetation and preferred prey insects.

However, just because a plant may be native isn't the sole key to insect (and potentially) bird survival. A second paper from this group last year³ presented data indicating that cultivars of native plants, which have been bred to enhance horticulturally desirable traits, can also have negative impacts in insect populations, depending on the traits for which the cultivar was developed. Cultivars that have been developed with red, purple, or blue-colored leaves were found to be avoided by herbivorous insects.

In a 2017 paper⁴, Tallamy himself outlined steps that can be taken to enhance specific plants and birds - e.g., chickadees feed their chicks predominantly on caterpillars, and not just any caterpillars - only those that are devoid of hairs or spines. If you want pileated woodpeckers, you have to have a supply of large populations of carpenter ants - i.e., standing dead trees. If you want to have phlox produce seed in your garden, you need to have the plants that support the caterpillars of the various species of sphinx moths that pollinate the phlox. And when you think of how large a woodpecker is, especially a pileated woodpecker, just imagine how many thousands of ants it took mama and papa to get it from hatchling to fledgling! The numbers are mind-bogglingly enormous!

Lastly, another 2018 paper⁵ provided data that indicates that planting wildflowers along high-speed highways may be more a death trap for pollinators than a positive ecological enhancement. Highways with wildflower or meadow median strips were highly detrimental to the survival of dragonflies and butterflies, whereas those with mowed grass tended to be more detrimental to bees. Having forest adjacent to the highways actually resulted in fewer insect deaths from vehicle impacts than having lawn or meadow roadsides.

Let me know if you'd like a pdf copy of any paper.

References:

- ¹ Burghardt, K. T., D. W. Tallamy, and W. G. Shriver, 2008. Impact of Native Plants on Bird and Butterfly Biodiversity in Suburban Landscapes. *Conservation Biology*, v. 23, no. 1, p. 219-224.
- ² Narango, D. L., D. W. Tallamy, and P. B. Marra, 2018. Nonnative plants reduce population growth of an insectivorous bird. *Proceedings of the National Academy of Sciences*, v. 115, no. 45, p. 11549-11554.
- ³ Baisden, E. C., D. W. Tallamy, D. L. Narango, and E. Boyle, 2018. Do cultivars of native plants support insect herbivores? *HortTechnology*, v. 28, no. 5, p. 596-606 + 12 pp. of supplemental data.
- ⁴ Tallamy, D. W., 2017. Creating living landscapes: Why we need to increase plant/insect linkages in designed landscapes. *HortTechnology*, v. 27, no. 4, p. 446-452.
- ⁵ Keilsohn, W. D., D. L. Narango, and D. W. Tallamy, 2018. Roadside habitat impacts insect traffic mortality. *Journal of Insect Conservation*, v. 22, p. 183-188.

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Glass Insects from Lisbon Falls

Folks who may have wondered about what was done in the February field day at Jim Nutting's studio in Lisbon falls can have your curiosity satisfied! Jon Wallace caught the essence of the fun in a series of photos.



M.E.S. members who gathered in Jim Nutting's studio in Lisbon Falls in February to make glass insects included (from left to right) Terry Mazurkiewicz, Dana Michaud, Charlene Donahue, Jim Nutting, Joy Auclair, Jon Wallace, Liz Mazurkiewicz, and Kathy Claerr.



The glass insects (plus a frog!) before (above) and after (below) being fired in the kiln.

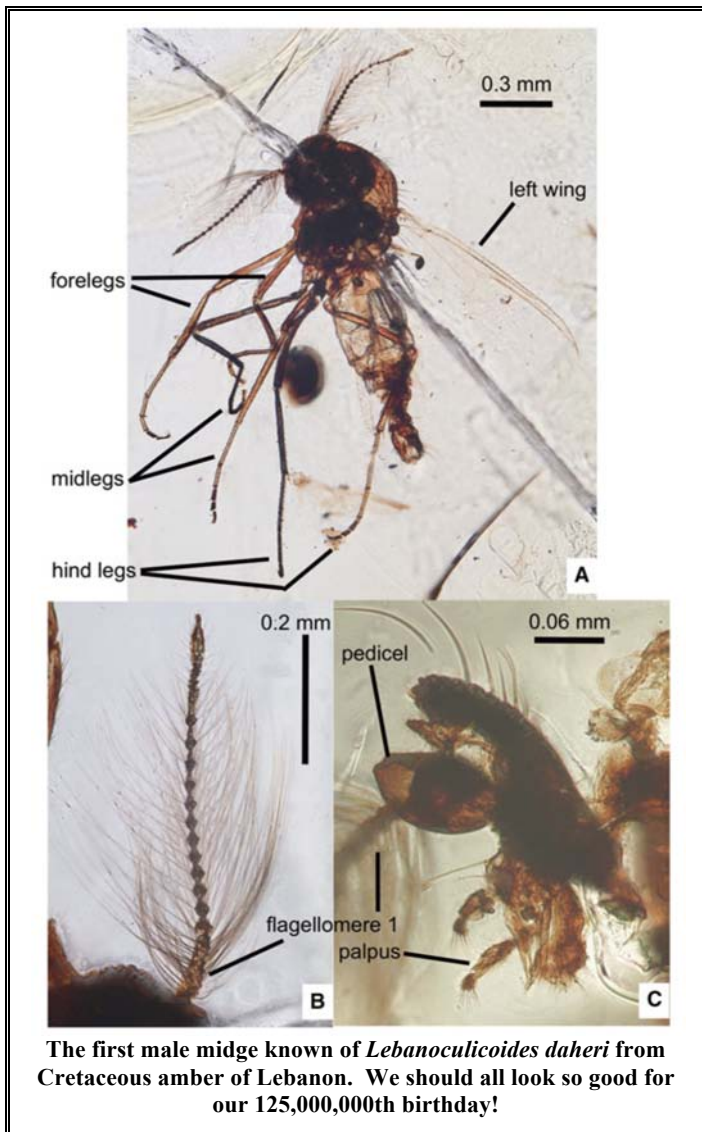


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A Cretaceous Midge from Lebanese Amber

by Bob Nelson

A recent paper in the *Canadian Entomologist* * shows some exquisite photos of an incredibly well-preserved early Cretaceous biting midge (family Ceratopogonidae), and discusses the physiological characters of why this early species is part of a sister group to all other extinct and extant Ceratopogonidae. While such a paper normally would be far too specialized to discuss with regards to Maine insects, the incredible preservation of this specimen seemed worthy of republication if only for its "**OH, WOW!**" value.



The first male midge known of *Lebanoculicoides daheri* from Cretaceous amber of Lebanon. We should all look so good for our 125,000,000th birthday!

Reference:

* Borkent, A., 2019. The Lower Cretaceous male of *Lebanoculicoides daheri* - belonging to the earliest lineage of biting midges (Diptera: Ceratopogonidae). *Canadian Entomologist*, v. 151, p. 278-290.

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Mountain Lions in Maine?

Whether there are mountain lions (cougars) to be found in Maine continues to be an issue of debate in Maine wild game circles, though some video taken by people ice fishing on a small pond up near Jackman this past March seem to show a long-tailed cat walking across the ice to investigate their traps (see <https://www.mainepublic.org/post/maine-ice-fishers-spot-big-cat-biologists-say-could-be-mountain-lion>).

Related to this is a story in the Smithsonian Magazine (<https://tinyurl.com/yxk39p9f>), to give this an entomological bent. Study of carcasses from mountain lion kills in the Yellowstone Park area showed that some 215 species of beetles were associated with kills, in which eight families were statistically more abundant at kill sites than in nearby control areas: Silphidae, Carabidae, Curculionidae, Staphylinidae, Histeridae, Scarabaeidae, Dermestidae, and Cleridae.

The original research article was published in the journal *Oecologia*. Contact Bob Nelson if you'd like a copy.

Donna Nelson brought this item to our attention - thanks Donna!

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TRIVIA TIME ANSWER: According to Prof. Douglas Tallamy at the University of Delaware*, Carolina Chickadees bring 390-570 caterpillars to their nest each day, depending on the number of chicks. Parents feed the young in the nest for 16-18 days until the young fledge, and then for 30 days beyond that. However, just getting *one* typical clutch of chicks to the fledgling stage requires some 6240 to 10,260 caterpillars!

* Tallamy, D. W., 2017: Creating living landscapes: Why we need to increase plant/insect linkages in designed landscapes. HortTechnology, v. 27, no. 4, p. 446-452. (Bob Nelson has a pdf copy for anyone who wants one.)

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COMING M.E.S. EVENTS in 2018-19

June 1 - Field Day - Kennebec Land Trust Preserve at Hutchinson Pond, Manchester (see p. 3)

June 29 - Field Day in Waterford (see p. 3)

July 20 - Joint M.E.S., Vermont E.S., and Cambridge E.S. field day on Appledore Island, Isles of Shoals (see p. 4)

August 3 - Field Day at Bangor Land Trust Preserve (see p. 4)

August 17-18 - Field Day in Katahdin Woods & Waters

September 7 - Collecting for Bug Maine-ia in China

September 10 - Bug Maine-ia at Maine State Museum

October 5 - Annual Meeting, Clinton

October 19 - Field Day in Bowdoin

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

The Maine Entomologist is the quarterly newsletter of the Maine Entomological Society. Dues are \$15 per year. 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. Our records show your dues are paid through the year printed on your mailing label; please contact Dana if you believe this is in error. *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.*