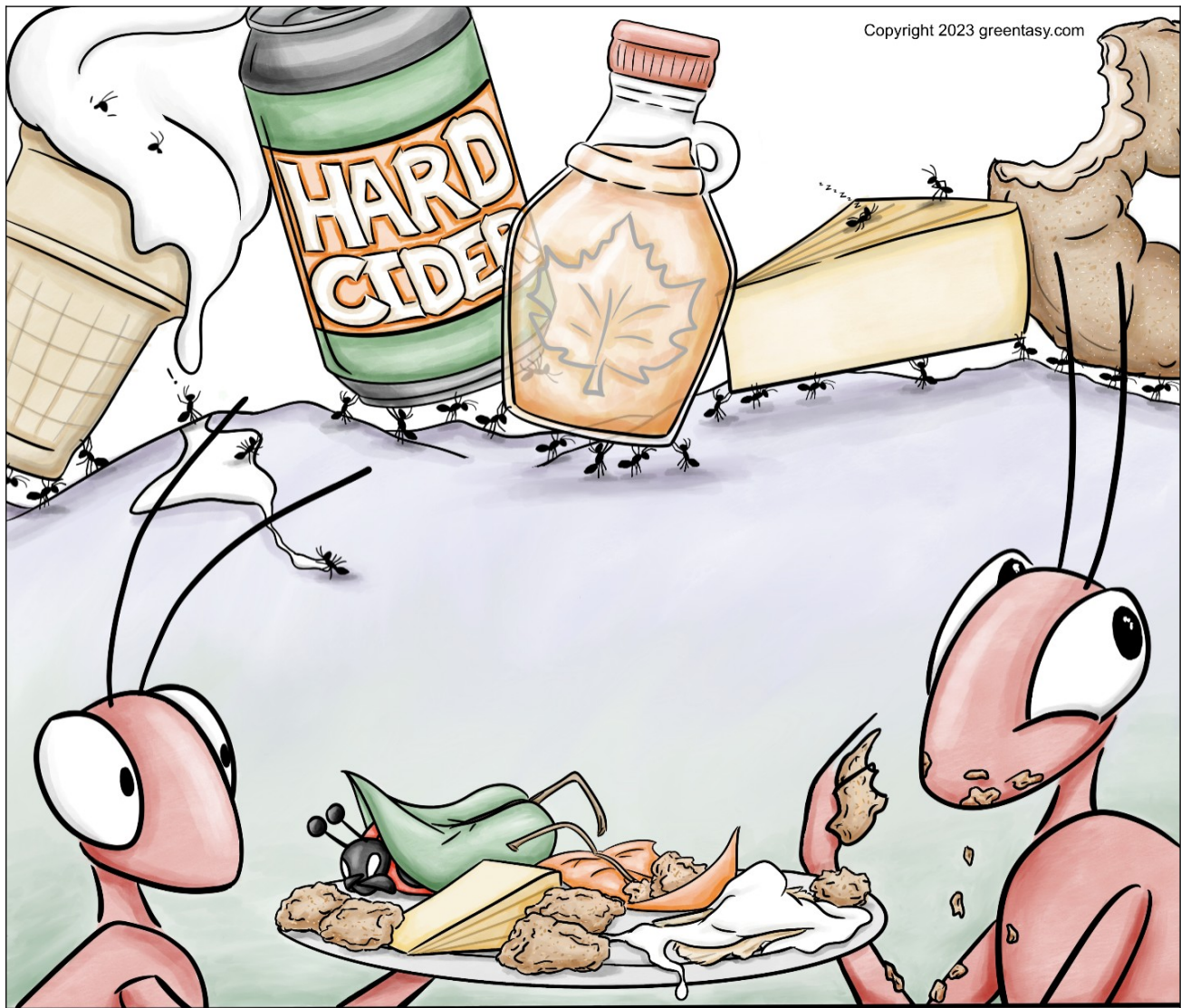




VES NEWS

The Newsletter of the Vermont Entomological Society

Number 119
Fall/Winter 2023



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"We should have moved to Vermont years ago!"

Vermont: clearly the perfect place for an ant's sweet tooth

Illustration: Amber Awen, "Ants in Vermont" 2023

The Newsletter of the
Vermont Entomological Society

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The **Vermont Entomological Society (VES)** is devoted to the study, conservation, and appreciation of invertebrates. Founded in 1993, VES sponsors selected research, workshops and field trips for the public, including children. Our quarterly newsletter features developments in entomology, accounts of insect events and field trips, as well as general contributions from members or other entomologists.

VES is open to anyone interested in arthropods. Our members range from casual insect watchers to amateur and professional entomologists. We welcome members of all ages, abilities and interests.

You can join VES by sending dues of \$15 per year to:

Deb Kiel
147 Allen Irish Road
Underhill, VT 05489

Number 119 ♦ Fall/Winter – 2023

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Newsletter Schedule

Spring/Summer: Deadline May 7 – Publication June 1
Fall/Winter: Deadline September 7 – Publication October 1
Winter/Spring: Deadline February 7 – Publication March 1

Want to submit an article?

Please contact Michael Sabourin at mothvet@yahoo.com
"VES News" on subject line, for Guidelines.

Membership

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The upper right corner of your mailing label will inform you of the month and year your VES membership expires.

Dues are \$15 and can be sent to our Treasurer:

Vermont Entomological Society
c/o Deb Kiel
147 Allen Irish Road
Underhill, VT 05489

President's Message



Greetings and welcome to the 119th edition of the Vermont Entomological Society newsletter.

We would be remiss not to recognize this summer's July storms and the effect it has had on Vermonters both directly and indirectly.

Many folks are living in a different reality depending on their location and elevation, having suffered devastating effects from July's rain and flooding. Others, certainly in central Vermont, have been affected by the aftermath of having to work from home or not being able to work at all. Montpelier, the capital city of Vermont has been practically closed for months. Normal things that we may have taken for granted like going to a library and a certain store have become problematic.



Personally, we had water coming into the house for four hours, which we had to bail with a shop vac and 5-gallon buckets. That was followed by 12 hours without power, being stranded for a couple of days, and a week without internet; plus, subsequent technical and logistical problems. Some collecting sites became unreachable for their topography became altered.

We wish everyone the best possible outcome from this past summer's storms. While many may be awaiting next summer, there is much to see this year.

When you receive this newsletter, summer will have waned, and fall will be full foliage. Fall is a good time of year to look for bees, other Hymenoptera, Diptera, and aquatic insects. After a good frost comes a season of winter moths when you can collect moths by baiting. There are still plenty of opportunities to get outside and look for insects.

Cover Story: Profile of Amber Awen By Amber Awen

Hello Vermont Entomology Society! I'm Amber Awen, the artist behind the webcomic Greantasy; a single-panel, bug-driven comic depicting the miniature lives of invertebrates.

Two years ago, I moved from my hometown of Phoenix, Arizona to Burlington, Vermont. Understandably the two cities are different in many ways—the most notable being the landscape. While I'll always have a fondness for the desert, I feel more at home in the wooded areas of the northeast. All of Vermont is so beautifully green. And as most folks would agree...where there's lots of green, there's lots of bugs! A welcome enjoyment in my book.

Growing up in Phoenix, you could always find me outside exploring regardless of the



Artist Amber Awen next to her piece, "Gastropoda Massage" at Art Hop '22
Photo: Amber Awen

weather, even in the blistering heat. Often after these adventures, I would come home with an additional friend or two. Sadly, anything they considered creepy and/or crawly was not something my parents appreciated in the house, and my new friends had to stay outside.

This love for insects has always stayed with me.

Initially I had dreams of moving to Tucson and attending University of Arizona's Department of Entomology, but somehow ended up with a marketing degree from Arizona State University. Even though I've held many corporate job positions over a decade-long marketing career, my curiosity and interest for arthropodal life never ceased.

Profile of Amber Awen (continued)

During that time my backyard in Phoenix became a popular hot spot for praying mantises, honeybees, carpenter bees, lady bugs, butterflies, and other critters. They loved the orange, cherry, fig, and tamarind trees. The carpenter bees especially seemed to love the stack of bricks near the house.

These swarms of life distracted me from the emerging Pandemic. Perhaps it was the elation of a bright, green mantis appearing on my orange tree, mixed with the uncertainty of a looming global shutdown that spurred me to draw again. Whatever the motivation, I drew what I loved. Not only did I enjoy the art process, I loved showcasing arthropods in a fun and relatable manner.

Starting with an illustration called “Mr. Mantis”, the initial series of insect art would later become a webcomic called Greentasy. The webcomic aims to not only entertain but to educate. First published in February of this year, it is now over 50 “episodes” long. Take a look! <https://www.greentasy.com>.

If I were asked to name my primary source of inspiration, I would undoubtedly say Gary Larson, the creator of Far Side. I grew up adoring his humorous single-panel column as well as admiring his background as an environmentalist.

Similarly, I enjoy finding humor in odd places, as well as spreading knowledge and familiarity of insects with others.



Amber holding one of her Madagascar hissing cockroaches (*Gromphadorhina portentosa*)

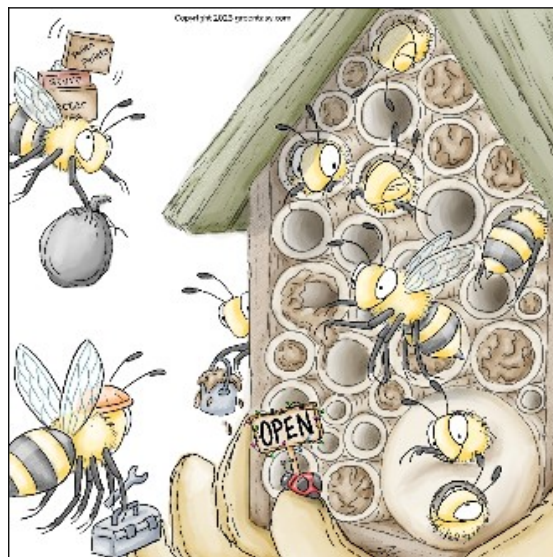
Photo: Amber Awen, Williston, VT

Whenever I do internet research on arthropods, I must sift through troves of articles labeling insects as pests that need to be exterminated. I want to change that. In fact, the intention behind Greentasy is to adjust society’s mindset that insects are not something to be feared and/or eliminated but one of appreciation, and respect. Campaigns like *Save the Bees* are a great start, but I feel it is

not enough. As long as I am sharing the planet with other living things, I will stay steadfast in continuing to fight for the little guys. Invertebrates are paramount to our survival, and to the continued health of our ecosystems.

I look forward to continuing my support of Vermont Entomology Society and participating in future events. Thank you, Micheal, for the warm welcome to VES and for allowing space for an introduction. Thanks to Melissa for putting this editorial together.

Promoting the use of insect hotels in gardens
Illustration: Amber Awen, “Bee Hotel” 2023



Megarhyssa and Their Prey

By Judy Rosovsky

This summer I stopped near Burlington High School to photo document the building as it was being torn down. I noticed a dying maple tree nearby and went over to investigate the cause of death. It had several ichneumonid wasps on it, including the long and beautiful *Megarhyssa*



(Fig 1) Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*) entering oviposition site

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

macrurus. I watched as she faced the daunting task (Fig 1) of getting her rather long ovipositor into a pileated woodpecker hole so she could see into the wood and lay eggs on her victim, which was most likely a pigeon tremex (the Siricid wasp, *Tremex columba*). It took her many tries to hunch herself up enough to drag the ovipositor over the rim of the hole, but she finally did it (Figs 2 and 3).



(Fig 2) Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*) moving ovipositor into position

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

Ichneumon wasps are a large group of parasitoid wasps in the order Hymenoptera, suborder Apocrita – Parasitica. This group contains about 25,000 species but in recent years more have been found in tropical areas, so species richness and



(Fig 3) Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*) ovipositor in final position; membranous disk visible at end of abdomen

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

abundance continue to increase (Wikipedia, 2023). The name ichneumon wasp can be used to include all the members of the family Ichneumonidae, or just the wasps in the genus Ichneumon. The etymology of the word suggests it is loosely translated from the Greek as ‘tracker’, which is an apropos way to describe wasps that seek out prey and lay eggs on them.

An easy way to distinguish most Ichneumonids from the other Apocrita, especially from the similar looking Braconidae, is to count their antennal segments; if there are 16 or more segments then it’s



Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*); different angle of final ovipositor position

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

an ichneumonid (Wikipedia, 2023). In North America there are four *Megarhyssa* species, *M. macrurus*, (the long-tailed giant ichneumon wasp); *M. atrata*, (the black giant ichneumon wasp); *M. nortoni* and *M. greenei*, (the Greene’s and Norton’s giant ichneumon wasps) (Pook et al., 2016), and there are several subspecies. A good visual key to the species can be found at <https://meadowhawk.wordpress.com/2020/06/16/ichneumon-wasp-identification/>.

If you want to delve into the subspecies try Espinosa and Dankowicz, 2022. Another more traditional key can be found at <https://dez.pensoft.net/article/7619/>.

Pigeon tremex are the obverse of the long, slender *Megarhyssans*. They have thick bodies and no wasp waist (Schiff et al., 2006). They serve



Pigeon tremex (*Tremex columba*) adult

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

Megarhyssa and Their Prey (continued)

as hosts to their more delicate parasitoids, though *M. nortoni* has a more diverse diet and pursues 3 species of wood wasps, including the invasive wood wasp *Sirex noctilio*. Due to this predilection, *M. nortoni* is being used as a biocontrol for the US Forest Service to decrease the populations of *S. noctilio* and has been used in Australia for the same purpose (Pook et al., 2016). The primary and perhaps only prey of Megarhyssans is the Pigeon tremex, in the groups of wasps known as the horntails. Horntails are placed in the Hymenopteran suborder Symphyta, in the family Siricidae, which includes both sawflies and horntails. Horntails are sometimes known as woodwasps (Schiff et al., 2006), and are common in VT and are often found while splitting hardwoods. They are, believe it or not, stingless.

Pigeon tremex have long ovipositors too, but not as long as their parasitoid cousins. The pigeon tremex is a native species that usually only feeds on dead and dying trees. They can't digest wood, so they carry around a fungus that can digest wood and when they lay their eggs, they deposit some of that fungus and a fungal growth promoter into the wood (Barlow, et al., 2018, Schiff et al., 2006). When the eggs hatch the larvae can eat both the fungus and the wood the fungus digested.

Parasitoids differ from parasites in that the parasitoids ultimately kill their hosts. They can be ecto (attack from outside the host) or endo (start feeding from within the host) parasitoids, and idiobonts or koinobonts. Idiobonts are injected with substances that prevent their further development, while koinobonts can continue to develop, though they may be temporarily paralyzed to allow the parasitoid to deposit her egg in a precise location.

The dying maple tree harbored another species of Megarhyssan woodwasp, *M. atrata*, the black giant ichneumonid wasp. They, too, oviposit their eggs on horntails with their 4-inch-long ovipositors. It appears that the different ovipositor lengths each species has allows Megarhyssans to avoid competing for the same food resource, as

they lay eggs on prey that occur at the end of their ovipositor, thus spatially dividing the resource.

A more detailed description of the parasitoid egg laying process can be found in Virginia Barlow's Outside Story article on "The Grisly Business of Parasitoids" (Barlow, 2018).



(*Megarhyssa atrata*) ovipositing eggs

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

Once the female ichneumonid has contorted her body sufficiently to get the ovipositor in a position suitable for boring into the wood, she starts sawing till she reaches the larval horntail body, injects it with a paralyzing venom, and squeezes an egg down the long ovipositor and deposits it onto the paralyzed host insect. When the ichneumonid egg hatches the larva consumes the still living horntail larva, which eventually dies. The ichneumonid wasp overwinters in the tree and chews its way out in the spring to mate and hunt for horntails.



Long-tailed giant ichneumon wasp (*Megarhyssa macrurus*) full view

Photo by Judy Rosovsky
[Playing field across from Burlington High School, Burlington VT]

Megarhyssa and Their Prey (continued)

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Dragonfly Survey Overview, Habitat Loss and Recovery

By Laurie DiCesare

During the past couple of years, I've noticed a reduced number of Odonates (Dragonflies and Damselflies) at many wetland sites. Granted, this has been a challenging summer for weather with late season freezes, deluges and droughts. I have been revisiting many sites and I've not only seen a reduction of species but a very low number of individual odes. In years past, I usually only noted how many different species I saw as there were usually too many individuals to count. On a recent visit to Waterbury Center State Park, where the shoreline and lower parking lot had been inundated by mid-July floods, I found only one damselfly as I walked along the shore; a raincloud was moving in. I visit the site infrequently but have noted at least five species of Odonates there in the past.



UVM Hort. Research Ctr. Pond
(8.10.2013)
Wally Jenkins' Odonate Walk
Photo: Laurie DiCesare

On August 10, 2013, I attended a dragonfly walk led by Wally Jenkins at the UVM Horticulture Research & Education Center (familiarily known to students in years past as the "Hort Farm"). The pond had algae and pondweed around the edges but there was plenty of open water and we saw many species of damsels and dragons flying around the pond. We identified seven different species that day. On Sept. 9, 2023, I drove out to the South Burlington site to do an odes search. I had not visited the site since 2017 and had a tough time accessing the shore. Much of the shoreline was heavily vegetated and there was a deep ditch and a brook where a mowed access path down to the shore had existed before.

I drove around to the far side of the pond where I had seen Ebony Jewelwings



UVM Hort. Research Ctr. Pond from
opposite shore (9.6.2023)
Photo: Laurie DiCesare

Dragonfly Survey Overview, Habitat Loss and Recovery (continued)

(*Calopteryx maculata*) flying around a short footbridge over the water. There was very little open water visible. I only saw one lone Darner (*Aeshna* sp.) patrolling a diner table-sized opening in the Jewelweed. In 10 years, this site has gone from a place with a large number of individuals of diverse species, including a Black Saddlebags (*Tramea lacerate*) that I have not encountered anywhere else in Chittenden County, to one solitary Darner. (There may have been other damselflies along the shore of the broad lake, but I didn't see any from where I was standing.) Granted, it was a 91° day, and I wasn't able to stay long due to the heat, but I expected to see some other activity.

I used to enjoy kayaking the waterlily-strewn southern end of Lake Carmi State Park along the shore by the campsites. I was Naturalist/ Recreation Director there in 2001 and campers enjoyed swimming and using the paddle boats. There would sometimes be algae blooms in late summer, but the frequent wind action kept that to a minimum. I most recently visited in 2017 after bubblers had been added to aerate the water. In 2020, the water was green so I just looked for odes by walking along the shore. The shore is now covered with algal blooms that have rendered the water unfit to swim in. I've documented 13 species of Odonates at the park in the past. On my next visit, I'll check out the bog boardwalk the extends into the park wetland and look for activity there.

In July of last year, I had a 40-yard pond dredged out of a marshy area and brook that ran through my back yard. I was feeling good about adding a new Odonates site and spent many hours sitting by the



NatureHaven Pond (8.20.2022)
Photo: Laurie DiCesare

water recording the damsels and dragons that quickly discovered, populated and dipped their eggs in the new pond. Over the summer, I noted seven additional ode species and learned that the 30 mm. Sedge Sprites (*Nehalennia irene*) that I had been searching for in bogs around the State could be found along the edge of the new wetland. By the end of the season, though, my new pond was filling



NatureHaven Pond (9.14.2023)
Photo: Laurie DiCesare

up with *Elodea* and other pond weeds. I dredged the *Elodea* several times with a rake, making sure to check through the stems for the dark green darner *Aeshna* nymphs, water bugs and other critters that I released back into the water...but the *Elodea* is growing faster than I've been raking it out. The wetland was the site of a former dairy farm (long before I bought the site in 2001) so I thought there might be some residual "fertilizer" in the soil that may have been stirred up during the dredging. I'm hoping the recent rains and more raking will help reduce the *Elodea* population over time. (I'm now adding *Elodea* compost to my roses.)

I've been working on compiling a list of Ode species that I've seen at sites all over the state to see if I could document a reduction in the number of species seen at each site... but the task is daunting. I reduced the scope of my



Black-tipped Darner (*Aeshna tuberculifera*)
Photo: Laurie DiCesare

project to look at the five parks I visited most frequently over the past few summers (June, July and August of 2020 to 2023)- but it's

Dragonfly Survey Overview, Habitat Loss and Recovery (continued)

hard to compare snapshot moments with few controls. Of the five sites (Milton Town Forest [32 species]; Indian Brook Reservoir in Essex [34 species]; Diversity Hill in Colchester [12 species, probably from the wetland below]; Mills Riverside Park in Jericho [27 species]; and Gilbrook Natural Area in Winooski [32

species]), none of the highest number of species recorded at each site occurred in 2023. I was pleasantly surprised by the diversity of species noted at each of my five favorite sites. That may have helped make them my favorites.

Note: Many thanks to Josh Lincoln and other VES members and iNaturalist.org users who quickly help identify and confirm my Odonate posts. Bonnie Pease, who lives next to the Milton Town Forest, and naturalists Shirley Zundell and Tom Scavo have sent me photos and helped identify and confirm many odes. My sister, Rusty Posner, is also a good spotter.

Contact: Laurie DiCesare, NatureHaven@MyFairPoint.net.

Common Blue Butterfly (*Polyommatus icarus*) Revisited

By Laurie DiCesare

On Saturday, Sept. 9, 2023, my sister, Rusty Posner, and I went on an afternoon road trip to St. Albans, VT. We were checking out yard sales and scenery...but I was also revisiting some dragonfly sites to add some late-season data points to the survey I was working on.

As we turned right off Nason Street (near the I-89 off-ramp) onto Lemnah Drive along the railroad tracks, I noticed that the first part of the field had been mowed...but the far end was still full of wildflowers

like Knapweed. The weather was sunny and warm (~75° F.) and I saw some Cabbage butterflies fluttering by as I parked the car. I described the diminutive

butterfly that we were looking for (which may appear pale blue as it was dark blue on top and cream-colored with black dots and orange spots on the underwing) and handed Rusty a butterfly net. She was walking slowly, a result of knee replacement surgery and said she wasn't about



Common Blue habitat (corner of Nason St. & Lemnah Dr.)
Photo: Laurie DiCesare

to do any wild gyrating but said she'd do her best.

I grabbed a second net and started walking to a nearby patch of knapweed when she called to me. "I think I found one!" She pointed out the little blue butterfly in a patch of mugwort.

I netted and photographed it and was delighted to confirm that it was, indeed the

(European) Common Blue, the same species that I had documented at this site with a class of H.S. students on Sept. 15, 2020. A few minutes later, I saw and photographed two more. We also saw a darner fly by. I'm glad some of the field escaped the mower.



Common Blue (*Polyommatus icarus*)

Photo: Laurie DiCesare



Common Blue (underwing)

Photo: Laurie DiCesare



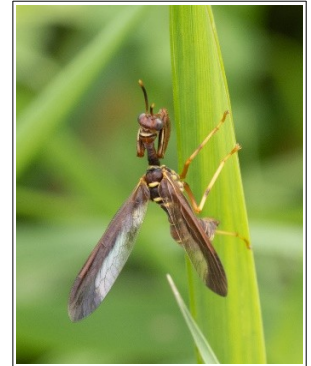
Mantidfly (*Climaciella brunnea*)

By Ed Linton

Last year I heard that Chip Darmstadt had seen a mantidfly at the North Branch Nature Center. I had never seen one. This insect (*Climaciella brunnea*) is an oddball. It has the head, neck and grasping forearms of a praying mantis and an abdomen with wasp-like markings (qualifying it as a mimic). It is neither a wasp, nor a fly nor a mantis, but belongs to the family



Mantispidae, of the order Neuroptera (nerve-winged insects), which includes Mayflies and Dobsonflies. Its larva are parasites of wolf spider eggs. My bug photography group and I came across one at NBNC. This was a very exciting find! We were about done with our bug walk and almost back to the parking lot when we spied it in the grass. Makes one wonder how this guy evolved.



- JoAnne Russo recently co-authored a new moth species description:

Clifford D. Ferris and Joanne Russo (2023, in press) A New Eupithecia Species From Arizona (Geometridae: Larentinae: Eupithecinii). *Journal of The Lepidopterists' Society*; Society, Vol. 77, No. 3: 180

- In July, Bernard Paquette discovered a new Tumbling Flower Beetle for Vermont, *Tomoxia inclusa*.
<https://www.inaturalist.org/observations/171401695>

Bernie's photo was identified by the German coleopterist Boris Büche, whom remarked that *Tomoxia inclusa* is rare. There are only six observations for North America on iNaturalist for this species. Bernie thinks beetles get way undercovered on iNaturalists and he said "... perhaps I should try to 'uncover' more of them." Boris on his iNat. profile relates that he makes a living identifying beetles and often for free. He considers it a bit like traveling.



Tumbling Flower Beetle (*Tomoxia inclusa*), Browns Trace Rd, Jericho, VT,
Photo: Bernie Paquette

Update from the Zadock Thompson Zoological Collection

By Sara Helms Cahan, Interim Curator

The Thompson Zoological Collection was so pleased to be able to host the VES annual meeting this past April. Our meeting included a presentation by UVM Biology PhD candidate (and brand-new VES member!) Ben Camber about his work on Hymenopteran parasitoid biodiversity in Vermont.

Spring was a busy time, with a 21-person strong cohort of undergraduate interns working on a diverse set of projects, including photographic documentation of rodent ectoparasites, taxonomic reorganization of the Hymenoptera collection, and digitization of our holdings of Vermont Lepidoptera. You can find synopses of their projects here: <https://www.uvm.edu/vtnaturalhistory/current-collections-projects>.

After a more relaxed summer season, six of our former interns have returned, along with 16 brand-new students. They will be spending this semester learning about the history, utility and challenges facing natural history collections worldwide, as they gain hands-on training in different aspects of collections



Fall undergraduate interns (from left to right) Julia Luna, Brady Hill, and Flynn Krapf, busy inventorying some of our 65,128 pinned Coleoptera specimens.

management. They started the semester helping to finally finish inventorying our current insect and mammal research collections; by the latest count, we have 6,298 mammals preserved as skins and/or skulls, and 128,131 pinned insects (fluid-preserved invertebrates are on the docket for next semester). This includes at least 32,319 unidentified insect specimens from 10 different orders. We are looking for some entomological expert assistance! We hope you can join us at Blundell House on UVM's

Redstone campus for an "Insect Identithon" workday on **Saturday, October 28th**, from 10am to whenever you can pull yourself away from the stereoscope. We'll provide a light lunch and other refreshments, so all you need to bring is your knowledge and enthusiasm! We've got dragonflies, butterflies, mantids, crickets, and much much more, all looking for some taxonomic assistance. Even if you can't make that date, please consider visiting or volunteering your time in the collection. Be in touch! We'd love to see you.

Sara Helms Cahan, Interim Curator
scahan@uvm.edu

Insect News



Horse from VT dies of Triple E:

https://vtdigger.org/2023/09/08/new-york-horse-with-eastern-equine-encephalitis-was-infected-in-swanton/?utm_medium=email&utm_source=VTDigger+Subscribers+and+Donors&utm_campaign=0fe308e987-EMAIL_CAMPAIGN_2023_09_09_01_03&utm_medium=email&utm_term=0_-0fe308e987-%5BLIST_EMAIL_ID%5D

Eastern equine encephalitis (EEE) is a mosquito-transmitted virus that can cause serious and potentially fatal disease in humans and animals. In August, it was detected in Franklin Co.

Any person, (especially in late summer) who has been in a region known to have EEE, who presents with a febrile or acute neurologic illness and has had recent exposure to mosquitoes should be considered for triple E.

The Vermont Department of Health Laboratory tests mosquitoes for West Nile Virus (WNV) and EEE virus to help inform communities about potential risks. Mosquito collection and testing occurs from July to mid-October. Mosquito testing results are summarized on the Health Department's mosquito surveillance webpage:

<https://www.healthvermont.gov/disease-control/mosquito-borne-diseases/mosquitoes-vermont>

Book Review

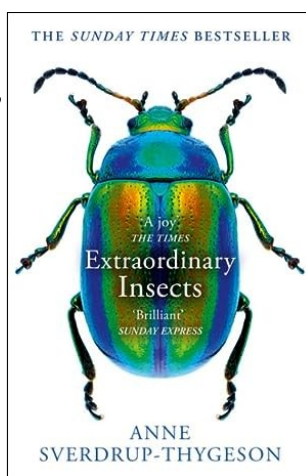


Extraordinary Insects: The Fabulous, Indispensable Creatures Who Run Our World

Written by Anne Sverdrup-Thygeson; illustrations by Tuva Sverdrup-Thygeson.
Book Review by Laurie DiCesare

Although the original title, “Buzz, Sting Bite: Why We Need Insects”, may not have drawn you to this book, the new title, “Extraordinary Insects: The Fabulous, Indispensable Creatures Who Run Our World”; the iridescent beetle front cover photo; and the macro photo of a praying mantis with outreaching forelegs legs gracing the back cover certainly might. This introductory exploration of some of the numerous, bizarre interactions of “our” insect world is well worth perusing.

Divided into chapters with catchy titles like “Six-legged Sex: Dating, Mating and Parenting” or “Eat or Be Eaten: Insects in the Food Chain”, the



author, a professor of conservation biology at the Norwegian University of Life Sciences, delves into the interactions and lifestyles of both well-known and lesser-known insect species and their associates. Fascinating stories of insect interactions like the clever Greater Honeyguide birds that lead humans to beehives for a share of the honey; or *Myrmica* ants that inadvertently take ant-scented butterfly larvae into their nest where the “guests” begin feeding on the host’s larvae. The reader may have heard about ant/aphid interactions but might be

Extraordinary Insects: The Fabulous, Indispensable Creatures Who Run Our World (continued)

interested to learn that Chinese records from 300 BCE were telling farmers to move ant nests into lemon groves to reduce lemon pests. Who knew that the scientific name for the much-documented genus of fruit flies, *Drosophila*, means “One who loves the morning dew”; or that Poison Dart Frogs only produce their poison while they are eating a certain poisonous beetle in the wild?

Other chapters on insect interactions with plants; edible insects (mmm, protein!); and insect strategies as the basis for modern inventions (the minute hooks on burs inspiring Velcro; dragonfly maneuverability used in drone designs; and termite mound technology used for passive cooling in malls) make fascinating reading for middle-school science enthusiasts as well as adult armchair entomologists. The pencil sketches by Tuva Sverdrup-Thygeson that grace the first page of each chapter are unlabeled and a

bit simplistic but do include identifying features like the stigmas on the damselfly wings that many artists omit. The reader will find some interesting books noted in the Further Reading section at the back of the book including “Call of Nature: The Secret Life of Dung” and “Sex on Six legs: Lessons on Life, Love and Language from the Insect World”. Many of the articles noted under each chapter heading in Sources are also enticing: “How Did Insect Metamorphosis Evolve?” (*Scientific American*); “Spontaneous Male Death and Monogamy in the Dark Fishing Spider” (*Biology Letters*); “Aggressive Chemical Mimicry of Moth Pheromones by a Bolas Spider...” (*Chemoecology*); and “Dung Beetles Use the Milky Way for Orientation” (*Current Biology*). All in all, “Extraordinary Insects” is fascinating, informative, amazing and fun to read.

Extraordinary Insects: The Fabulous, Indispensable Creatures Who run Our World: Simon & Schuster Paperbacks New York, NY. @2018. ISBN 978-1-9821-1288-2 (paperback); 978-1-9821-1288-9 (e-book). 235 pages. Available at Amazon.com for \$14.82 (new). Alibris.com has used copies starting at \$8.49.

VES Calendar



Save the Date!

October 28, 2023 (10 am - ???) Annual workday at the Blundell House on UVM’s Redstone campus. Come join us to help UVM identify part of their collection! Lunch and snacks are provided. Contact Sara Helms Cahan, Interim Curator at scahan@uvm.edu for more information.



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The drawing that started it all
Illustration: Amber Awen, "Mr Mantis" 2021

