



VES NEWS

The Newsletter of the Vermont Entomological Society

Number 120
Winter/Spring 2024



Mayfly to the Moon

Illustration: Eve Mendelsohn

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 120 ♦ Winter/Spring – 2024

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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

Check Your Mailing Label

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

Hello and welcome to another inverting season in Vermont. We will have our annual potluck meeting on April 6th at the Birds of Vermont Museum in Huntington. There, we will discuss our programming, etc. for the upcoming season. I look forward to seeing folks there.

This and That:

Charley Eiseman is one of three VES members that have been nominated to be Member-at-Large for the Lepidopterists' Society. Charley, a botanist, became obsessed with leaf mining insects through his work and co-writing the book *Tracks & Sign of Insects and Other Invertebrates* (Stackpole Books, 2010). Charley has been involved with several new species descriptions in both Diptera and Lepidoptera as well as one new Lepidoptera genus. Parts of Charley's self-published e-book, *Leafminers of North America* can be found here:

<https://drive.google.com/drive/folders/1Wgi8cjfqEpwDlrCguhCZsGy3iQRILqOY>

Charley also recently gave a very entertaining presentation on leafminers for the Maine Ent Soc. which can be seen here :

<https://www.maineentosociety.org/webinar-archive/eiseman-leafminers>

This August he will be teaching a course on Leaf and Stem Mining Insects at Eagle Hill Institute in Steuben, ME.

JoAnne Russo has also been nominated as a Member-At-Large for the Lepidopterists' Society. JoAnne, a retired artist, has been documenting moth species in her yard for 20 years. She has also been busy identifying specimens for others including iNaturalists and university/ museum collections. Of recent she has been focusing on geometrids (those drab genera that are mostly ignored). JoAnne recently co-authored two new geometrid species, *Prorella neremorata* Ferris & Russo and *Eupithecia coconinoensis* Ferris & Russo. JoAnne also has several photo



illustrations on Moth Photographs Group (MPG) that help identify difficult *Eupithecia* specimens, etc.

Bernie Paquette has been very keen into inverting and iNaturalist (iNat.). He has had a number of novel VT iNat reports the past year such as *Donacia cincticornis*

<https://www.inaturalist.org/observations/133662714> , Illustrious Greenbottle Fly

<https://www.inaturalist.org/observations/174447939> , and

Physoconops obscuripennis <https://www.inaturalist.org/observations/124266109> ; see his profile on page 8 of this issue.

Insect News:

VT legislators introduce H.706, a bill that proposes banning neonicotinoids altogether; see VT Digger article: <https://vtdigger.org/2024/02/01/vermont-lawmakers-consider-banning-pesticide-class-to-help-insect-pollinators/>

Research Request:

Bernie Paquette is seeking data collection help searching for information about the lives of each of the three hundred plus wild bees that are known to be in Vermont. He is looking for life cycle information as to their behaviors, how they sense their world, how they gather food, mating habits, how they raise families, how long they live and about 75 other categories about their existence among us.

The long-term goal is to mobilize and aggregate Vermont wild bee data into an easily accessible, shareable, and updatable database that offers the user the ability to sort, filter and categorize the subset of data they wish to review. This data set is meant to augment the data sets of other organizations such as the Vermont Center for Ecostudies (Vermont Atlas of Life Species Data Set). Please contact him with any recommended sources or observations of such data; contact: Bernie Paquette (bernie.paquette@yahoo.com)

Pine St. Barge Canal Research Request:

Recently, Judy Rosovsky sent out a research request asking folks if they could go to the Pine St Barge Canal iNaturalist project

<https://www.inaturalist.org/projects/pinestreet-barge-canal->



President's Message (continued)

[superfund-sites](#) to help move specimens up to research grade.

She has a personal interest in this site since it's one of the last wooded pieces of land in this urban setting. It makes a great wildlife corridor and provides shade for hot and bothered passersby in an otherwise somewhat industrial area. When Ms. Rosovsky spoke with a landscape architect working on the design for the Nordic Spa proposed for the lot, she expressed, "There are a lot of nice trees here and I hope you're working them into your plans," and the architect responded with "No, I'm bringing in some very nice stuff."

In correspondence with Ms. Rosovsky, she explains, "That the area now known as the Pine Street Barge Canal in Burlington VT was originally land utilized seasonally by the Abenaki." In the 1860's this waterfront location was developed to provide access to canal boats and their goods. From 1908 to 1966 a coal gasification plant operated at the site. This gas plant contributed to 56 toxins being discovered on location, creating a Burlington Superfund site <https://cumulis.epa.gov/supercpad/cursites/csinfo.cfm?id=0101479>. Now the Pine St Barge Canal has become known as a place infamous for its toxicity and resistance to capping technology.

Of recent, a grassroots community branch, called MycoLab, of ecological resilience service MycoEvolve, has dedicated a good deal of time and effort trying to convince the City of Burlington to conserve the land surrounding the canal and to dedicate some resources to innovative restoration, remediation, and rematriation techniques. For more information on their efforts please go to <http://www.mycoevolve.net/pine-street-barge-canal-project.html>.

One of the efforts by MycoLabs to demonstrate that the Barge Canal area deserves a more prolonged life was to

organize community science efforts to document the diverse and critical ecosystem inhabitants found there; therefore, the iNaturalist project.

Unfortunately, the current City of Burlington Conservation Board's approved plan is to remove the wooded area on Pine St. and build a Nordic spa in its place.

The Superfund site lot which housed the coal manufacturing gas plant, located south of the brownfield site impending development, is still not put in conservation, despite Mycolab's recommendation, and the hope is that once the new landowner donates it to the city, this can occur and then the land can be put in conservation for restoration, remediation, research, and rematriation.

In relation to the above, Jess Rubin, a Restoration Ecologist stated, "This will require professionals with training, experience, skills, and leverage in local economics, policy, law, and politics to find a clearpath through the complex dynamics currently prohibiting straight forward recommendations from this scientific project to effectively inform land management decisions. If you have these skills or know someone that does, please get involved. As an ice skater spotted on the canal on a recent Tuesday afternoon who has been visiting this wild area for years agreed, it would be a shame and environmental crime to let this critical riparian corridor be destroyed. Mycolab will be releasing a film about this by early April 2024 so stay tuned!"

Much appreciation for all of those in the VES and allies who helped to identify the organisms posted on the iNaturalist project: <https://www.inaturalist.org/projects/pinestreet-barge-canal-superfund-sites>. Recently the iNat project was checked and found to still be active. We encourage folks to go to the Pine St Barge Canal site and collect memories for the future generations.

If you get a chance, go to the Pine St Barge Canal iNaturalist project and see if you can help move specimens up to research grade. Here's the link to the project <https://www.inaturalist.org/projects/pinestreet-barge-canal-superfund-sites>.

Joseph Thill Library:

Joseph F. Thill (1928-2013), of Buffalo, NY, collected and preserved over 2,000 ants, wasps, and spiders, mostly

President's Message (continued)

in western New York, the Adirondacks, and southern Ontario.

He was an amateur but serious lifelong student of entomology and arachnology. In 2022 Joseph Thill's invertebrate collection was added to the Entomology Collection of the Museum of Comparative Zoology at Harvard.

This fall, with the assistance of Timothy Mihuc and Luke Myers of SUNY Plattsburgh, we received from Mary Thill of upstate New York (Joseph Thill's daughter) the donation of her father's library.

Joseph shared a sense of wonder at the vast diversity of living things in the natural world. His enthusiasm for the most part centered on the study of insects, and related arthropods, especially spiders. In high school he kept ant colonies in vivaria while he learned to crudely differentiate between species if not genera.

Joseph worked professionally in human services. In his early forties he resumed an active study of spiders and the aculeate Hymenoptera with emphasis on digger wasps of the family Sphecidae and spider wasps of the family Pompilidae. In his later years he resumed a study of the local ant fauna and identified most forms of the local fauna to genera and species.

In the mid-1990s, Joseph was a Museum Associate in the Division of Invertebrate Zoology at the Buffalo Museum of Science. He was also a past member of the Cambridge Entomological Club, the American Arachnology Society, and The British Arachnological Society.

In connection with his interest Joseph accumulated a large library of works on spider and Hymenoptera taxonomy and ethology. The majority of which were graciously donated to VES.

For a complete list of the donated books contact me at mothvet@yahoo.com.

A Year in Review:

Surprisingly enough all our events except one occurred this past year. And that one, visiting the Ciloholca property in Northfield, we could have pulled off except for the daunting forecasts of foul weather. Weather and rain played a big part in outside activities last summer. We're hoping for a more moderate season this year.

Between the Herricks Cove Wildlife Festival and the Adamant Blackfly Festival we must have distributed hundreds of informational material on ticks, etc. I got to discover Springfield Bog. Kelly Sttetter at the Springfield Bog and again Declan McCabe at the BOV pond came prepared with aquatic equipment. We got to examine aquatic invertebrates such as predacious diving beetles and learned that dragonflies and damselflies have different gill locations from each other

Also, we certainly want to thank Julia Pupko for doing a beetle identification day at BOV and Dr. Sara Cahan for hosting us at an insect identification day at UVM.



VES at Adamant Blackfly Festival

Photo: L. Ziegler



VES at Adamant Blackfly Festival

Photo: M. Sabourin



Kelly Stettner getting ready in Springfield

Photo: Michael Sabourin



Predacious Diving Beetle larva at Springfield Bog

Photo: Michael Sabourin

President's Message (continued)



Ms. Cota ready for bugging at BOV
Photo: Bernie Paquette



Scudder's Bush Katydid, Genus *Scudderia*
Photo: Bernie Paquette



Marcia Drake and Julia looking for beetles at BOV
Photo: Michael Sabourin



JoAnne Russo and Terri Armata at Black Mountain Natural Area
Photo: Michael Sabourin



Mottled Prominent, *Macrurocampa marthesia*, on beech. One of many caterpillars at Black Mtn.
Photo: Michael Sabourin



Warren with Drs. Sara Cahan and Yolanda Chen, Greg Fanslow, and Bryony Sands at UVM identification day
Photo: Michael Sabourin



Warren Kiel and Mary Burnham at UVM insect identification day
Photo: Michael Sabourin



Julia Pupko, beetle presentation at BOV
Photo: Michael Sabourin

Getting to Know the Dung Beetles of Vermont

By Bryony Sands

I moved from the UK to Vermont in September 2021 to begin a Postdoctoral Research Fellowship at UVM, along with my daughter Ayana who had just turned 3 years old. My research focuses on sustainable agriculture and insect biodiversity in grazed pastures, but my true passion is for dung beetles. ‘Dung beetles’ is a broad term; there are a whole host of



Emptying a pitfall trap in Danby, Vermont. A species of *Geotrupid*, earth boring dung beetle, was found..

Photo: Julia Gorenstein

invertebrates that live in a cow patty, for example, including beetles of many kinds. There are the Hydrophilidae, water scavenger beetles, of which the subfamily Sphaeridiinae have evolved to ‘swim’ around in poop, the Histeridae or delightfully named clown beetles, and the fierce Staphylinidae or rove beetles. These three families are not technically dung beetles, but they have an important biological role – they are predators, hunting and eating other insects in the dung. This is particularly important in an agricultural setting where cow patties, for example, act as a breeding ground for problematic pests and parasites of cattle such as pest fly larvae. These predatory beetles that live in the dung therefore act as natural biological control agents for livestock pests by hunting and eating them. But what about the real dung beetles, that eat poop? There are three main groups that we really class as dung beetles. These are the Geotrupidae, or earth boring dung beetles, which are impressive looking large, convex, beetles which make deep tunnels up to three feet long below a dung pile. One of these species, *Geotrupes stercorarius*, is referred to as the Dor Beetle or ‘Dumbledor’ in the UK, can be up to 26 mm, and is one we found in our Vermont dung beetle survey. Then there are the more subtle Aphodiinae, or small dung beetles, which are a subfamily of the Scarabaeidae and do not make tunnels below the dung but instead live, feed, and breed inside the pat on the pasture surface. Finally, there are the true

dung beetles, subfamily Scarabaeinae, which are mostly represented by the tribe Onthophagini in Vermont and look more like the classic ‘scarab beetle’. These are also tunnellers and drag dung down into tunnels they have made below the dung pat, forming it into brood balls to provision their young. We do not have any ball rolling dung beetles in Vermont, although we did find a gorgeous example of the rainbow scarab (*Phanaeus vindex*) on a farm in Battleboro, Windam County, which drags around sheep dung pellets. Not technically a roller because it does not form its own dung ball but deserves credit nonetheless!

After arriving in Vermont in the fall, and enduring a long, cold winter which was entirely shocking to someone from Southwest England, I set out to begin a dung beetle survey of grazed cattle pastures across the state. We had 28 field sites thanks to the patience of the local



Onthophagus nuchicornis, a ‘true dung beetle’ in the subfamily Scarabaeinae.

Photo: Bryony Sands

farmers who agreed to have myself, my student research assistants, and often my daughter, digging around in cow patties over the summer of 2022 come rain or shine. We used dung-baited pitfall trapping in which fresh cow dung was formed into a pat resting on wire mesh that covered a buried bucket, so that beetles would fly in, colonize the dung, and fall into the bucket below. In the end we found 20 species of dung beetles in Vermont including three Geotrupidae, four *Onthophagus* sp., the rainbow scarab *P. vindex*, and twelve species of Aphodiinae. More information and photos of these species can be found in our fact sheets (Sands et al., 2022a; 2022b). This coming summer we are going to continue studying dung beetles in Vermont and team up with researchers at Cornell to expand our survey into New York State. We will be studying the impacts of livestock pesticides which unfortunately get excreted in livestock dung after treatment and are toxic to dung beetles. This is important for farmers because dung beetles provide vital ecosystem services for our pastures, quickly removing dung from the pasture

Getting to Know the Dung Beetles of Vermont (continued)

surface, bringing the nutrients and organic matter back down into the soil, and improving soil structure, water infiltration, and fertility. Dung beetles are declining, along with many of our insects, but there are ways in which we can support and protect their populations. Feel free to contact me at bosands@uvm.edu if you would like more information about this research or dung beetles in general!



Dung beetle demonstration at the UVM Extension NWCS annual field day in Alburgh, Vermont. Featuring project field assistants Lauren, Julia, and Ayana.
Photo: Bryony Sands

References:

Sands, B., Bruce, J., Giroux, L, and Darby, H. (2022) Dung beetles in Vermont and New York. Part 1: What are dung beetles and why are they important? UVM Extension Fact Sheet can be accessed at https://www.uvm.edu/sites/default/files/Northwest-Crops-and-Soils-Program/Articles_and_Factsheets/Dung_beetle_fact_sheet_Part_1.pdf

Sands, B., Bruce, J., Giroux, L, and Darby, H. (2022) Dung beetles in Vermont and New York. Part 2: Identifying dung beetles. UVM Extension Fact Sheet can be accessed at https://www.uvm.edu/sites/default/files/Northwest-Crops-and-Soils-Program/Articles_and_Factsheets/Dung_beetle_fact_sheet_Part_2.pdf

Exploring Wildlife By Bernie Paquette

Hello, I'm Bernie Paquette, the human behind the nature-inspired comics on VT Bugeyed, a single panel, insect-driven comic depicting the lives of invertebrates.

I enjoy promoting curiosity, observation, and reflection of all life forms in nature. I have created and developed the JFiN (Jericho Families in Nature) organization, the Community Backyard Bug Safari program, and the JULS (Jericho/Underhill Life Search) program - all to introduce more folks to nature and entice them to take a closer look at all life forms, insects in particular. I post photos of insects onto iNaturalist (20,000 at last count) and write/publish Jericho Conservation Newsletters, Nature Journals, and nature-themed short stories. I publish Nature-Inspired Single-Panel Comics that are published weekly on my Bugeyed Bernie blog.



Bernie Paquette
Photo: Maeve Kim

About a decade ago, I joined a few of the UVM Friday Field walks with Alicia Daniels and UVM grad students, in forests, fields, and waterways. Nature has always called to me, but until then, as an adult, I rarely found the time or the pleasure I had experienced as a youth - outside exploring wildlife, both plants and animals. The field walks refreshed and reawakened that desire and restored my recognition of how good I feel observing and learning about other life forms. Each of the walks struck a unique chord within me.

Fast forward to about 2016, when I moved to Jericho. Maeve and I decided to make the yard here a bird sanctuary by increasing the percentage of native plants, particularly shrubs and trees that attract insects, especially caterpillars, the primary food birds use to feed their young.

Exploring Wildlife (continued)

In 2020 I started in earnest to observe and document all the insects I observed in our yard. The diversity of species I would find over the next few years turned out to be way above my expectations. The more I observe, the more my hunger grows to read and learn about each of their lives, how they sense the world, and how they survive, how they live. *The more I engage with insects the more I love them and wish to share an introduction to their world with other people.*

De-bugging insects. Thus came the idea of nature-inspired single-panel comics. In July 2022, I announced *Insect Comics by Bernie & Nature* an online bug-fest. Recognizing our bond with all living things - and finding ways to laugh and learn, from all life forms.

My first comic creation showcased a sparrow holding a caterpillar in its beak. The comic caption "The late-rising worm (caterpillar) gets removed from the gene pool" was followed by a quote. "Comics by Bernie and Nature reflects what Carl Sagan wrote in *Broca's Brain*, "...the world is connected, through similar sense organs and brains and experiences that may not reflect the external realities with absolute fidelity."

In comic #11, I shared a photo of a Western Honey bee (*Apis mellifera*) being eaten by a spider and flies. The comic caption reads "Some days the whole world is out to get you." This was



Bernie Paquette
Photo:Maevé Kim

followed by "Native bees and other native pollinators also are under attack. Native bees and other insect pollinators are beset by the same environmental challenges as other species, including habitat loss, degradation, and fragmentation; non-native species and diseases; pollution, including pesticides; and climate change.

Now I sometimes follow the comic line with information about the insect species and or a brief story about my experience with the individual insect.

Recently I have added two new series in addition to the weekly published Nature-inspired comics. One series, *Insect Predation*, asks the question "What do meat-eating insects eat for breakfast, lunch, and dinner, or even a snack? Can you hear them crunching? What happens to the not-so-good-tasting bits and pieces?"

The *Insect Predation Series* aims to explore observations of the meat eaters and occasionally the vegetarians as well, while they chase down, chew down, and occasionally just paralyze their prey for later consumption by them or their offspring.

<https://vtbugeyed.blogspot.com/2023/09/single-panel-comics-insect-predation.html>

Do insects blush?

They sure have reason to.

Thus started the *Insect Sex Series*. The place where they make more insects have sex, copulate, "do the dirty deed", and "roll in the hay", is OUTSIDE. Yup, in the park, by your favorite swimming location, in fields of tall grass, on trees, shrubs, flowers. Heck, if it is above sixty degrees, you can probably find some doing in your backyard right now.

If you are 18 or older you can view some of the mating observations in my comics. If you are under 18, just go outside and look for yourself, no one needs to know except for the insects themselves. As far as I know, they don't blush (much).

<https://vtbugeyed.blogspot.com/2023/09/single-panel-comics-insect-sex-series.html>

Within my nature-inspired single-panel comics, I introduced the term "Inverting" which means invertebrate watching as birding is to bird watching. Inverting is being outside, observing, experiencing the multitude, the diversity, the daily going ons of LIFE.

I am an 'inverter' & bird watcher.

In 2021, within 3,941 insect observations I recorded approximately 600 to 700 insect species in our yard, **including a first for VT on iNaturalist, the Mock Orange Scissor bee.**

According to the Vt Center for Eco Studies, in 2021 naturalists added over 500 new species to the database for Vermont, many of these are perhaps completely new discoveries for Vermont, with 5 insect species that were completely new to the entire iNaturalist platform!

The # of observations I observed in our yard in 2021 are as follows: 690 bumble bees, 647 moths, 585 bees, 344 dragonflies and Damselflies, 318 wasps, 309 true flies, 227 butterflies, 226 Flower flies, 183 beetles, 129 spiders, 110 true bugs, 89 grasshoppers, and a few hundred.

The numbers since 2021 have grown exponentially. **Lifetime I have recorded 986 insect species in our Jericho yard** within an observation count (individuals) of 15,739. I am super excited to have observed 98 species of bees of which all but a few were seen on our 1.3 acre yard.

However, numbers can by themselves be rather dry statistics. The diversity and behaviors witnessed: that is where the intriguing stories are. And that is a whole other chapter to be shared at another time or better yet to witness yourself.

Observe Insects in your backyard. Insects are everywhere. Seasonally variable. A treasure hunt. Easy to find. Rewarding.

“Wonder is the beginning of wisdom” ~Socrates
Henry David Thoreau wrote, “Nature will bear the closest inspection. She invites us to lay our eye level with her smallest leaf and take an insect view of its plain.

Enjoy “INVERTING” - meeting insects in YOUR backyard!

Contact me at bernie.paquette@yahoo.com

View my insect blog including comics at

<https://vtbugeyed.blogspot.com>

No bones about it, I am an Inverter,

Bernie

<https://www.inaturalist.org/blog/87155-email> Link to science discovery named for iNaturalist.



Exploring Wildlife
Photo:Bernie Paquette

Note on Pleasing Fungus Beetles in Vermont

By Jim Talbot

As part of our work at the University of Vermont’s Zadock Thompson Natural History Museum, we are sorting, identifying, and classifying the more than 130,000 insect specimens in the museum’s collection. We are also digitizing our records and uploading them to the *Integrated Digital Biocollections Database*

(iDigBio) once specimen identification at some level is completed. Beetles represent about 20 percent of the 130,000 species.

Whereas the beetles are a diverse and challenging group, thanks to the efforts of Dr. Ross Bell and others, the beetle collection is in pretty good shape. Over the



Figure 1. Dorsum of adult Triplax. The clavate-capitate antennomeres 9, 10,11 are a distinguishing feature.

Photo:Mark Skevington, Whetstone Garden, UK, 17 May 2022

past few years, I have worked up the Cerambycids (longhorn wood-boring beetles) and currently finishing the Chrysomelids (leaf beetles). Still, there are holes to fill.

The other day, in one of our leaf beetle Cornell Boxes, I found 21 specimens of a rather strange beetle that was collected by Dr. Bell in 1966. Most of the specimens were collected in a “beaver field” at Bristol Notch, Vermont (Latitude: 44.0555830, Longitude: -73.0502495), and at West Elmore, Vermont (Latitude: 44.486. Longitude: -72.5136). Bristol Notch elevation is about 1500 feet, while West Elmore is approximately 1200 feet. Because these specimens were collected and labeled about 60 years ago, accurate locality data from field notes are lacking. Figures on locality supplied herein are rough approximations only.

Note on Pleasing Fungus Beetles in Vermont (continued)

After several hours of searching Bug Guide and other internet sites, I identified the specimens as being from a family called “pleasing fungus beetles.” The family, Erotylidae, includes colorful fungus-feeding beetles that



Figure 2. Triplax feeding on oyster mushroom fruiting body, Photo: Joyce Gross, University of California Berkeley, <https://joycegross.com>

are worldwide in distribution, with over 2,000 described species. Their life cycle involves larvae and adults feeding on the fruiting bodies of fungi growing in decaying wood. The references at the end of this note are useful, and Goodrich and Springer (1999) have a key to many of the species as does Arnett et al. (2002). Majka (2007) has a regional distribution table listing species found in Vermont. The photos shown herein are from Bug Guide.

The specimens of *Triplax thoracica* in the UVM collection range from 4-5 mm in length, with an elongate-oval body; antennae with 11 antennomeres, short, most with an abrupt club of 3-5 (clavate-capitate), orange pronotum and venter, and black elytra that is striate punctuate but without pubescence. An interesting distinguishing feature is

the highly specialized maxillary palpi in which the terminal segments are expanded, often very strongly, bearing a distinct brush or comb. This “short-bristle comb” is visible in the attached photo, Figure 3. This adaptation must be for feeding on fungi.

As Majka (2007) reports there also are concerns that the spatial distribution and species diversity and abundance may be affected by changing forest management and other land practices in the greater Northeastern United States and Maritime Provinces of Canada. If anyone has collected specimens of this beetle in Vermont, UVM would like to hear from you



Figure 3. Ventral view of Triplax. Note enlarged maxillary palps bearing strong resemblance to a comb or brush.

Photo: Pierrick Bloin, 2021. Laurentian Forestry Center, Quebec.

References:

A good site for insect photos, much like our Bug Guide, is www.naturespot.org.uk. It was here that I first noticed photos of this strange beetle, *Triplax*, and its relatives in the Erotylidae.

American Beetles, Volume 2. Polyphaga: Scarabaeoidea through Curculionioidea. 2002. Edited by R.H. Arnett, M.C. Thomas, P.E. Skelley, and J.H. Frank. CRC Press.

The Erotylidae and Endomychidae (Coleoptera: Cucujoidea) of the Maritime Provinces of Canada: New records, zoogeography, and observations on beetle-fungi relationships and forest health. Zootaxa 1546: 39-50. (2007) Christopher G. Majka.

The Pleasing Fungus Beetles (Coleoptera: Erotylidae) of Nebraska
Michael A. Goodrich Eastern Illinois University and Charles A. Springer 1999. Transactions of the Nebraska Academy of Sciences, 25: 53-71.

Jim TaBot, Adjunct Curator, Zadock Thompson Natural History Museum, University of Vermont, james.talbot@uvm.edu

Building an Automated Moth Monitoring Network

By Kent McFarland

In *The Moth Snowstorm*, author Michael McCarthy remembers from his boyhood in the United Kingdom when moths “would pack a car’s headlight beams like snowflakes in a blizzard” and laments that the phenomenon is now just a distant memory. Some are calling it an ‘insect apocalypse.’ Recent reports from around the globe suggest that insect populations are declining at an unprecedented rate. But long-term monitoring projects are few and far between, perhaps even more so here in Vermont.

Vermont is home to over 2,200 moth species, with many more likely to be discovered. Since 1995, over 400 new species have been documented in the Green Mountain State, mostly by community scientists. But moths offer more than just their intriguing diversity and beauty - they also serve important roles as both pollinators and food for other wildlife.

How are moth populations faring in Vermont? Except for a few species, no one really knows. A few years ago, the Vermont Atlas of Life teamed up with community scientists, biologists, engineers, and computer scientists from around the world to change that. Now, we are poised to understand moth phenology, habitat use, and populations like never before.

Combining specialized lighting for attracting moths with high-resolution cameras and a tiny computer, we’ve built an automated moth monitoring device that can provide practical and cost-effective solutions for standardized surveys. In 2022 and 2023, the team deployed the first units in the United Kingdom, European Union, Canada, Cyprus, Panama, Argentina, and, of course, here in Vermont to pilot their use.

At sunset each night, the unit automatically turns on using a solar-powered battery. The computer triggers the camera to snap an image each time a moth lands or moves on the screen. Each image of the screen is analyzed by our computer vision software,

first to determine if it is a moth, and if it is, classify it to species. Night after night, the unit monitors all the moths visiting the lights. No biologist needed... well...almost.

Community scientists are key for training the computer vision models. The Vermont Atlas of Life has been promoting moth watching and the sharing of photo-observations with our projects at iNaturalist for nearly a decade. There are now over 100,000 images identified to species just from Vermont alone. These photos, combined with tens of thousands of others, helped us train our first computer vision models.

“There’s a tiny computer here which stores the images that the camera takes, and then you can process those photos using an AI algorithm,” said David Rolnick, who grew up chasing insects in Vermont and is now an assistant professor of computer science at Canada CIFAR AI Chair at McGill University and Mila – Quebec, an AI research institute in Montréal that is leading the computer vision work.

Every new computer vision model needs to be verified and tested. Rolnick’s lab came up with a plan. A sample of images from the machines was selected for expert review. Thankfully, JoAnne Russo and Michael Sabourin stepped up to the plate for our region. They painstakingly tested two computer vision algorithms, one that aimed to identify every moth in the image to clip out and another that attempted to identify each moth image to the lowest taxonomic level possible. This tedious but essential work is



Moth station on at dusk.
Photo: Kent McFarland



Moth station off during daylight.
Photo: Kent McFarland



Moths collected at station.
Photo: Kent McFarland

Building an Automated Moth Monitoring Network (continued)

the only way for us to both test and improve the computer vision models.

Work is underway to add more powerful cameras, new lights, and additional features to the machine, such as sound recording, to broaden the taxonomic groups they can monitor. Soon, these machines will

be for more than just moths; they will be biodiversity monitoring units deployed like weather stations today. Perhaps one day, you'll rise each morning to check the biodiversity report right alongside the weather forecast.

Tire Slicer Program

By Patti Casey, VT Agency of Agriculture, Food & Markets
Environmental Surveillance Program Director
Patti.Casey@Vermont.gov

In 2023, after a decade of hot pursuit, the VT Agency of Agriculture was able to purchase a Super Slicer tire sidewall remover. While this may sound a little esoteric, we think most Vermonters will be pleased with this acquisition. So far, we've been met with enthusiasm wherever we've showed up with it, notably at the Barre Flood Clean-up and the Wheels for Warmth event last fall.

Every spring, summer, and into the fall, millions – billions – of mosquitos hatch out of waste tires left on the landscape. Farms have long been in the habit of using discarded vehicle tires to hold down tarps that cover their feed bunks. Old tires are free and get the job done. Intact, these tires provide perfect mosquito breeding habitat. The water retained in the tires is warm, protected, still, and often just stinky and polluted enough to attract *Culex* ssp, a primary vector of West Nile virus in the northeast.

Sidewalls removed from tires are replaced on the bunks but without the capacity to hold any water. Because sidewalls are



Wheels for Warmth, Fall 2023. L to r, Secretary Anson Tebbetts, VT Agency of Agriculture; Patti Casey, VT Agency of Agriculture; and Governor Phil Scott.
Photo: Will Forest

lighter than intact tires, some overlapping of sidewalls is necessary to achieve the necessary weight. Truck and tractor tires don't require overlapping and are often used to weigh the edges of the tarps.

Remaining treads still need to be disposed of through traditional methods, but disposal weight is considerably less with sidewalls removed.

We're in the process of organizing the best way to get this equipment onto Vermont farms, and we're hoping for a lot of community involvement, potentially including 4H programs, Future Farmers of America, Vocational Trade programs, civic organizations, scouting, environmental, conservation clubs, and others. We hope to include state partners such as the Dept of Health, Agency of Natural Resources, and Agency of Transportation.



A 30' roll-off partially filled with sidewalls. All the sidewalls we have cut have been donated to Vermont farmers. Treads were disposed of properly by Wheels for Warmth.

Photo: Will Forest



Butterflies of Maine and the Canadian Maritime Provinces

Written by Phillip G. deMayndier et al.

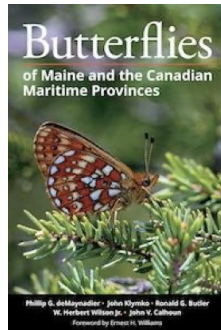
Cornell University Press, Ithaca NY @ 2023

Book Review by Laurie DiCesare (NatureHaven@MyFairPoint.net)

Butterflies of Maine and the Canadian Maritime Provinces, a recently published guide to the butterflies of our northeast region, is a compendium of historical records; stories about early entomologists; and recent iNaturalist and eButterfly records interspersed with easy-to-read sighting maps and flight-data graphs. VES member Bryan Pfeiffer's well-detailed, colorful photos of a Bog Fritillary (*Boloria eunomia*), Jutta Arctic (*Oeneis jutta*) and Pink-edged Sulphur (*Colias interior*) grace the front and back covers...with an easily recognized Monarch (*Danaus plexippus*) on the spine...inviting closer inspection.

The color-coded family listings, starting with a full-page butterfly photograph and a full-page overview describing family traits, name derivations and subfamilies, is interesting and informative. (Who knew that the yellow sulphur butterflies "owe their flashing colors to pigments known as pterins derived from waste uric acid stored during the larval stage" or that hairstreaks rub their tails together to resemble moving antennae...possibly deflecting predators? The two-page species accounts include a 2- x 3-inch photo of the butterfly with common and scientific names, distinguishing characters, similar species, distribution in Maine and the Canadian Maritimes (which often vary considerably), adult habitats, biology (larval food plants), adult behavior, comments, and environmental threats (if any). The detailed maps show color-coded sightings by township in Maine and by grid-square in the Maritimes with color differences to easily distinguish historic from modern records.

Following the family listings, the "Butterflies of Possible Occurrence" section offers information on approximately 20 additional butterfly species that "have a reasonable chance of being found in the Acadian region, either as strays or breeding



Cover Photo: Bryan Pfeiffer

residents." The European Common Blue (*Polyommatus icarus*), a recent immigrant to Vermont, is listed here with sightings by VES members and a photo by Josh Lincoln. (Many of Josh's photos may be seen throughout the book as well.)

Several other duskywings, azures, sulphurs, hairstreaks and fritillaries are also described in this section.

The back-of-the-book reference sections are extensive with several pages (Appendix C) dedicated to the many "Community Scientists who Contributed Data to the Maine and Maritime Surveys." Throughout the book, the data compiled from iNaturalist, eButterfly, dedicated butterfly surveys and historical data derived from libraries, museums, and personal collections, were gratefully acknowledged. Bryan Pfeiffer was noted for his "herculean effort" in capturing "an exceptional number of stunning images for the project, involving multiple excursions from Vermont to Maine in pursuit of elusive species otherwise lacking quality imagery." A Checklist of the Butterflies of Maine and the Maritime Provinces" (Appendix A) lists each insect's residency status for Maine, New Brunswick, Nova Scotia and Prince Edward Island. Although definitions are included for the residency and conservation status (Appendix B), and there are two photos of labeled butterfly parts (showing antennal club, eyespots, basal, medial and marginal wing sections...) a general glossary of butterfly terminology (univoltine...producing one brood per season) would be helpful.

The twelve-page index is extensive, including food plants, historical butterfly collectors and common and scientific names of species mentioned in the book. One challenge here is that general group names of species (ex. Duskywings,

Butterflies of Maine and the Canadian Maritime Provinces (continued)

Common Blue or Skippers) were not included. The Dreamy Duskywing was listed under Dreamy; Silver-spotted Skipper was under Silver; and the European Common Blue was found under European. Although the duskywings are located together, if a novice reader did not know that a duskywing was a skipper (Family Hesperidae), locating the duskywing section would not be an easy task.

Overall, this book is an amazing resource for better understanding the butterflies of our northeastern region through historical sightings, identification, and documentation with conservation strategies and food plant notations to aid in their continued preservation. The 25-page reference section offers plenty of opportunities for additional reading.

The Journal Cicindela Review by Don H. Miller

The journal Cicindela deals exclusively with tiger beetles. It covers many aspects of the biology of tiger beetles (Cicindelidae): life history, taxonomy, behavior, etc. Often with examples from most continents. It is usually published as four numbers each year, in two mailings.

I think that tiger beetles are among the most interesting of all beetles. I still vividly remember the first one I ever saw flit up from ahead of me out-of-sight when I was walking along Prouty Beach in Newport, Vt, over half a century ago. At first, I did not realize it was even a beetle, I thought it was a fly of some sort, it flew so fast. It was almost like some specter, disappearing over the hill in front of me. I had to run after it to see where it landed. I didn't think I would ever see what it was, it flew so far ahead of me. I'm sure

my heart was pounding away, for fear of not being able to identify this incredibly fast flying insect. I fell in love with that group at that instance.

I know of no other journal that deals exclusively with one family of beetles and at such a high scholarly level. It is an utterly fascinating group of exclusively predaceous and generally colorful beetles. I have received the journal since 1993, Vol. 25. It was first published in 1969.

Please consider supporting the journal, current subscription price for each annual volume is \$10 domestic.

Send payment to:

Managing Editor: Robert L. Huber,
2521 Jones Place West,
Bloomington, Minnesota, 55431-2837
and any inquiries to huber033@umn.edu.



**13th North American Plecoptera
Symposium June 25-27, 2024
(Tuesday-Thursday)
Atmospheric Sciences Research Center
Whiteface Mountain Field Station
SUNY Albany**

The North American Plecoptera Society (NAPS) is hosting the 13th North American Plecoptera Symposium June 25–27, 2024 at the Atmospheric Sciences Research Center (ASRC) Whiteface Mountain Field Station (44.3945,-73.85980) located in [Adirondack Park](#) in northern New York State.

We invite you to attend this meeting which will consist of formal presentations on anything regarding stoneflies, informal congenial conversations, and relaxing time together in the field. This meeting will bring together Plecoptera workers and aquatic biologists to talk amongst friends, build research relationships, enhance our collective knowledge of stoneflies, and enjoy the wonderful ambiance and scenery of the beautiful Adirondack Mountains.

Organizers

Luke Myers, Lake Champlain Research Institute, SUNY-Plattsburgh,
myerslw@plattsburgh.edu, (518) 570-9995

Scott Grubbs, Western Kentucky University, Department of Biology, Bowling Green, Kentucky, scott.grubbs@wku.edu (270) 202-6981

Ed DeWalt, Illinois Natural History Survey, 1816 S Oak St., Champaign, Illinois, dewalt@illinois.edu, (217) 649-7414

Draft Agenda

Day 1 Tuesday, June 25

- Check in at ASRC Whiteface Mountain Field Station beginning at 2 pm.
- Dinner at ASRC Whiteface Mountain Field Station.

- Meeting welcome and participant introductions.

Day 2 Wednesday, June 26

- Breakfast and coffee at ASRC Whiteface Mountain Field Station.
- Stonefly presentations.
- Box Lunch at ASRC Whiteface Mountain Field Station and field collections.
- Stonefly presentations.
- Overview of NE RSGCN project.
- Dinner at ASRC Whiteface Mountain Field Station.

Day 3 Thursday, June 27

- Breakfast and coffee at ASRC Whiteface Mountain Field Station.
- Stonefly presentations (if needed)
- Meeting Summary
- Box Lunch (optional) at Whiteface Mountain Field Station
- Business Meeting, including discussion of next NAPS Meeting

Housing

Please use Wilmington, New York, USA, 12997 as a base for housing opportunities. Options include local motels, VRBO, Airbnb, Wilmington Notch State Campground, and KOA. Please note that there is no housing available at the station.

Meals

Meals will be prepared by a catering service. Please note on the registration form if vegetarian or vegan meals are required and if you have a food allergy. We will be happy to accommodate your needs.

13th North American Plecoptera Symposium (continued)

Registration

The anticipated maximum cost for the meeting, including meals, is \$215–220/person. There is a Wednesday only option for attendance at \$120–125/person. Registration is currently open and we will be accepting registrations until April 30, 2024. Registration link:

<https://fs30.formsite.com/CASplattsburgh/NAPS2024/index>

T-shirt

A meeting theme T-shirt comes with the cost of registration. Please indicate preferred size when registering.

Submission of abstracts

Abstracts will be accepted March 1 through May 15, 2024. Please send abstracts to scott.grubbs@wku.edu.

Presentations

Oral and poster presentations will be in person only. We anticipate a standard 15 minute talk (including questions) but are open to longer presentations. Please contact scott.grubbs@wku.edu with presentation questions.

Travel

Airports

1. BTV Burlington International, Burlington, Vermont (approximately 2 hours with ferry route (Grand Isle to Cumberland Head).
2. ALB Albany International Airport (2.5 hour drive time).
3. PLB Plattsburgh International (approximately 45 minute drive time).
4. SLK Saranac Lake (30 minute drive time)

Driving

ASRC Whiteface Mountain Field Station, 110 Marble Mountain Lane, Wilmington, NY 12997 (44.3945, -73.8598)

Take I-87 (south if coming from Plattsburgh/Burlington, north if coming from Albany). Take Exit 34 (NY-9N) (traveling SW) towards Ausable Forks, passing through Ausable Forks to the town of Jay, take a right onto NY-86 (WNW) towards Wilmington. At the four way stop signs in Wilmington, proceed straight onto the Whiteface Memorial Highway. You will pass North Pole, NY and the tourists' stop called Santa's Workshop on your right. Shortly afterwards, turn left (S) onto Marble Mountain Road and the ASRC Field Station. If you miss this road and make it to the toll booth on Whiteface Memorial Highway you have gone too far. Note the organizer phone numbers above if you get lost.

Final note

Please forward this notice to other potential attendees and presenters. Mentors with students who work on any aspect of stonefly biology and ecology are encouraged to participate.

A meeting theme T-shirt comes with the cost of registration. Please indicate preferred size when registering.

Submission of abstracts

Abstracts will be accepted March 1 through May 15, 2024. Please send abstracts to scott.grubbs@wku.edu.



March 20, 2024 (4 p.m.)

Lamoille Neighbors
(<https://www.lamoilleneighbors.org/>), by Zoom,
Bernie Paquette presenting “Great Finds”
(Insects)

April 6, 2024 (11 a.m.)

Huntington: Birds of Vermont Museum (BOV),
Vermont Entomological Society potluck annual
meeting. 900 Sherman Hollow Rd; contact: BOV,
434-2167

April 17, 2024 (7 p.m.)

Marshfield: Honeybees and Human Cultures with
Jean-Jacques Maury. Explore the world of
honeybees and their associations with humans.
122 School St; contact: Jaquith Library (802)
426-3581

April 19- 21, 2024.

Albany, NY. Northeast Natural History
Conference: [https://www.eaglehill.us/
NENHC_2024/NENHC2024.shtml](https://www.eaglehill.us/NENHC_2024/NENHC2024.shtml)
(note: VES members can receive 5% rebate on
registration and accommodation upon producing
receipt) Jericho, Underhill, Richmond, Bolton
Inverting Club (**JURBIC**)
[https://vtbugeyed.blogspot.com/2024/01/jurbic-
jericho-underhill-richmond.html](https://vtbugeyed.blogspot.com/2024/01/jurbic-
jericho-underhill-richmond.html)
Bernie Paquette and Maeve Kim lead walks on an
area or trail within the four communities the
second Saturday from spring through fall (1-2
hours long); for more info contact Bernie
Paquette: bernie.paquette@yahoo.com

May 5, 2024 (10 a.m.)

Rockingham: Herrick’s Cove Wildlife
Festival: [https://amasvt.org/herricks-cove-wildlife-
festival](https://amasvt.org/herricks-cove-wildlife-
festival)
Enjoy a special day of nature, programs, and
activities for those naturally curious about a
beautiful corner of the world. 4 Herricks Cove
Rd.

May 25, 2024 (11 a.m.)

Bennington. Greenberg Headwaters Park, explore
trails in a semi-urban area with a decent variety of
habitats, including views of wetlands and a bridge
over the Walloomsac River; meet at Beech St.
ballfield entrance, 319 Beech St.; contact: Michael
Sabourin (802) 595-0484(c)

June 1, 2024 (11 a.m.)

Adamant: Blackfly Festival. Join us with a display
table at an annual free, fun, friendly, family event;
contact: Michael Sabourin (802) 595-0484(c)

June 22, 2024 (10 a.m.)

Northfield: Burnham’s Ciloholca property. Meet at
I-89 Exit 5 commuter parking lot. Explore a family
camp with pond and hopefully discover some
Showy Lady Slippers; contact Doug or Mary
Burnham: burnham.doug@gmail.com, (802) 229-
9578. rain date June 23.

July 6, 2024 (10 a.m.)

Huntington: Birds of Vermont Museum (BOV)
annual butterfly and bug walk, 900 Sherman Hollow
Rd; rain date July 7; contact: BOV, (802) 434-2167

July 12- 14, 2024.

Pinkham Notch, NH save the date 150th
anniversary of Cambridge Entomological Club
celebration with other area entomological
organizations

July 14- 18, 2024.

Ithaca, NY. : Lepidopterists Society Annual Meeting
at Cornell University.

July 20- 28, 2024.

National Moth Week: <https://nationalmothweek.org/>

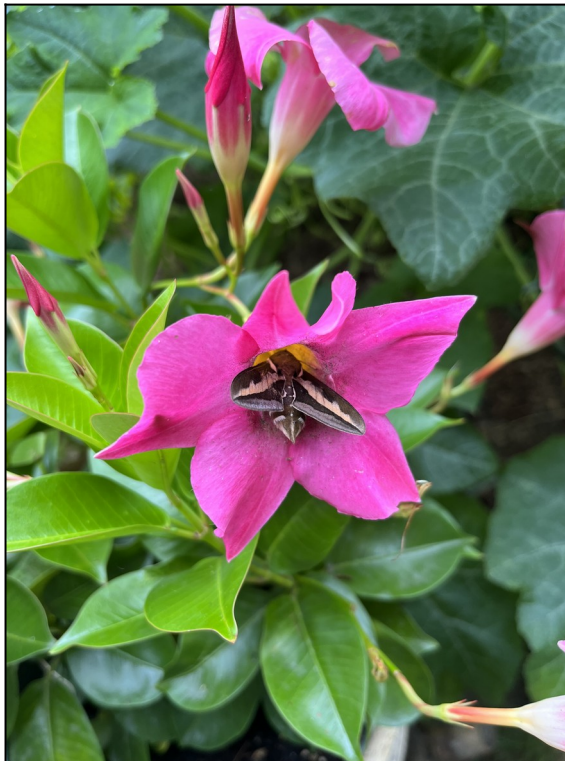
VES Calendar (continued)

August 3, 2024.

Fryeburg, ME. Maine Entomological Society field day at Brownsville Bog or the pitch pine, scrub oak forest in the vicinity of the Fryeburg airport; meet near Clay Pond, signage available on day of event, contact: Gail Everett 207-955-6420.

August 15- 17, 2024.

Crawford Notch, NH save the date 150th anniversary of Cambridge Entomological Club celebration with other area entomological organizations.



Hyles gallii (Gallium Sphinx) gathering nectar from a Dipladenia blossom.
East Montpelier, VT
Photo: Dawn Anderson



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

***Hexagenia limbata* (Giant Mayfly), Seneca Falls, New York**
Photo: Eve Mendelsohn

