

# The Entomological Society of Manitoba

# *Newsletter*



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## About the ESM Newsletter

The Entomological Society of Manitoba Newsletter is published three times per year. It is a forum whereby information can be disseminated to Society members. As such, all members are encouraged to contribute often. The Newsletter is interested in opinions, short articles, news of research projects, meeting announcements, workshops, courses and other events, requests for materials or information, news of personnel or visiting scientists, literature reviews or announcements and anything that may be of interest to ESM members.

Kelsey Jones, Editor<sup>1</sup>  
Kateryn Rochon Co-Editor<sup>2</sup>

<sup>1</sup>Stored Product Entomology  
Agriculture and Agri-food Canada  
Winnipeg, Manitoba  
R3T 2N2

<sup>2</sup>Dept. of Entomology  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

<sup>1</sup>Ph. 204-599-3921  
[kelsey.jones@agr.gc.ca](mailto:kelsey.jones@agr.gc.ca)

<sup>2</sup>Ph. 204-474-8640  
[kateryn.rochon@umanitoba.ca](mailto:kateryn.rochon@umanitoba.ca)

## Editors' Comment

Since the last issue, the society hosted another online annual general meeting. The meeting went off without a hitch. The keynote speaker joined us, virtually, from British Columbia. Gail Anderson gave a riveting talk on miscarriages of justice that were solved through the use of insects.

The student symposium hosted a number of talks from students across Manitoba, and even a student in Alberta. We learned about a variety of insects from carabids to cecidoyiids to halticids.

The Saturday morning symposium hosted entomologists across Canada and one entomologist from Germany. These entomologists discussed stored product pests, mosquitos, ants and bee. All of these talks were tied together by one general theme – Insects in a Human World.

Whether it be in-person, or online next year, I am sure we are all looking forward to another great meeting. But for now, we will remain connected through this newsletter. Please enjoy these great articles put together by entomologists from across Manitoba!

Happy reading,

Kelsey Jones & Kateryn Rochon  
ESM Newsletter Editors

## **President's Report**

### **By Kateryn Rochon**

Greetings!

It looks like 2022 is well on its way, even if many of us feel quite literally snowed under! So many things in our lives may have seemed out of balance in the last couple of years, and Mother Nature has undoubtedly indicated she's not doing much better than many of us. As I begin my term as President, I would like to thank members who have changed roles within the ESM. Our secretary Sarah Semmler stepped down at the last AGM after five years of dedicated service. Thank you, Sarah - and welcome Jade Tanner, our new secretary. I count on you to keep me on track! I would also like to thank (now Past President) Jeff Marcus for setting an excellent example for me to follow. I will endeavour to continue initiatives to keep the ESM welcoming to all and make it more inclusive. We all have a role to play in promoting entomology as a science and a worthwhile hobby for everyone. The ESM Executive is interested in hearing your ideas, don't be shy!

The ESM Executive is already hard at work. Now that restrictions are lifting and we resume planning social activities (or sabbatical travel, in my case!), we are already thinking of the 2022 Annual Meeting. We should have a fantastic Scientific Program Chairperson in place by the time this newsletter is distributed, so if you want to be involved with this year's meeting, speak up, and I will put you in touch. One item coming from the last Executive session is the change in the name of one of our student awards: the "ESM Student Service Award" has been renamed the "ESM Student Leadership and Service Award" to better represent the achievements of the recipient. Many scholarship or hiring committees look for evidence of leadership, and the ESM Scholarship and Awards Committee felt that aspect was not well represented in the name of the award. The criteria for the prize remain the same. I encourage everyone, especially students, to get involved in the Society. Reach out and tell us what you would like to see. Be a leader, maybe get an award!

Alberto Civetta (ESM President-Elect) and I will be meeting with other Presidents and Presidents-Elect/Vice-Presidents of Entomological Societies in the country on March 24. One of the major discussion topics of this meeting will be the future of joint annual meetings (JAMs) of regional societies with the ESC. The pandemic has changed how we interact and exchange information. While many crave the return of in-person meetings and the connection they bring, being able to attend a scientific conference halfway around the world from the comfort of your own office chair does have its advantages. Not having to go through airport security would be one.

In closing, I would like to bring your attention to two upcoming events. First, the North Central Mosquito Control Association meeting will be held virtually on Wednesday, April 6, and registration is free! This year topics branch out beyond mosquitoes and include ticks and midges. Second, start planning for June now: June 8 is National Insect Appreciation Day! Don't hesitate to use the ESM network to pull your event together. That's why we're here: foster the exchange of information on entomology and further the spread of entomological knowledge.

And when you go out to collect, bring a friend. We can do that now!

**From the Regional Director**  
**By Jason Gibbs, Regional Director to the ESC**

Due to the protracted strike of the University of Manitoba Faculty Association during the fall, I did not participate in my usual activities during this period. But I have summarized some details in large part from ESC meeting minutes.

A few notable changes are that the Canadian Entomologist has become entirely digital. No paper versions will be published.

The next Joint Annual Meeting will be between The Entomological Society of America (ESA), Entomological Society of Canada (ESC), and the Entomological Society of British Columbia (ESBC) will hold their 2022 ESA, ESC, and ESBC Joint Annual Meeting November 13-16, 2022 in Vancouver, British Columbia, Canada. The theme is Entomology as Inspiration: Insects through art, science, and culture.

The ESC recently conducted a survey among Regional Societies executive committees to determine the nature of future annual meetings. Development of effective online meetings during the COVID-19 pandemic and concerns regarding climate change have raised the possibility of altering how future JAMs will be held. The results of this survey are pending and no decisions have been made regarding future meetings.

The Equity, Diversity, and Inclusion committee organized an online session, but attendance was somewhat disappointing. It is continuing its work to improve conditions within the national society.

## **A Sincere Thank You from Kathy Cano**

Thank you to all my friends and colleagues for the heartfelt wishes of congratulations on the occasion of my retirement. The card was so touching and left me speechless!

Looking forward to many more years serving the ESM as Treasurer.



## Meet the President-Elect: Alberto Civetta

I would like to thank members of the Society for electing me to serve as your president-elect. For those who do not know me, I would like to take the opportunity to introduce myself. My name is Alberto Civetta and I am a Professor in the Department of Biology at the University of Winnipeg.

I did my B.Sc. degree in biology at the University of Buenos Aires in Argentina. My favourite courses were genetics and arthropods. I started conducting research as an undergraduate research assistant in population genetics of the fruit fly *Ceratitis capitata*. My field site of collection was soon invaded, and my subjects displaced, by the endemic South American *Anastrepha*... there went my first project. I moved to Canada to pursue my graduate work at McMaster and switched to the non-true fruit fly *Drosophila*. I have been working throughout graduate school, postdoc (Penn State) and faculty years with different species of the *Drosophila* genus.

Outside work, I used to play soccer but gave it up a couple of years ago. I love music and I still play my bass guitar whenever I have a chance.

I look forward to working with the executive and learning from all of you. Feel free to contact me at [a.civetta@uwinnipeg.ca](mailto:a.civetta@uwinnipeg.ca).

Best,

Alberto

## Meet the Secretary: Jade Tanner

Hello everyone!

My name is Jade Tanner and I'm your new secretary for the Entomological Society of Manitoba's 2021/2022 term. I thought I'd start off my term by introducing myself and letting you all know a little bit about myself.

I recently received my bachelor's degree in environmental studies minoring in entomology from the University of Manitoba. I completed my honors thesis on hymenopteran nesting biology in Birds Hill Provincial Park with the Gibbs lab in the Department of Entomology. Outside of my studies I've had the opportunity to work on multiple entomology focused research projects including, graduate research on native bee communities with the university, and the poweshiek recovery program at the Assiniboine park zoo. My very first toe dip into working with insects was during my time working at the Living Prairie Museum where the former ESM secretary Sarah Semmler taught me how to pin a spread insects. Upon reflecting, my interest in insects can probably be traced back to racing inch worms on the side walk with the neighborhood kids.

I currently work seasonally with the City of Winnipeg's insect control branch and with the University of Manitoba's Registrar's Office. Please feel free to reach out to me at any time for any reason, especially if you want good tips for picking out the fastest inch worm for your local derby! I'm looking forward to getting to know you all this upcoming year.

Cheers,

Jade Tanner



## Recap of the 77<sup>th</sup> Annual Meeting of the Entomological Society of Manitoba

On December 3 & 4, 2021, the Entomological Society of Manitoba held the 77<sup>th</sup> annual general meeting on zoom. The 2021 theme was *Insects in a Human World*. There were 70 participants across the two days and 19 presenters, eight of these presenters participated in the student competition.

### Student Competition Presentations



**BEEES AND INDIGENOUS SOVEREIGNTY: UNDERSTANDING INTERSECTIONS OF SCIENTIFIC AND INDIGENOUS KNOWLEDGES.** **Phoenix Nakagawa**<sup>1</sup>, Kyle Bobiwash<sup>2</sup>; <sup>1</sup> Department of Soil Science, University of Manitoba, <sup>2</sup> Department of Entomology, University of Manitoba.

**NETWORKS IN THE GRID: PLANT – POLLINATOR INTERACTIONS IN A POWERLINE EASEMENT CORRIDOR OF MANITOBA, CANADA.** **Massimo Martini**, Kyle Bobiwash; Department of Entomology, University of Manitoba.



**USING FLORAL ENHANCEMENTS TO SUPPORT BENEFICIAL INSECTS ON CROPS FIELDS.** **Michael Killewald**<sup>1</sup>, Alejandro Costamagna<sup>1</sup>, R. Gulden<sup>2</sup>, Yvonne Lawley<sup>2</sup>, Jason Gibbs<sup>1</sup>; <sup>1</sup> Department of Entomology, University of Manitoba, <sup>2</sup> Department of Plant Science, University of Manitoba.

**POTENTIAL OF CARABIDAE AND LYCOSIDAE PREDATORS TO CONSUME FLEA BEETLES AND REDUCE CANOLA DAMAGE.** **Shayla Storozuk**, Maxime Damien, Alejandro C. Costamagna; Department of Entomology, University of Manitoba.



**DOWN THE BEE-BURROW: UNEXPECTED DIVERSITY IN THE *LASIOGLOSSUM GEMMATUM* SPECIES COMPLEX (HALICTIDAE: HALICTINI).** **Joel Gardner**, Jason Gibbs; Department of Entomology, University of Manitoba.





UNDERSTANDING THE NOVEL RESPONSE TO THE RESISTANCE GENE, SM1 BY THE ORANGE WHEAT BLOSSOM MIDGE, *SITODIPLOSIS MOSELLANA* (GÉHIN) (DIPTERA: CECIDOMYIIDAE). **Bridget A. White**<sup>1</sup>, Chaminda D. S. Weeraddana<sup>1</sup>, Sheila Wolfe<sup>2</sup>, Curt A. McCartney<sup>3</sup>, Ian Wise<sup>1</sup>, Tyler Wist<sup>4</sup>, Alejandro C. Costamagna<sup>1</sup>; <sup>1</sup> Department of Entomology, University of Manitoba, <sup>2</sup> Agriculture and Agri-Food Canada, Morden Research and Development Centre, <sup>3</sup> University of Manitoba, Department of Plant Science, <sup>4</sup> Agriculture and Agri-Food Canada, Saskatoon Research and Development Centre.

A NOVEL STRUCTURED RNA FOR IMPROVED RNA INTERFERENCE IN INSECTS. **Daniel Heschuk**, Roohollah Abassi, Brandon Kim, Japujee Matharu, Kousha Kamal, Steve Whyard. Department of Biological Sciences, University of Manitoba



LONG-TERM TERPENE RESPONSE TO MOUNTAIN PINE BEETLE ATTACK IN LODGEPOLE AND JACK PINES. **Antonia E. Musso**<sup>1</sup>, Colleen Fortier<sup>1</sup>, Dezene P. W. Huber<sup>2</sup>, Allan L. Carroll<sup>3</sup>, Maya L. Evenden<sup>1</sup>; <sup>1</sup> University of Alberta, <sup>2</sup> University of Northern British Columbia, <sup>3</sup> University of British Columbia.

**ESM Student Presentation Competition:** This year the Scientific Program of the 77<sup>th</sup> Annual Meeting included an oral presentation competition, but no poster competition (due to the on-line format of this year's meeting). Vince Hervet organized the competition, and recruited Justis Henault, Chaminda De Silva Weeraddana, and Maxime Damien to serve as fellow judges. The winners of the competition were as follows: First Place - **Antonia Musso** (University of Alberta); Second Place - **Michael Killeward** (Department of Entomology, University of Manitoba); Third Place - **Bridget White** (Department of Entomology, University of Manitoba).



**ESM Student Achievement Award:** Awarded to a student who is in or recently completed a Bachelor's degree program. This award recognizes students who have shown exceptional interest in entomology as evidenced by their insect collections, insect photography, published articles of entomological interest, insect experiments and/or outstanding contributions during summer employment.

This year's winner of the ESM Student Achievement Award is **Katherine Morgan** (University of Manitoba), who will soon graduate with a B.Sc. with a minor in Entomology. Kathy has worked in the lab of Jason Gibbs in the Department of Entomology at the University of Manitoba for several years, involved in specimen databasing, museum curation, insect photography, fieldwork, and specimen dissections. She has also devoted a tremendous amount of time towards the J.B. Wallis/R.E. Roughley Museum of Entomology which, according to her supervisor, "has been much improved by Kathy's hard work". Kathy also serves as the undergraduate representative on the Entomology Department Council.



**ESM Student Service Award:** Awarded to a student at the graduate or undergraduate level. This award recognizes a student who has promoted the goals of the Entomological Society of Manitoba (i.e., to foster the exchange of information on entomology and to further the spread of entomological knowledge) through their volunteer activities.



This year's winner of the ESM Student Service Award is **Shayla Storozuk** (Department of Entomology, University of Manitoba). Shayla is working towards her Masters, studying "Effects of ground predators, abiotic factors and seeding rate on the flea beetles, *Phyllotreta cruciferae* (Goeze) and *Phyllotreta striolata* (F.) (Coleoptera: Chrysomelidae) in the lab of Alejandro Costamagna. Shayla's list of contributions is too long to list here, but highlights include serving as the Youth Encouragement and Public Outreach Committee Chair for the ESM; the President of the Department of Entomology Graduate Students Association; and serving as the Graduate Student Representative on the Department of Entomology Council.

**Orkin Student Award:** This award is designed to foster and encourage student interest in general Entomology including natural methods of insect pest control and the proper use of insecticides. Candidates must have a demonstrated interest in entomology, superior scholastic ability, high research potential, originality and industriousness in their university courses and/or summer work.

The winner of the 2021 ESM-Orkin Award is **Denise Geverink**. Denise is working towards a B.Sc. in Environmental Science at the University of Manitoba, with a minor in Entomology. She has worked in



the Costamanga lab (Department of Entomology, University of Manitoba) since May 2017, and has been involved in many entomology-related projects. She has even co-authored a paper in the *Proceedings of the Entomological Society of Manitoba*. Academically, Denise is a very strong student, and has been on the Deans Honor List for the Faculty of Arts (2016-18), Faculty of Agriculture and Food Science (2019-20), and the Faculty of Environment, Earth, and Resources (2021). Denise has excelled in her Entomology courses (A in all of them) and has superb insect identification skills. After her graduation, Denise plans to head directly into the workforce and look for careers that emphasize entomology, either with private consulting firms or with the provincial or federal government. She is particularly interested in studying different ecosystems, exploring biological diversity, and/or monitoring ecosystems for invasive species.

**The ESM Graduate Scholarship:** This scholarship is awarded to students in a M.Sc. or Ph.D. program related to entomology at the University of Manitoba, University of Winnipeg or University of Brandon. Students must be enrolled in their graduate program for at least 12 months prior to Oct 1 of the award year. This award recognizes superior scholastic ability, high research potential, and excellent communication skills.

This year's winner of the ESM Graduate Scholarship is **Joel Gardner** (Department of Entomology, University of Manitoba), who is working towards his Ph.D. since 2017 under the supervision of Jason Gibbs, working on a taxonomic revision of *Lasioglossum (Dialictus)* sweat bee species in the western Nearctic region. Joel came to his PhD studies with a wealth of experience, with an MS in Entomology (University of Minnesota, 2013); several years of work experience collecting and identifying bees; leading workshops and short courses on bee identification and macro photography; and participating extensively in entomology-related outreach activities. Joel is also the author of four peer-reviewed publications (including a high quality 242 page monograph in the *European Journal of Taxonomy*, in which he described 20 new species using a combination of morphometric analysis, molecular systematics, and traditional taxonomy) from his PhD studies. Interestingly, Joel has also initiated a citizen science project studying bumble bees at Fort Whyte, and currently has two years of data on bumble bee populations: these surveys discovered the first record of a non-native species to Manitoba. One of his referees commented that "Mr. Gardner is a future leader in the world of bee diversity".



## **Incredible Creatures:**

### **The Changing Rules of Romance for the Cabbage White Butterfly**

**By John Gavloski**

On Valentine's Day, people often offer presents or cards to those close to them, or have a special meal. Many insects are also gift-givers. Sometimes the treats provided can help attract a partner and improve reproductive success. These are known as nuptial gifts. In honour of Valentine's Day, this month's Incredible Creatures will explore how a local species of butterfly can advertise and provide a nutritious gift for his mate, and how an altered environment has resulted in less choosy females.



#### **Female cabbage white butterflies like their nitrogen**

Cabbage white butterflies (*Pieris rapae*) are a common sight in Manitoba in late-spring and summer, although some may mistakenly think these white butterflies are moths. Larvae of this butterfly, which are called imported cabbageworms, are green with a thin yellow line down their back, and feed mainly on cruciferous plants. Male and females of this butterfly are easy to tell apart, because males only have one black dot on their forewings, whereas females have two dots. Adults avidly visit flowers, and they will also feed on moist earth and mud puddles. Nitrogen plays an important role in mate selection in these butterflies. A nutritious nuptial gift, containing lots of nitrogen is passed from males to females during mating, is an important source of energy for female butterflies.

#### **What a butterfly sees in the wings**

Nitrogen also affects wing pigmentation in cabbage white butterflies. They can determine the quality of a potential mate by visually assessing the pigmentation of the wings. The wings of these butterflies look different to other butterflies than they do to us though. The mostly white wings of the cabbage white butterflies absorb a lot of ultraviolet light that humans cannot see, but butterflies can see clearly.



So to us the wings look white, but to a female cabbage white butterfly, the wings of the male may appear a bold violet. Females know the brighter the violet, the more his nutrient package is rich in proteins. When the male is trying to court the female, he will fly below the female, engaging in a series of pendulum like “sweeps” below her. This dance allows him to showcase the bright colours on the upper surfaces of his wings that females prefer. If his courtship flight is successful, the female will land on a plant or other substrate below and allow him to mate with her.

### **Nitrogen makes for less choosy females**

Researchers wondered how differences in nitrogen availability, specifically due to man-made influences, might affect mating behaviour and physiology of cabbage white butterflies. To test this, they [compared cabbage white butterflies from a non-agricultural population with a population from an agricultural setting](#) where fertilizer has significantly increased nitrogen availability. Several differences became apparent between the two populations. While females from the non-agricultural site typically mated with more than one male, agricultural females tended to mate only once, thus receiving fewer of the nutritious nuptial gifts. In agricultural environments where nitrogen is abundant, female cabbage white butterflies depend less on nuptial gifts from males, and were less choosy when selecting a mate. Also, the toothed structures used to break down nuptial gifts were reduced in agricultural females’ reproductive tracts, indicating a reduced need for the nutrients. In addition, both males and females from the agricultural population had increased wing pigmentation. These results suggest that changes in nitrogen availability can affect cabbage white reproductive behaviour and physiology in a many ways. As their world changes, so do the rules of romance for cabbage white butterflies.

*Editors’ note: John Gavloski is an entomologist living in Carman, Manitoba. He writes a monthly article called “Incredible Creatures” for several rural newspapers in Manitoba. They are written at a basic level to introduce people to some of the common yet often not well known creatures in Manitoba, and hopefully enhance appreciation for wildlife. The article above was published in February 2022.*

## Checkered Beetles (*Trichodes nuttalli*) on the daisies

By Robert E. Wrigley

SEM images by Erwin Huebner

On July 6, 2021, I decided to check a couple of my favourite insect-collecting sites along Highway 15, between the small communities of Vivian and Lewis, in southeastern Manitoba. I had postponed my annual survey trip there for a week, waiting until the record-shattering heat dome had finally moved off to the east. With this early summer's high temperatures and drought, I had noticed that insects were not as abundant as in years past. The forecast for the day was a mix of sun and cloud with a high of 22°C – perfect collecting weather. Consequently, I wore a short-sleeved shirt and shorts; big mistake. With persistent cloud cover in the area and smoke from Ontario forest fires, the temperature held steady at only 13°C for most of the day, accompanied by a brisk wind. Having few fat deposits to insulate my frame, I am well aware that I feel the cold more than most people. I ended up shivering all morning and afternoon, but the lure of discovering neat insects in this area, like the rare aspen stag beetle (*Playcerus depressus*) last summer, kept me swinging my net for five hours.

Testing out a couple of habitats, I was pleased to find a large population of the black blister beetle (*Epicauta pensylvanica*) in trailside bunches of sweet-clover. Every sweep of the net scooped up from one to six specimens. As is usual with blister beetles, they displayed quite a range in size, from thin-bodied and 8 mm long to stout and 14 mm, reflecting the states of their former larval nutrition. I was careful to handle each individual carefully to avoid been smeared with their blistering agent cantharidin.

At my friend Steven Bossenmaier's pond off the forestry road south of Lewis, I caught whirligig beetles (*Gyrinus* sp), several species of water scavenger beetles (Dytiscidae), and two water scorpions (*Ranatra fusca*). Toadlets scattered by the thousands, like a moving carpet, as I stepped carefully along the edge of the pond. Next, I observed some of the largest and most-brilliantly coloured leopard frogs I could ever remember. Steven handed me a glass vial (which I leave for him each summer) filled with a treasure of beetles, mostly buprestids, tiger beetles, and to my surprise, two pseudoscorpions (*Illinichernes distinctus*).

In late afternoon, as I headed home with three vials filled with specimens, I spotted great patches of the naturalized common daisy (*Bellis perennis*) along the edge of 'Old Highway 15' (49.870095N, 96.064482W). I have never found many insects on these white and yellow flowers, but decided to leave the luxurious warmth of the car to check anyway. I was soon rewarded with several specimens of long-horned beetles (*Judolia montivagans* and *Lepturobosca chrysocoma*) and remarkable numbers of the red-blue checkered beetles (*Trichodes nuttalli*, Cleridae). While this is a common beetle on various flowers, I had never witnessed such numbers – over 50 individuals along 45 meters of the road edge. The area had been mowed some time ago with heavy-duty, shrub- and tree-cutting equipment, creating perfect, exposed growing conditions for the daisies. I wondered if the

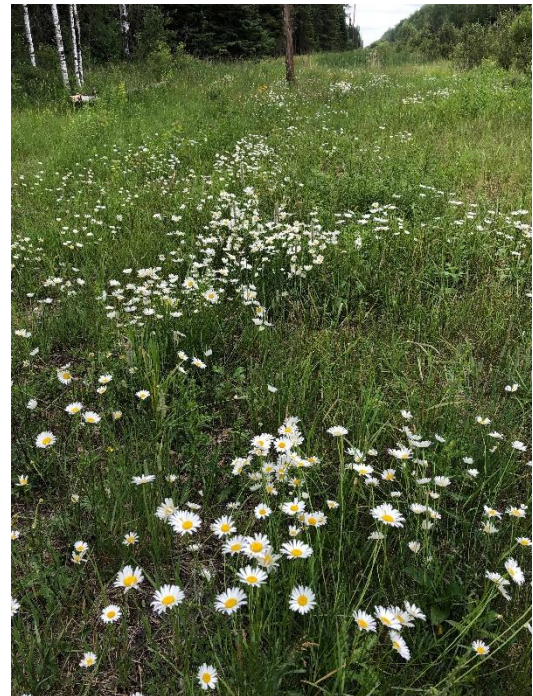


Figure 1. Common daisies growing along the edge of Old Highway 15 in southeastern Manitoba.



**Figure 2. The red-blue checkered beetle *Trichodes nuttalli* sitting on a daisy flower, waiting for the arrival of a mate.**

daisies had attracted unusual numbers of beetles because they were apparently the only species in bloom in this dry area of jack pine forest.

*Trichodes nuttalli* is aposematically coloured in alternating bands of red/orange and blue/black. The body is densely covered in long erect setae (*Trichodes* means ‘hairy’), which readily collect pollen, and so this species serves as an important pollinator of flowering plants (Crowson 1981, Mawdsley 2004). It is found over a vast range east of the Rocky Mountains, where it inhabits mixed- and tall-grass prairie, boreal wetlands, alpine meadows, pine barrens, and disturbed sites.

*Trichodes nuttalli* has a most-interesting life history. Feeding on the pollen of a variety of flowers, the adult beetles mate, and the female lays eggs on the flowers. The egg or larva clings to a visiting bee or wasp, and when this host returns to its hive or nest, the larva burrows into several of the host’s brood cells, devouring the eggs, larvae, pupae, and possibly stores of pollen. The beetle larva develops through five instars, and prepupal and pupal stages in the bee/wasp nest, and then emerges as an adult the following

spring. If each larva devours only five of the host’s young, 100 beetle larvae could potentially eliminate 500 hosts from developing; a significant population-control agent. While remaining on a flower, the adult beetle feeds on pollen and possibly small insects that visit the flower. Foster (1976) also reported the Sprinkled Grasshopper (*Chloealtis conspersa*) as a host for the larvae. There seems to be some confusion as to what extent larval *Trichodes nuttalli* feed on pollen or honey. Crowson (1981) stated: “There is an apparent difference from Meloidae, in that *Trichodes* larvae in bees’ nests appear to directly feed on the host’s young, rather than on the food stores.”

The mandibles of this average-sized clerid species (8-10 mm) are too weak to deliver a significant bite to one’s finger, but its larger (12 mm) relative, the handsome yucca beetle (*Enoclerus spinolae*), is fully capable of generating a substantial pinch, as I found out while collecting dozens of individuals on the flowering stalks of yuccas in Kansas. To fully appreciate the intricate morphology of tiny species of insects, such as the red-blue checkered beetle, requires high magnification. Dr. Erwin Huebner kindly agreed to create SEM images of a couple of my specimens. I greatly appreciate his contribution to this article.



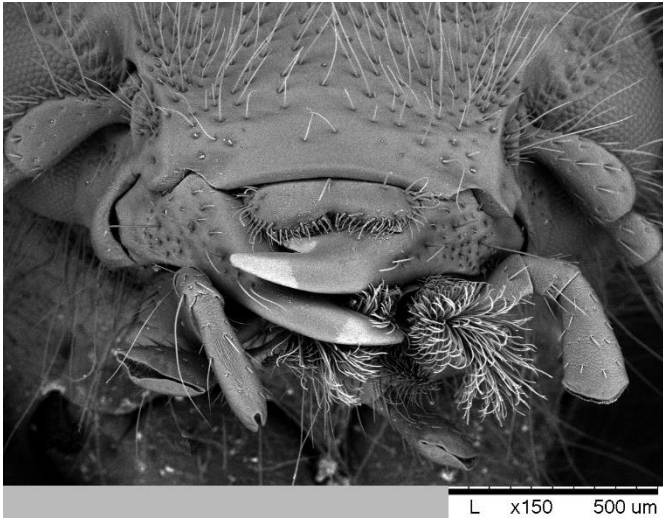


Figure 5. Mouthparts of *Trichodes nuttalli* (x100).

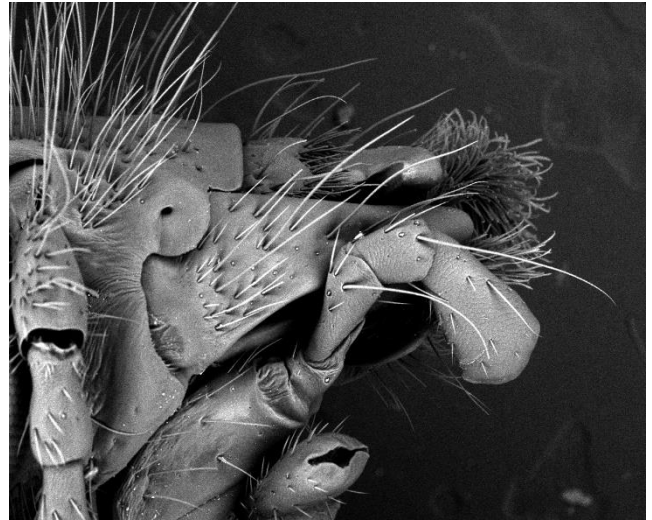


Figure 4. Side view of the mouthparts (x200).

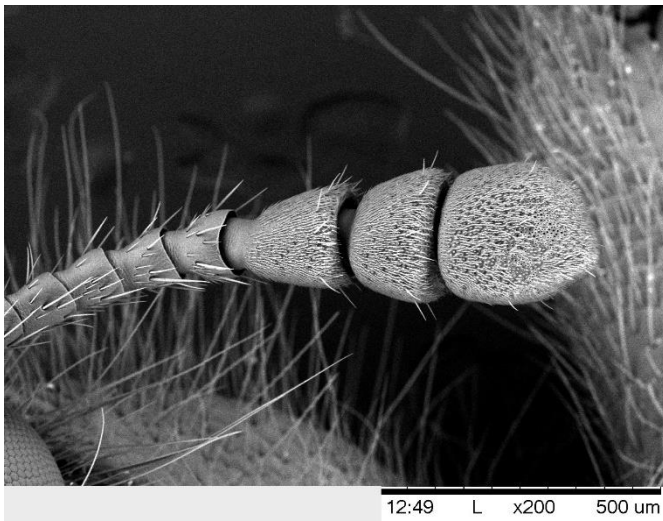


Figure 5. Detail of the terminal antennomeres (x200).

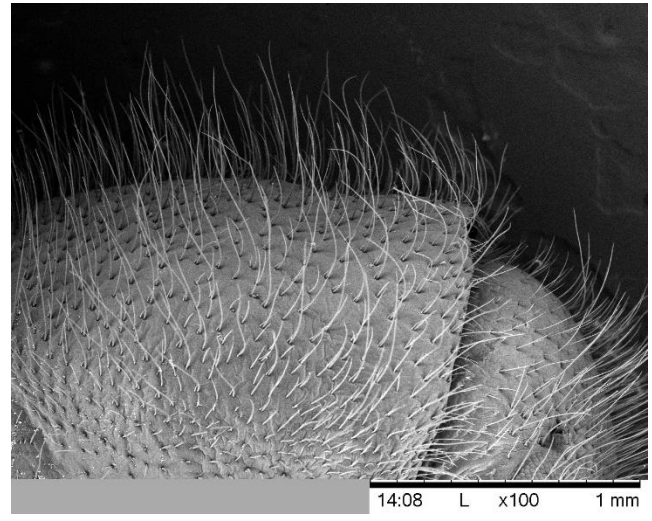


Figure 3. Detail of setae on the pronotum (x100).

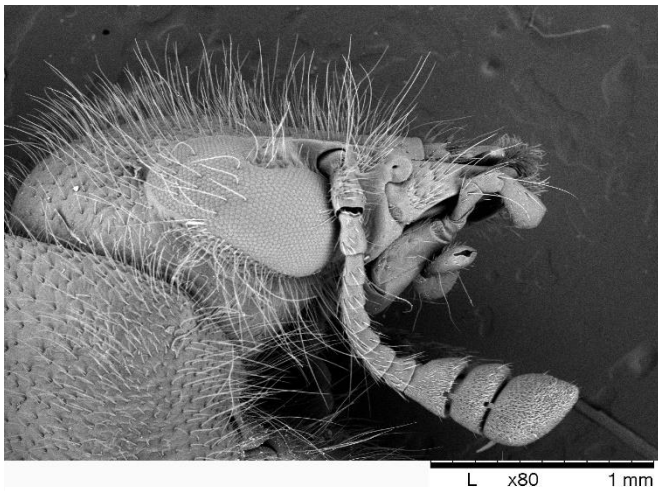


Figure 7. Side view of the head, revealing setae present even on the compound eye (x80).



Mitton (2012) posed the question; “Has the red-blue checkered beetle evolved a perilous reliance? The bees and wasps that inadvertently help the beetles could precipitate its extinction by becoming more hygienic. If the bees and wasps learned to kill the beetle larvae in the hive, or simply evict them, or learn to remove eggs before entering the hive, the red-blue checkered beetles would disappear. The reliance on one or more species to complete the life cycle necessarily increases vulnerability to extinction, because if any of the interacting species goes extinct or becomes rare, the specialist cannot finish its life cycle and suffers extinction.”

The cold temperature of the day ensured that not a single beetle took flight (as they often do on warm days) when I approached and grabbed them by hand. Discovering such an unexpected beetle bonanza on common flowers at the side of the gravel road reminded me of how many times in the past I have taken the extra time to check out just one more site (for small mammals and insects), and been richly rewarded. Probably why I am usually late arriving home.

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## Last Ditch Effort

By Todd Lawton

As a geeky teenager I found a calming refuge in a string of woods and meadows in the southern Ontario city where I lived. I collected skulls and skeletons, spotting them down in the leaves or near burrows, always in awe of the towering trees and sprawling meadows. I ventured there in all seasons, except when the snow was too deep. I can still recall every wondrous detail of that place.

With retirement (still geeky), my first thought was to spend more time in the wild places I've discovered across the province. I could go rambling any day, every day, if I chose. I don't collect skulls any longer despite often seeing them during my walks. I do stop and examine them, tracing their brittle features with my fingers, looking for healed fractures and worn teeth, clues to how those animals lived and died. If the bones are near my regular trails, I watch as they are slowly whittled down to dust by rodent teeth. Skulls are easy to identify, I know what they are immediately, just as some folks can tell you the year of a Pontiac by glancing at the front end.

I've been collecting insects since 1980. And like most collectors I've changed my focus several times. I never did do leps, which is the starting point for many collectors. My first attempt at pinning a butterfly ended in failure and I never looked back. In recent years, I've begun to seriously collect ground beetles. I often got them as by-catch when seeking other insects and I generally discarded them. Then, I started preserving them in alcohol, accumulating thousands of specimens in hundreds of bottles. I have to admit I don't save Staphylinidae, Rove Beetles; I'm not sure why, no offense to elytra-challenged coleopterans. During winter, I like to go "shopping" for beetles, uncovering new specimens in my jars. The frigid weather outside is forgotten when I find a rare insect that I'd collected a decade earlier. Last winter, I found an extremely rare *Diacheila arctica* in a sample from northern Saskatchewan, a first record for that province!

In recent years, I've set pitfalls in wet areas for *Blethisa*, primitive ground beetles with bulging figure-eight patterns on their heads and huge elytral pits. Of course they proved to be a gateway carabid for me and I started jonesing for other tribes and subfamilies; *Blethisa* leads to *Agonum*, *Agonum* to *Anisodactylus*, and before I knew it I was even looking at *Bembidion*! Manitoba has a rich carabid fauna and I was amazed by the number of new species I found during my first year of retirement. I see the irony in returning to explore ditches like I did as a teenager. The cool part is seeing these areas through a different lens; discovering new organisms that I didn't know lived there. Sometimes at night I lay awake and think, "I really need to return to southern Ontario and discover which insects dwell in the forest and meadows I explored as a teenager." I'll get up and check Google Earth to confirm those woods are still there; fortunately they're on a floodplain, exempt from development.



Searching for new beetles in old samples

As of early February, I'm still identifying carabids from 2021. I've completed the *Agonum*; I collected 19 species! The *Agonum melanarium* group was challenging, I think that's why they are sometimes called "Agony," but the genitalia were quite helpful. I'm now starting on *Harpalus* and then I'll take a look at *Amara*.

Serious Carabidophiles are rare. Over time, I've built a network. I can't recall how I met Curt, but we collected in Virginia together, his home state, seeking *Scaphinotus hoffmani*, which at the time was only known from a couple of specimens. We shared techniques, stories and specimens. This led to meeting Frank,

a physician in Maine. Frank generously hosted *Scaphinotus* retreats, renting a fully equipped cabin in West Virginia and then Virginia. Experts from the Carnegie Museum of Natural History and Clemson University in South Carolina attended for several days of intensive carabid collecting. These were incredible experiences and the day after I left, while collecting at sites along the way home, I felt a little lonely, which is odd for me when I'm in the woods. Covid-19 put an end to our shared adventures but we still stay in touch. Curt is now studying at Clemson working with *Anillinus*, small (2-3 mm), eyeless ground beetles which can run quite quickly, ricocheting like slow little bullets in my tray. I've collected hundreds of them while sifting leaves for *Scaphinotus* in the American southeast. Curt was kind enough to identify my samples for me. It amazes me how some coleopterists can dissect the genitalia of minute beetles. I begin to struggle with dissections on beetles under 5 mm but it's worth the effort as some ground beetles can only be identified with this technique. Frank and I stay in contact through emails, discussing the ups and downs of rearing longhorn beetles and new traps. We exchange specimens and dream of dead pines "jumping" with longhorn beetles. I know other avid collectors in Nebraska, Florida, Utah, Wisconsin and across Europe but not in Canada yet. Wherever you live, there will be local insects that collectors from other regions will seek to obtain.

As long as there are ditches to explore, life is good. But I have to admit my "dream retirement" is a little off the grid, or up the creek, now that I'm over the hill.

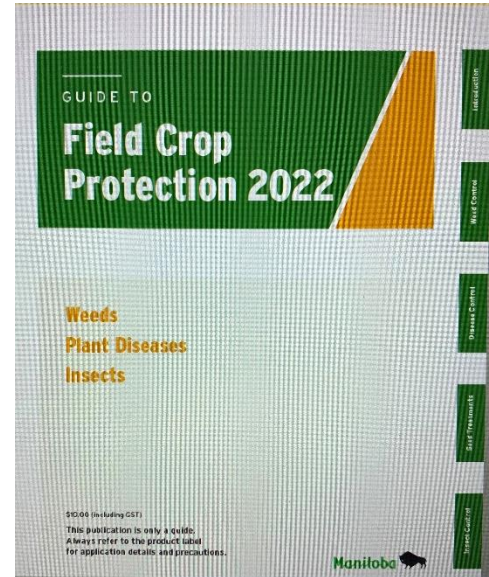


A portion of my beetles-in-alcohol collection

## **Extension Entomology Update: New and Cancelled Insecticides By John Gavloski, Entomologist, Manitoba Agriculture Prepared: February 2022**

Every winter we update the Guide to Field Crop Protection, a resource used by farmers and agronomists to select what pesticide (herbicide, fungicide or insecticide) or practice they will use to control a specific pest. New pesticides are continuously being introduced, uses added or dropped from existing pesticide labels, and pesticide registrations for some products cancelled or marketing plans changed. It is essential that these changes be incorporated into the latest annual update of the guide.

Although only one new insecticide active ingredients was added to the guide for 2022, there were some new formulations of existing products introduced, and a seed treatment with a label expansion to provide sunflower growers another option for managing cutworms. There are also some products that have started the process of being phased out. Here is a summary of insecticides being added and removed from the guide for 2022.



**Intrepid for Lepidoptera larvae:** Intrepid (methoxyfenozide) is an insect growth regulator that mimics the action of a natural insect hormone, and selectively kills caterpillars by inducing premature lethal molts. It is highly active against most lepidopterous larvae, and has little effect on other insect orders. It was first registered in Canada in 2004, but not included in the Guide to Crop Protection until now because of use patterns. Most uses are horticultural, but it was added to the Guide to Crop Protection because uses include European corn borer in corn and dry beans.

**Fortenza label expansion:** The active ingredient in Fortenza is cyantraniliprole. As a seed treatment, it is registered for control of several insects, including cutworms. It was already registered for cutworm control in corn, canola, mustard, and very recently received registered for cutworms in sunflowers. Previously, the only insecticide options for cutworms in sunflowers were foliar sprays, so this provides another option for sunflower growers. It can only be applied to the seeds by commercial seed treaters, not on the farm. One of the restrictions is not to apply any subsequent group 28 insecticides, such as Coragen, following Fortenza seed treatment.

**Coragen MaX:** This is a new formulation of Coragen (chlorantraniliprole); with triple the amount of active ingredient per liter of product, thus rate of product applied per acre is about a third of that of Coragen. Other than that the uses are the same, however any future label changes will only appear on the Coragen Max label. For 2022, all of FMC's Coragen production will be moved to Coragen Max. Coragen is an effective product for controlling Lepidoptera larvae and grasshoppers, and is relatively low toxicity to honey bees.

**Another deltamethrin formulation:** The formulations of deltamethrin most commonly known are Decis and Poleci. Another generic formulation introduced recently, which was added to the 2022 guide,

is Advantage Deltamethrin 5 EC. The uses and rates are the same as Decis 5 EC. This is a broad-spectrum pyrethroid insecticide with uses in field crops, fruits and vegetables and shelterbelts.

**Products removed from the Guide to Crop Protection:** Both Mako (cypermethrin) and Tempo (cyfluthrin) were removed from the guide at the request of the companies. Although both are still registered, often such requests are because of marketing plans by the companies.

**Chlorpyrifos phase-out:** It was announced in May 2021 that registration of all chlorpyrifos insecticides are being cancelled. Some trade names for chlorpyrifos products include Lorsban, Pyrinex, Nufos, Citadel and Warhawk. The last date that chlorpyrifos products can be sold by retailers is December 10, 2022, and the last date that any chlorpyrifos insecticide can be used is December 10, 2023.

Copies of the Guide to Field Crop Protection 2022 should be available in early-March. A pdf version is also available on the Manitoba Agriculture website at:

<https://www.gov.mb.ca/agriculture/crops/guides-and-publications/index.html>



### 2021-2022 Executive

Position	Name	Email	Phone
<b>President</b>	Kateryn Rochon	<a href="mailto:entsocmanitobapres@gmail.com">entsocmanitobapres@gmail.com</a>	(204) 474-8640
<b>Past President</b>	Jeffrey Marcus	<a href="mailto:jeffrey.marcus@umanitoba.ca">jeffrey.marcus@umanitoba.ca</a>	(204) 474-9741
<b>President-elect</b>	Alberto Civetta	<a href="mailto:a.civetta@uwinnipeg.ca">a.civetta@uwinnipeg.ca</a>	(204) 786-9436
<b>Regional Director (ESC)</b>	Jason Gibbs	<a href="mailto:jason.gibbs@umanitoba.ca">jason.gibbs@umanitoba.ca</a>	(204) 474-7485
<b>Member-at-Large</b>	Joel Gardner	<a href="mailto:gardner1@myumanitoba.ca">gardner1@myumanitoba.ca</a>	
<b>Secretary</b>	Jade Tanner	<a href="mailto:entsocmanitobasecretary@gmail.com">entsocmanitobasecretary@gmail.com</a>	(204) 223-4193
<b>Treasurer</b>	Kathy Cano	<a href="mailto:entsocmanitobatreasurer@gmail.com">entsocmanitobatreasurer@gmail.com</a>	(204) 925-7928
<b>Proceedings co-editors</b>	Jason Gibbs Kelsey Jones	<a href="mailto:jason.gibbs@umanitoba.ca">jason.gibbs@umanitoba.ca</a> <a href="mailto:kelsey.jones@canada.ca">kelsey.jones@canada.ca</a>	(204) 474-7485 (Jason)

### 2021-2022 Committee Chairs

Committee	Name	Email	Phone
<b>Endowment Fund</b>	Richard Westwood	<a href="mailto:r.westwood@uwinnipeg.ca">r.westwood@uwinnipeg.ca</a>	(204) 786-9053
<b>Finance</b>	Kathy Cano	<a href="mailto:kathymae@shaw.ca">kathymae@shaw.ca</a>	(204) 925-7928
<b>Newsletter</b>	Kelsey Jones Kateryn Rochon	<a href="mailto:kelsey.jones@canada.ca">kelsey.jones@canada.ca</a>	
<b>Youth Encouragement &amp; Public Education</b>	Bridget White	<a href="mailto:whiteb2@myumanitoba.ca">whiteb2@myumanitoba.ca</a>	(204) 474-9439
<b>Social</b>	Lavanya Ganesan	<a href="mailto:lavanyazoe@gmail.com">lavanyazoe@gmail.com</a>	
<b>Scholarships &amp; Awards</b>	Desiree Vanderwel	<a href="mailto:d.vanderwel@uwinnipeg.ca">d.vanderwel@uwinnipeg.ca</a>	(204) 783-9083
<b>Fundraising</b>	Ian Wise	<a href="mailto:iwise@shaw.ca">iwise@shaw.ca</a>	(204) 890-3560
<b>Scrutineer</b>	John Gavloski	<a href="mailto:john.gavloski@gov.mb.ca">john.gavloski@gov.mb.ca</a>	(204) 745-5668
<b>Web Page &amp; Archives</b>	Jordan Bannerman	<a href="mailto:jordan.bannerman@umanitoba.ca">jordan.bannerman@umanitoba.ca</a>	(204) 480-1021
<b>Common Names of Insects</b>	Jason Gibbs	<a href="mailto:jason.gibbs@umanitoba.ca">jason.gibbs@umanitoba.ca</a>	(204) 474-7485