

Bulletin

Entomological Society of Canada
Société d'entomologie du Canada

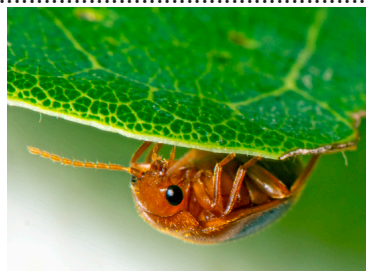
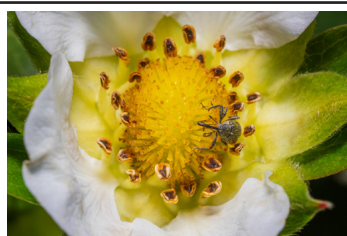
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La légende des photos de la couverture se situe sur la couverture arrière.



The face of a robber fly (Diptera: Asilidae) that was basking on a fence rail in August at Mission Creek Park in Kelowna, British Columbia.

Le visage d'une mouche Asilide (Diptera: Asilidae) qui se prélassait sur une clôture en août au parc Mission Creek à Kelowna.

[Photo: Bob Lalonde]



Leading into Spring

Anyone expecting the unexpected would not have been disappointed these past few months. But I'm happy to say that we've successfully survived our winter of discontent, which was marked by yet another Covid wave, as well as strange weather with floods and unusual warm periods, capped by social tumult across Canada. Through it all, our entomological society and community have continued to move ahead constructively on many fronts. With the 2021 JAM now having been so brilliantly organized and executed by Amro Zayed, Miriam Richards, and their stalwart helpers, we have seen that online meetings can work well. With 250 attendees and a moderate profit, this JAM proved that online meetings can be as effective as in-person meetings in some ways, and might even help to reduce some attendance barriers like lack of funding, time or experience. Nonetheless, I think most of us still miss the opportunity to interact and make serendipitous connections via our three-dimensional selves. Consequently, I'm delighted to report that planning is well underway for a primarily, but not entirely, in-person Joint Annual Meeting in Vancouver on 13–16 November 2022. It will be an opportunity to reboot and recalibrate alongside the experienced professional team from the Entomological Society of America and will surely be attended by thousands of enthusiastic entomologists from far and wide.

Our Entomological Society of Canada has been active on multiple other fronts too, and

En route vers le printemps

Quiconque s'attendait à l'inattendu n'aurait pas été déçu ces derniers mois. Mais je suis heureux de dire que nous avons survécu avec succès à notre hiver de mécontentement, qui a été marqué par une nouvelle vague de covid, ainsi que par un temps étrange avec des inondations et des périodes de chaleur inhabituelles, le tout couronné par des tumultes sociaux dans tout le Canada. À travers tout cela, notre société et notre communauté entomologique ont continué à avancer de manière constructive sur de nombreux fronts. La réunion annuelle conjointe de 2021 ayant été si brillamment organisée et menée par Amro Zayed, Miriam Richards, et leurs vaillants collaborateurs, nous avons pu constater que les réunions en ligne peuvent donner de bons résultats. Avec 250 participants et un profit modéré, cette réunion annuelle conjointe a prouvé que les réunions en ligne peuvent être aussi efficaces que les réunions en personne à certains égards, et qu'elles peuvent même contribuer à réduire certains obstacles à la participation, comme le manque de financement, de temps ou d'expérience. Néanmoins, je pense que la plupart d'entre nous regrettent encore de ne pas avoir la possibilité d'interagir et d'établir des contacts fortuits par l'intermédiaire de notre moi tridimensionnel. Par conséquent, je suis ravi de vous annoncer que la planification d'une réunion annuelle conjointe, principalement, mais pas entièrement, en personne, à Vancouver du 13 au 16 novembre 2022, va bon train. Ce sera l'occasion de redémarrer et de se recalibrer aux côtés de l'équipe professionnelle expérimentée de la Société d'entomologie d'Amérique, et des milliers d'entomologistes enthousiastes venus de loin y participeront certainement.

Notre Société d'entomologie du Canada a également été active sur de nombreux autres

the following are some key examples. Our new Treasurer, Bryan Brunet, has been very busy learning and adjusting the accounting intricacies for the Society, with expert input from Hume Douglas as chair of the Finance Committee. Our Communications Committee has now finally been formally installed, with Julia Mlynarek and Sean McCann as co-chairs, after gestating as an informal social media committee under the leadership of Morgan Jackson and Angela Gradish. We've all seen the efforts of the Equity, Diversity and Inclusion Committee, chaired by Sebastian Ibarra, in the strong EDI message delivered by Maydianne Andrade in a plenary talk at the 2021 JAM and the EDI training workshop led by Lisa Willis. Both were very well attended. Our Society has also approved another \$1000 donation to ENTOPOC. Finally, by the time you see this column the common name of *Lymantria dispar* will officially be the spongy moth, a change made out of respect for the Roma people. This was an initiative by the Entomological Society of America, with participation by Chris MacQuarrie on the ESA committee, and was approved in parallel by our ESC Common Names Committee chaired by Adam Brunke.

These changes and initiatives bring me to the idea of leadership, which is usually defined as the ability to influence or guide other individuals, teams or organizations. It is natural to think about the challenges of leadership as being mainly about leading, or forging a path for others to follow, whether through times of uncertainty or opportunity. But leadership is not really about leaders and followers – it is about getting things done. And it is not enough to get things done, but also to make that change sustainable so it doesn't fizzle away. This means that a mark of true leadership is to leave in others the will and ability to carry on after you are gone. That has to start with a culture that encourages initiative and recognizes failures and mistakes as preliminary stages to something better. The Entomological Society of Canada welcomes diverse perspectives and

fronts, dont voici quelques exemples. Notre nouveau trésorier, Bryan Brunet, a été très occupé à apprendre et à ajuster les subtilités de la comptabilité de la Société, avec l'aide experte de Hume Douglas, président du comité des finances. Notre comité des communications a enfin été officiellement mis en place, avec Julia Mlynarek et Sean McCann comme coprésidents, après avoir été un comité informel sur les médias sociaux sous le leadership de Morgan Jackson et Angela Gradish. Nous avons tous été témoins des efforts du comité sur l'équité, la diversité et l'inclusion, présidé par Sebastian Ibarra, dans le message fort sur l'ÉDI délivré par Maydianne Andrade lors d'une intervention en plénière à la réunion annuelle conjointe de 2021 et dans l'atelier de formation sur l'ÉDI dirigé par Lisa Willis. Ces deux événements ont été très bien accueillis. Notre société a également approuvé un autre don de 1000\$ à ENTOPOC. Enfin, au moment où vous lirez cette colonne, le nom commun en anglais de *Lymantria dispar* sera officiellement « spongy moth », un changement effectué par respect pour le peuple Rom. Il s'agit d'une initiative de la Société d'entomologie d'Amérique, avec la participation de Chris MacQuarrie au comité de l'ESA, qui a été approuvée en parallèle par notre comité des noms communs de la SEC, présidé par Adam Brunke.

Ces changements et initiatives m'amènent à l'idée du leadership, qui est généralement défini comme la capacité d'influencer ou de guider d'autres personnes, équipes ou organisations. Il est naturel de penser que les défis du leadership consistent principalement à diriger, ou à tracer une voie que d'autres suivront, que ce soit en période d'incertitude ou d'opportunité. Mais le leadership n'est pas vraiment une affaire de meneurs et de suiveurs – il s'agit de faire avancer les choses. Et il ne suffit pas de faire bouger les choses, il faut aussi rendre ce changement durable pour qu'il ne s'évanouisse pas. Cela signifie que la marque d'un véritable leadership est de transmettre aux autres la volonté et la capacité de continuer après votre départ. Cela doit commencer par une

trajectories and sets only one condition – you have to believe that bugs are cool! So, if you are interested in openings to contribute to a better world, whether from an environmental, social or professional perspective, as well as opportunities to learn to drive the kinds of structures that can get you there, then the ESC is the place for you. A prime example of such an opening is that we are now seeking a co-secretary to help us to keep our committees, board and executive communicating and coordinated – see the announcement later in this *Bulletin*. It is a unique chance to make a positive difference to our whole community of entomologists and to contribute to the springtime spirit of renewal as we emerge from the many constraints and changes of the past 2 years of life in a pandemic.

culture qui encourage l'initiative et reconnaît les échecs et les erreurs comme des étapes préliminaires à quelque chose de meilleur. La Société d'entomologie du Canada accueille des perspectives et des trajectoires diverses et ne pose qu'une seule condition : vous devez croire que les insectes sont cool! Donc, si vous êtes intéressé par les possibilités de contribuer à un monde meilleur, que ce soit d'un point de vue environnemental, social ou professionnel, ainsi que par les opportunités d'apprendre à piloter les types de structures qui peuvent vous y conduire, alors la SEC est l'endroit idéal pour vous. Nous recherchons actuellement un ou une co-secrétaire pour nous aider à maintenir la communication et la coordination entre nos comités, le CA et l'exécutif – voir l'annonce plus loin dans ce bulletin. Il s'agit d'une chance unique de faire une différence positive pour l'ensemble de notre communauté d'entomologistes et de contribuer à l'esprit de renouveau printanier alors que nous émergeons des nombreuses contraintes et changements des deux dernières années de vie en pandémie.



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Joint Annual Meeting 2022 / Reunion annuelle conjointe 2022



2022 ESA, ESC, and ESBC Joint Annual Meeting

Entomology as inspiration: Insects
through art, science, and culture

Vancouver, British Columbia, Canada

November 13-16

Réunion annuelle conjointe ESA, SEC, et SECB 2022

L'entomologie comme source d'inspiration :
Les insectes à travers l'art, la science et la culture

Vancouver, Colombie-Britannique, Canada

13-16 novembre

We invite you to attend the 2022 ESA, ESC, and ESBC Joint Annual Meeting!

The 2022 Joint Annual Meeting will take place in beautiful Vancouver, British Columbia, from **13-16 November 2022**. With a theme of **Entomology as inspiration: Insects through art, science, and culture**, this meeting represents a unique opportunity to share your research, gain exposure, and collaborate across borders and across Societies. Connect with over 3,000 scientists and researchers from around the globe over the 4 science-filled days.

Full meeting details, important deadlines and up to date information can be found on the meeting website: <https://www.entsoc.org/events/annual-meeting>

We look forward to seeing you in Vancouver!

Nous vous invitons à assister à la réunion annuelle conjointe ESA, SEC et SECB 2022!

La réunion annuelle conjointe 2018 se tiendra dans la magnifique ville de Vancouver, Colombie-Britannique, **du 13 au 16 novembre 2022**. Avec le thème **L'entomologie comme source d'inspiration: Les insectes à travers l'art, la science et la culture**, cette réunion représente une chance unique de partager votre recherche, d'avoir de la visibilité et de collaborer au-delà des frontières et des Sociétés. Soyez en contact avec plus de 3000 scientifiques et chercheurs de tout le globe durant 4 journées remplies de science.

Les détails complets de la réunion, les dates limites importantes et de l'information à jour se trouvent sur le site web de la réunion : <https://www.entsoc.org/events/annual-meeting>

Au plaisir de vous voir à Vancouver!

Memories of JAM 2021 / Souvenirs de la RAC 2021

The ESC's first all-virtual JAM, hosted by the ESO, was a great success with over 250 registrants and over 160 presentations covering a wide range of entomological perspectives as befitted a meeting with the theme *Strength in Diversity*. The JAM Co-chairs, **Amro Zayed** (York U) and **Miriam Richards** (Brock U), along with some 30 colleagues, put together a terrific programme and are to be congratulated for their efforts. Showcare, the company hired for the event, did a wonderful job, making online access to the programme components a relatively simple matter, even for an aging senior like the *Bulletin* Editor!

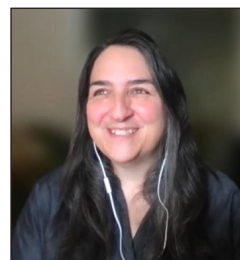


The JAM 2021 Co-chairs, Amro Zayed (left) and Miriam Richards (right).

Highlights of JAM 2021

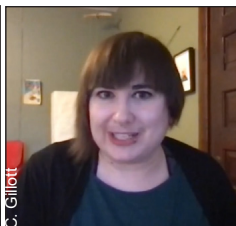
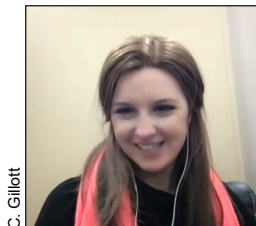
Here are some reflections of the Meeting, with apologies if the images are not of the usual standard, being reproduced from screenshots.

Early on the first day, we heard a fascinating Heritage Lecture ("Reinscribing Land: Mike MacDonald's Medicine and Butterfly Gardens"), delivered by **Lisa Myers**, a York University Research Chair in Indigenous Art & Curatorial Practice. Lisa talked about the work of the late Mi'kmaq artist Mike MacDonald (1941-2006) who created native plant gardens.



Lisa Myers, Heritage Lecturer

Another highlight of the first day's program was the Graduate Student Showcase, organised and moderated by **Matt Muzzatti** (Carleton U) and **Rowan French** (U Toronto), Co-chairs of the SEPAC. Four speakers presented their research findings: **Rachel Rix** (Dalhousie U) "Phenotypic and molecular response in a beneficial insect predator stimulated by mild stress"; **Antonia Musso** (U Alberta) "Pine wars – A new host: the battle between mountain pine beetle and naïve pines in Alberta"; **Matthew Meehan** (Western U) "From individuals to communities: The effect of climate change on ectothermic predators"; and **Asha Wijerathna** (U Alberta) "Interactions of pea leaf weevil (Coleoptera: Curculionidae) with its primary and secondary host plants in Alberta".



Graduate Student Showcase speakers: From left, Rachel Rix, Antonia Musso, Matthew Meehan, and Asha Wijerathna

Thanks to Amro Zayed who generously shared his meeting summary with the Bulletin Editor.



Keynote speakers on Day 2: Jayne Yack (left) and Maydianne Andrade (right).

Day 2 featured two keynote speakers. The first was **Jayne Yack** (Carleton U) who spoke on “What does an insect hear?” She dealt with how and what insects hear, a stimulating and thought-provoking lecture that featured wonderful recordings of sounds from various insects, and their ecological significance. Later in the day, **Maydianne Andrade** (U Toronto) delivered an excellent keynote “Bias and inclusion in practice”. Maydianne’s presentation clearly showed how systemic barriers lead to the under-representation of many visible minorities in academia and entomology, and suggested ways to improve equity, diversity and inclusion in our discipline. On the third day, **Claire Kremen**’s (U British Columbia) keynote lecture “Pollinators as ambassadors for diversifying farming systems” considered the importance of diversifying farming systems for enhancing bee populations and the pollination services they provide. The final day’s keynote lecture “Sorry, not sorry: the neural basis of aggression in *Drosophila* females” was given by **Amanda Moehring** (Western U) and dealt with the genetics of female choice and aggression in the fruit fly *Drosophila*. The talk featured impressive experiments that made full use of *Drosophila*’s genetic manipulation tool kit to reveal the connection between genes, neurons and behaviour in this model insect.



Keynote speakers on Day 3: Claire Kremen (left) and Amanda Moehring (right).

Also on Day 3, the ESC held its awards ceremony, following which was the 2020 Gold Medal Address, presented by the recipient **Michel Cusson** (Laurentian Forestry Centre, Natural Resources Canada), titled “The challenges and rewards of pursuing parallel paths of entomological enquiry”. Unlike that of many entomologists whose career has focused on one major aspect of the science, Michel’s career path has included several diverse areas of research. His talk summarised these, highlighting the important roles played by mentors, colleagues and students.



M. Cusson

Gold Medal Recipient Michel Cusson

Over the first two mornings, we also heard excellent presentations (36 in total) in the 6 President's Prize sessions. Difficult as their task was, the judges eventually selected the following winners:

Aleksandra Dolezal (U Guelph) winning the **Agroecology** session for her talk titled "Re-designing agricultural landscapes: The effect of habitat on arthropod communities"

Kathryn Galang (York U) (**Social Insects**) "The molecular basis of altruistic and selfish aggression in honey bees"

Allen Bush-Beaupré (U Sherbrooke) (**Pest Management I**) "Comparing the reproductive behavior and life-history strategies of the seedcorn maggot's (*Delia platura*) H- and N-lines"

Emmanuel Hung (Simon Fraser U) (**Pest Management II**) "Conductive and convective heat, but not infrared radiation, mediates stable fly alighting and probing response on thermally different targets"

Andreas Fischer (Simon Fraser U) (**Ecology and Evolution**) "Intrasexual conflict - female false black widow spiders sense, and behaviorally and physically respond to, female conspecific sex pheromone"

Ferf Brownoff (U Alberta) (**Diversity and Taxonomy**) "New taxonomic records for the spider fauna of New Caledonia, including families, genera, and a species description".



President's Prize winners: Top row (from left) Aleksandra Dolezal, Emmanuel Hung, Bill Riel (ESC Past President); Middle row (from left) Andreas Fischer, Kathryn Galang, Allen Bush-Beaupré; Bottom row (from left) Amanda Roe (President, ESO), Ferf Brownoff, Amro Zayed (JAM Co-chair)

The programme also included over 100 oral presentations, a dozen posters, career panel discussions for MSc and PhD students, and a town hall meeting led by the ESC's EDI Committee.

STEP Corner / Le coin de la relève

Rowan French and Matt Muzzatti



Research Roundup

Are you an ESC student member looking to spread the word about your newly published paper? If so, we'd love to hear from you! We continue to publicize graduate student publications to the wider entomological community through our Research Roundup initiative. As part of this initiative, we invite students to submit (1) a brief (<240 character) summary of their paper, (2) one image related to the paper, (3) a one-sentence description of their thesis research, and (4) one sentence about (a) the aspect of their research they find most fascinating or (b) why they love insects. Check out the ESC blog, [Facebook](#), and [Twitter](#) pages for the most recent featured articles and student author biographies. If you would like your recently published paper to be featured, send us an email at students@esc-sec.ca. For regular updates about Canadian entomological research, join the [ESC Students Facebook page](#) or follow us on [Twitter](#) @esc_students.

Getting Involved with the ESC

SEPAC is always keen to take on new members! Volunteering for SEPAC is a great way to get involved with the Society and promote entomology across Canada. If you are interested in joining or just have suggestions for new initiatives in the coming year, email us at students@esc-sec.ca, or contact us personally at rowan.french@mail.utoronto.ca and mattmuzzatti@cmail.carleton.ca. We look forward to hearing from you!

Rowan & Matt

Aperçu de la recherche

Vous êtes membre étudiant de la SEC et vous souhaitez faire connaître votre article récemment publié? Si oui, nous serions ravis de vous entendre! Nous continuons à faire connaître les publications en provenance de la communauté étudiante à l'ensemble de la communauté entomologique par le biais de notre initiative Aperçu de la recherche. Dans le cadre de cette initiative, nous invitons les étudiants à soumettre (1) un bref résumé (<240 caractères) de leur article, (2) une image liée à l'article, (3) une description en une phrase de leur recherche de thèse, et (4) une phrase sur (a) l'aspect de leur recherche qu'ils trouvent le plus fascinant ou (b) pourquoi ils aiment les insectes. Consultez le blogue et les pages [Facebook](#) et [Twitter](#) de la SEC pour obtenir les articles les plus récents et les biographies des étudiants auteurs. Si vous souhaitez que votre article récemment publié soit mis en vedette, envoyez-nous un courriel à students@esc-sec.ca. Pour obtenir des mises à jour régulières sur la recherche entomologique canadienne, rejoignez la page [Facebook des étudiants de la SEC](#) ou suivez-nous sur [Twitter](#) @esc_students.

S'impliquer au sein de la SEC

Le comité des affaires étudiantes et des jeunes professionnels est toujours prêt à accueillir de nouveaux membres! Le bénévolat au sein du comité est une excellente façon de s'impliquer dans la Société et de promouvoir l'entomologie au Canada. Si vous êtes intéressé à vous joindre à nous ou si vous avez des suggestions de nouvelles initiatives pour l'année à venir, envoyez-nous un courriel à students@esc-sec.ca, ou contactez-nous personnellement à rowan.french@mail.utoronto.ca ou mattmuzzatti@cmail.carleton.ca. Nous avons hâte de vous lire!

Rowan & Matt

Thesis Roundup / Foisonnement de thèses

SEPAC wants to recognize and celebrate the accomplishments of newly minted entomology grads! If you or a student you know has recently defended an entomology-related thesis at a Canadian University, please send the following details to students@esc-sec.ca: student's name, date, degree, thesis title, supervisor(s), and university. This information will appear on the ESC website and in the next ESC Bulletin.

Le comité veut reconnaître et célébrer les réalisations des nouveaux diplômés en entomologie! Si vous, ou un étudiant que vous connaissez, a récemment soutenu sa thèse dans un domaine lié à l'entomologie dans une université canadienne, merci d'envoyer les informations suivantes à students@esc-sec.ca : nom de l'étudiant, date, diplôme, titre de la thèse, directeur(s) et université. Cette information apparaîtra sur le site web de la SEC et dans le prochain Bulletin de la SEC.

La Bourse VinLab

La première fois que j'ai pris l'avion, c'était pour participer à une Réunion annuelle de la Société d'entomologie du Canada (SEC). Les frais ont été payés par le Dr Robin K. Stewart, mon Directeur de thèse à l'Université McGill. Depuis, j'ai participé à de nombreuses rencontres scientifiques qui se sont avérées importantes pour mon développement professionnel. Il me fait plaisir de vous présenter brièvement une nouvelle bourse, la bourse VinLab.

La bourse VinLab a pour objectif de permettre à un membre étudiant de la Société d'entomologie du Québec (SEQ) de participer à la réunion annuelle de la Société d'entomologie du Canada. Il s'agit d'une bourse de déplacement pour la participation, en personne, à la réunion annuelle de la SEC, peu importe le lieu de la réunion. Une bourse d'une valeur de 2000 \$ est attribuée chaque année à un membre étudiant de la SEQ qui présente des résultats de recherche lors de la réunion annuelle de la SEC.

Des informations plus complètes seront disponibles dans les prochaines semaines sur le site de la SEQ. Le lien spécifique concernant la bourse VinLab sera: www.seq.ca/bourse-vinlab/

Charles Vincent, Saint-Lambert, Qc

The VinLab Scholarship

The first time that I took a plane trip was to participate in a meeting of the Entomological Society of Canada (ESC). The fees were paid by Dr Robin K. Stewart, my thesis supervisor at McGill University. Since then, I have participated in numerous scientific meetings that have been important for my professional development. It is a pleasure to briefly introduce to you the new VinLab Scholarship.

The VinLab Scholarship aims to allow participation of a student member of the Société d'entomologie du Québec (SEQ) in the Joint Annual Meeting (JAM) of the Entomological Society of Canada. It will reimburse the cost associated with participation, in person, in an ESC JAM, wherever the meeting is held. A sum of \$2000 will be given each year to a SEQ student member that presents their research results at the JAM.

More information will be available in the coming weeks on the web site of the SEQ. The specific URL leading to the info will be: www.seq.ca/bourse-vinlab/

Charles Vincent, Saint-Lambert, QC



Entomological Society of Manitoba

The 77th Annual Meeting of the Entomological Society of Manitoba was held virtually on 3–4 December 2021. A scientific meeting was held on 3–4 December with the Annual General Meeting held on the afternoon of the 4th. The Scientific Meeting was organized by Dr Vincent Hervet (Agriculture and Agri-food Canada) under the theme ‘Insects in a Human World’. Dr Gail Anderson (Simon

Fraser University) was keynote speaker.

Dr Kateryn Rochon (University of Manitoba) has taken over the duties of President from Dr Jeffrey Marcus (University of Manitoba).

Recipients of Student Awards included **Katherine Morgan** – Achievement Award, **Shayla Storozuk** – Service Award, and **Joel Gardner** – Graduate Student Scholarship. Awards for student oral presentations were: 1st – **Antonia Musso**; 2nd – **Michael Killewald**; 3rd – **Bridget White**.



Société d'entomologie du Québec

Since our virtual meeting last November, the SEQ appointed the following new members to its executive: Julia Mlynarek as Vice-president and Vinko Culjak as Webmaster. Julie-Éléonore Maisonhaute

has become President, replacing Jean-Philippe Parent (now Past President).

Through the generosity of Charles Vincent, the SEQ has a new scholarship (the VinLab Scholarship, see page 9). Its purpose is to cover the costs of an SEQ student participating (in person) at the Entomological Society of Canada Joint Annual Meeting, including making a presentation of their research. The Scholarship, with a value of \$2000, will be awarded annually. More information will become available in due course at www.seq.ca/bourse-vinlab/.

A committee has been established to organise an important anniversary celebration for the Society, the 150th birthday of the SEQ, which will take place next year.

Discussion has begun with the Association des Entomologistes Amateurs with the objective of reviving a joint scientific meeting.

Finally, all insect lovers are waiting impatiently for the imminent reopening of the Montreal Insectarium. After 3 years of renovation, the Musée d’Espace pour la Vie has undergone a complete metamorphosis and will soon welcome back the crowds.



Acadian Entomological Society

The Acadian Entomological Society did not hold an Annual General Meeting this year. This was mainly due to the fact that an in-person meeting was not possible and there did not seem to be much excitement around hosting another virtual meeting. Society items of business were addressed, however, including

email elections for the positions of AES Vice-president and nominee for the position of ESC Regional Director. Bahar Habibullah was elected AES VP, and Jess Vickruck was nominated as the ESC Regional Director.

An AES executive meeting was held virtually on 13 Aug 2021. Multiple action items were identified (minor changes to bylaws, website updates, etc) and are being undertaken by AES members.

Wider aspects of a career in entomology. 17. My introduction to Canada's fauna and environments

Hugh V. Danks

This series of articles outlines some ancillary aspects of my entomological career, for the potential amusement of readers. It reports the sometimes unexpected challenges of working in new places and in the real world, an approach that serves also to expose some conclusions about research and other entomological activities and some information about insects and their environments. This article recounts my introduction to the Canadian environment and to its insects—beginning with butterflies.



My arrival in Canada in 1968 exposed me to new landscapes, animals, and plants. The key to learning about them was being out in the field, and although much of my research on insect cold hardiness took place in the winter (see *ESC Bulletin* **50**: 25-29; **50**: 50-54; **53**: 186-194), the summer in particular allowed hiking and other activities in natural environments. Those experiences not only provided background information valuable for understanding the insect fauna, but also served as a means of relaxation from work and other responsibilities.

The first major explorations came during a camping holiday at Algonquin Park, Ontario, where I hiked along the park trails, and tried to catch fish from the shore. My angling technique proved to be better suited to observing insects than catching desirable fish!

Much freshwater angling in England targets “coarse fish” (mostly cyprinids, usually called minnows in Canada), using a bait suspended from a float that signals when to strike, or a bait on the bottom with an indicator on the line¹. In contrast, the majority of target species in North America take large moving baits or artificial lures, and anglers move and re-cast frequently to try new places in the habitat. Float-fishing is commonly used to obtain panfish. In typical waters, bottom-fishing may catch suckers or catfish.

Ignorance of local angling practices had the benefit of introducing me to more than just minnows. Sitting still is an excellent way to see wildlife, because mammals, birds, and insects often come close to a stationary angler, but are scared away or overlooked by someone dashing about with a lure, or flailing the water with a float to snatch out sunfish. Indeed, one of my companions in England once declared that he wished the fish would stop biting, because they were interrupting his thoughts and observations of nature!

I decided to come to Canada partly because it has such a wide range of environments. That decision was validated by observations of the fauna whilst angling, and when hiking through various kinds of terrain—although unfamiliar mammals rather than insects impressed me initially.

¹Common baits are earthworms, and blowfly maggots (called “gentles” by anglers), as well as such things as bread paste, cheese, and hempseed. Extreme fishing pressure means that older fish are very wary, including common carp, which in Canada are introduced pests easily caught should anyone want to do so. Opportunities in Britain to seek “game fish” (salmonids, originally reserved for the English gentry) are more limited.

Hugh Danks (hughdanks@yahoo.ca) retired in 2007 after many years as head of the Biological Survey of Canada. In that role, he helped to coordinate work on the composition and characteristics of the arthropod fauna of the country, and to summarize the results. In addition, his research studied cold hardiness, diapause, and other adaptations to seasonality in northern regions.

Kirsten Brennan, USFWS (CC BY 2.0)



Figure 1. North American beaver. Length about 80 cm plus 25 cm tail.



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Figure 2. Dusk at Algonquin Park in 1969: a scene burned in my memory. It is also recorded in this old photograph, which includes a beaver swimming by (although in such low light only ripples were visible to the elementary camera).

During the first trip, a beaver (Figure 1) swam by as darkness fell (Figure 2). It thwacked the water in alarm with its tail when it noticed me. A few years later, interesting accounts of insects in beaver ponds were published by Canadian entomologists.

I had read about beavers and other mammals before actually sighting them. A day or two after the beaver encounter, noises at my campsite woke me at dawn. The tent (Figure 3) was a flimsy one with a separate groundsheet, allowing me to lift the side and peer out, expecting to see a raccoon raiding the garbage can. My eyes focussed, and the animal at the garbage can resolved into a black bear (Figure 4), which detected my movement, dropped down, and came towards me. I quickly pulled down the tent side and held it while the bear snuffled along the edge on the other side of the thin fabric, for what seemed like an eternity—prompting me to contemplate the fact that a half-awake camper inside a sleeping bag is defenceless ...

Although the birds were more diverse than in the British Isles, most types were similar. For example, the white-breasted nuthatch (Figure 5), which eats mainly insects in the summer, has the same habits as the Eurasian nuthatch. The pileated woodpecker (Figure 6) feeds chiefly on carpenter ants, occupying the same ecological niche as its congener in Europe, the black woodpecker.

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Figure 3. Campsite at Algonquin Park in 1969, showing the tent referred to in the text.



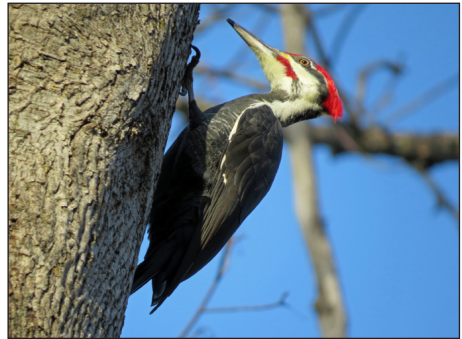
Luca Galuzzi (CC BY-SA 2.5)

Figure 4. American black bear. Length about 1.5 m.



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Figure 5. White-breasted nuthatch. Length about 14 cm.



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Figure 6. Pileated woodpecker. Length about 45 cm.

Some other presumed correspondences were disappointing. The American “robin” is a hulking thrush with a reddish-orange breast, four times the weight of the European robin, a perky little bird that is more brightly coloured. Instead, characteristic of Canada to me, in the lakes and woods of the Canadian Shield that became so familiar, were the sounds of loons (Figure 7) and white-throated sparrows (Figure 8). Their calls sometimes helped to conceal the faint, but nonetheless unsettling, whine of mosquito wings.



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Figure 7. Common loon. Length about 80 cm.



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Figure 8. White-throated sparrow. Length about 17 cm.

Those early camping journeys and later more extensive travels in Canada introduced me to an array of different habitats. One striking trend, which would inform subsequent studies of the Canadian insect fauna, is the zonation from south to north as climates become colder (Figure 9).

I lived for a time near temperate deciduous forest in St. Catharines, Ontario, but my longest residence was in the boreal-deciduous transition (Great Lakes-St. Lawrence) forest around Ottawa. Experience of boreal habitats characteristic of northern Canada came at higher elevations, in northern Ontario, and in some eastern provinces; and arctic terrain was seen during fieldwork in 1969.

There are characteristic zonations from west to east too (Figure 10). They stem especially from differences in precipitation as westerly airstreams rise to cross the Cordillera, lose moisture, and then traverse the continent, and from differences in temperature governed by elevation and continentality. For example, temperate rainforest survives on the west coast where rain is abundant and temperatures are ameliorated by the ocean; prairie grasslands grow east of the

Figure 9 (right). A few characteristic habitats in Canada, from south to north. L and R from top to bottom: Deciduous (Carolinian forest); Boreal-deciduous transition (Great Lakes-St. Lawrence forest); Boreal (Balsam fir forest); Low Arctic (Tundra). High Arctic terrain is shown in ESC *Bulletin* 50: 116–118; 50: 174–177.



Figure 10 (below). A few other characteristic habitats in Canada, from west to east. L and R from top to bottom: Coastal (Old growth rainforest); Cordilleran (Mountain terrain); Prairie (Grassland); Eastern (Acadian forest).





Figure 11. A few characteristic aquatic habitats in Canada. L and R from top to bottom: Bog; Wetland; Boreal river; Canadian Shield lake.

mountains where rainfall is reduced; forests reappear still farther east as annual rainfall increases again.

Also striking, because much of Canada is well supplied with water, are many kinds of aquatic habitats that recur across huge areas. A few of them are shown in Figure 11.

My experience of all these different places was important for later attempts to characterize faunas in arctic, boreal, and other regions, analyze faunal patterns, and contribute to reviews of insects from bogs and other habitats. Normally, my hikes traversed established trails in parks, because exploring huge areas of similar terrain requires caution. Elsewhere, leaving trails or roads to enter areas of forest brings the risk of getting lost, because the trees are relatively homogeneous, and no distant landmarks are visible to help in navigation².

Bogs can be hazardous too, although the largest areas of muskeg were to the north. Beneath the thin floating layer of living sphagnum moss is a more or less deep foundation of decayed vegetation, water, and soil, sometimes with a water content exceeding 90%, even though the ground may look solid³.

On this large-scale canvas of habitat types came my introduction to the Nearctic insect fauna. I had collected several kinds of insects as an amateur in England, but in Canada gathered only material for research. Nevertheless, casual observations continued, supplemented later with photographs, revealing mainly species that are common, large, and conspicuous. This approach favours colourful species like butterflies, many of which can be identified relatively easily. Because identification is the key to further knowledge, the observations not only reinforced my

²Therefore, even short journeys need at least a map and a compass. People who do get lost should sit down and assess the situation, rather than rushing back to where they think—usually erroneously—they will find the trail. Nowadays, however (unlike years ago), cell and even satellite phones, GPS units, and recharging devices are readily available.

³Here too, difficulties have to be met without panic, but it is unwise to press on thinking the terrain will get better, because it usually gets worse! Backing out slowly with as little extraneous movement as possible is the best procedure.

general entomological education, but also led me into comparisons with the British fauna, and further details about individual species. Many taxa proved to be much more diverse than in the British Isles, and all of the species had a story to tell or a lesson to offer.

A few insects were the same. There were cosmopolitan or Holarctic species, along with species introduced from Europe. Some were recognizable to genus, but the species were different. However, other genera and even families were new to me, especially outside the Lepidoptera.

Early encounters with butterflies included species that are relatively common in Canada but are rare vagrants in the British Isles. Treasured by amateurs there, they were accorded almost legendary status in my books about British butterflies.

One such species is the mourning cloak (Figure 12). It overwinters as an adult (and so was of interest in the context of cold hardiness) and is one of the earliest butterflies to appear in spring, often while snow persists. Adults live much longer than typical butterflies, 10 or 11 months, and even up to a year, and may aestivate as well as overwinter. Males mate with multiple females, and females lay several successive egg batches. The gregarious larvae eat the leaves of a variety of trees and shrubs.

In Britain the mourning cloak is called the Camberwell beauty, exemplifying the frequency with which multiple common names arise for the same species, and even for the same genus. For example, members of the genus *Colias* (e.g., Figure 13) are called yellows in Europe, but sulphurs (or sulfurs) in North America. This genus is of particular interest because so many features are sex linked. In Lepidoptera, the female is the heterogametic (XY) sex, and each female acquires its X-chromosome from the male parent. In *Colias* spp., that chromosome carries genes for a particularly wide range of traits, including mate-selection by females.

Later in the season, another “extremely rare” British vagrant species appears: the monarch butterfly (Figure 14), which is celebrated in North America for its long-distance migration southward in the fall, and movement northward



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Figure 12. Mourning cloak butterfly, the nymphalid *Nymphalis antiopa*. Wingspan about 7 cm.



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Figure 13. Clouded sulphur butterfly, the pierid *Colias philodice*. Wingspan about 4.5 cm. The species is abundant and widely distributed in North America; larval foodplants are members of the pea family.



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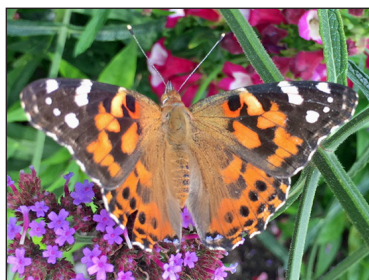
Figure 14. Monarch butterfly, the danaine nymphalid *Danaus plexippus*: upperside (top); and underside. Wingspan about 10 cm. These individuals are taking salts and minerals from the substrate, as do many butterflies (including *Colias* spp.).

in spring through several generations. Warning colouration advertises to would-be predators that both larvae and adults are toxic from substances derived from milkweed, the larval foodplant.

A distinctive species is the painted lady butterfly (Figure 15). It is one of the most widely distributed butterfly species in the world, because it undergoes extensive migrations. Adults can live more than 2 months. Members of populations in southern Europe migrate seasonally thousands of kilometres to Africa, and then return to the north stepwise through multiple generations, in the same way as the monarch butterfly in North America. This itinerary is longer than the famous journey of the monarch. Larvae eat thistles and other plants in the same family. Adults fuel their constant activity by feeding avidly on nectar.

Large fritillaries are also conspicuous as they take nectar from flowers (e.g., Figure 16). The genus *Speyeria* is represented by 11 species in Canada, although there is only one in the British Isles. Larvae eat violets (*Viola* spp.). Eggs are laid near these plants, but the first-instar larvae enter diapause as soon as they hatch, and then overwinter. They start to feed only as hostplants begin to grow in spring.

The white admiral butterfly (Figure 17) is widespread, and sometimes abundant, in forests with deciduous trees (larval foodplants are willow, birch, and other species), and in forest edges and clearings. Adults live for months and, as in many nymphalids, males are territorial. Like other species (including Milbert's tortoiseshell, see below), the butterflies consume liquids from sap, rotting fruit, animal dung, and other sources, and are not limited to feeding at flowers. The poetic view—that fragile



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Figure 15. Painted lady butterfly, the nymphalid *Vanessa cardui*, feeding on nectar: upperside (top); and underside. Wingspan about 6 cm.



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Figure 16. Aphrodite fritillary, the nymphalid *Speyeria aphrodite*: upperside (top); and underside. Wingspan about 6.5 cm.



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Figure 17. White admiral butterfly, the nymphalid *Limenitis arthemis*. Wingspan about 6 cm.

butterflies flit amongst attractive blossoms, fastidiously sipping nectar—is incomplete!

However, I was surprised to learn how much had been revealed about other ecological themes through research on species of the genus. Northern populations of *Limenitis arthemis* (the white admiral) are non-mimetic. Southern populations of the butterfly, a different subspecies (the red-spotted purple), mimic the pipevine swallowtail, *Battus philenor*. That poisonous and distasteful species is the model for a number of black-coloured harmless mimic butterflies (Batesian mimicry), including the red-spotted purple, and the black swallowtail. Furthermore, the two forms of *L. arthemis* interbreed where they overlap in Ontario, with complex implications that have assisted the understanding of both hybridization and the evolution of mimetic patterns. Another species of *Limenitis*, the viceroy (*L. archippus*) is one of a number of unpalatable species that mimic each other's warning patterns, to their mutual benefit (Müllerian mimicry)⁴. A pivotal member of that group is none other than the toxic monarch butterfly.

In Canada, Milbert's tortoiseshell (Figure 18) is widely distributed in moist areas, and represents the same genus as the small tortoiseshell butterfly that occurs throughout Eurasia. It is a strong flier, but regularly alights on the ground and basks with its wings spread flat, making it easy to observe, although it seldom permits a close approach. Adults survive the winter, sometimes in small groups. Larvae feed on nettles, and earlier instars make a communal silken web on the hostplant.

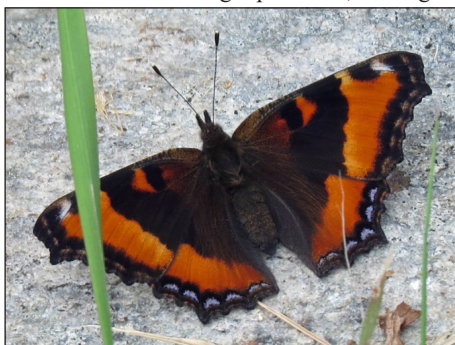
There is only one species of swallowtail butterfly in England, the Old World swallowtail *Papilio machaon*, but Canada has 14 species, including *P. machaon*. The short-tailed swallowtail (Figure 19) is endemic to easternmost Canada. The species flies strongly, and often lives near the ocean: the butterfly shown in Figure 19 was on the shore in Newfoundland. Larvae feed on plants of the carrot and parsley family, and young larvae mimic bird droppings. The overwintering stage is the pupa.

Butterflies in the *P. machaon* group, which includes the short-tailed swallowtail, show extraordinarily complex variations⁵. The complexity evidently stems from differences in the historical composition of populations—chiefly reflecting the change and fragmentation of ranges during the Pleistocene—as well as from current gene flow. Separation, ecological and morphological divergence, and renewed contact created opportunities for hybridization, with a range of outcomes.

Canada is an ideal place to investigate these phenomena because of its history of glaciations.

⁴The viceroy butterfly was once believed to be a palatable mimic, but more recently was shown to be relatively unpalatable.

⁵I was fortunate to be able to learn in real time about research on this variation (by Felix Sperling) during my travels on behalf of the Biological Survey.



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Figure 18. Milbert's tortoiseshell butterfly, the nymphalid *Aglais milberti*. Wingspan about 5 cm.



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Figure 19. Short-tailed swallowtail butterfly, the papilionid *Papilio brevicauda*. Wingspan about 6.5 cm.

Data about morphological characters, molecular markers, and ecological traits have been integrated to yield key insights into how hybridization may influence speciation. For example, the short-tailed swallowtail (*P. brevicauda*) resembles males of the black swallowtail (*P. polyxenes*), a species known for underside and female upperside mimicry of the pipevine swallowtail. In fact, however, *P. brevicauda* is more closely related to *P. machaon* and appears to be of hybrid origin.

Despite the great extent of similar terrain in Canada, many insects live only in particular subhabitats. The weakly flying eyed brown (Figure 20) is restricted to bogs and marshes, where its larvae feed on sedges. It overwinters in middle instars. Adults feed at sap, bird droppings, and so on, but less often at flowers, repeating a theme already noted for several species of nymphalids. A similar species with sedge-feeding larvae is virtually confined to adjacent woodland habitats.

Many of the species already mentioned are easy to recognize, giving me confidence that my knowledge of the fauna was increasing—but then I looked in more detail at skipper butterflies. About 50 species have been reported from Ontario alone! Species identification is exceptionally difficult in certain genera, and may even require dissection of the genitalia.

Several native species are common (e.g., Figure 21), and so is the introduced European skipper⁶, which overwinters in the egg stage (other skippers overwinter as larvae). A few species are rare vagrants. Many skippers feed on grasses, but some eat leguminous or other plants.

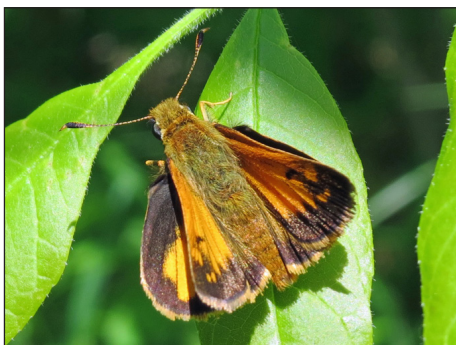
Taxonomic advances continue to be made in this group—and also in other butterflies. For example, among the “blues” is the widespread northern azure (Figure 22). Larvae feed on the flower buds and flowers of various shrubs. After overwintering in the pupal stage, the species emerges in spring. However, it has a second generation in summer with a different phenotype, often treated (until recently) as a different species. Some larvae develop in eriophyid mite galls on cherry leaves, but these butterflies too appear to be northern azures rather than a separate taxon.

⁶The European skipper (*Thymelicus lineola*), introduced more than a century ago into Ontario from England (where it is known as the Essex skipper), is now widespread as a pest of timothy grass in pasture and hay crops.



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Figure 20. Eyed brown butterfly, the satyrine nymphalid *Lethe eurydice*. Wingspan about 4.5 cm.



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Figure 21. Hobomok skipper butterfly, the hesperiid *Poanes hobomok*. Wingspan about 3 cm.



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Figure 22. Northern azure butterfly, the lycaenid *Celastrina lucia*. Wingspan about 2.5 cm.

A species distinguished relatively recently from a similar one is the northern crescent butterfly (Figure 23), which overlaps widely in southern Ontario with the closely related pearl crescent; both species are quite variable. Caterpillars eat the leaves of asters, and overwinter half-grown. Adults are widespread in a variety of habitats, and often visit flowers. They have a characteristic flap and glide style of flight.

These explorations of Canadian butterflies showed how much could be learned about the fauna by simply paying attention. Everything I saw or followed up taught me something interesting about larval foodplants, habitats, behaviour, adult feeding, mimicry, variation, ranges, or other topics. The overwintering stage, although fixed in a given species, might be the egg, larva (in early, middle or late instars), pupa, or adult. It was surprising that even for a group as well known as the butterflies, and even among common and conspicuous species, ongoing taxonomic updates are required.

Many insects in addition to butterflies were noticed on my camping and hiking expeditions, of course. Some of them will be referred to in the next article in this series.



Figure 23. Northern crescent butterfly, the nymphalid *Phyciodes coccyta*. Wingspan about 3.5 cm.



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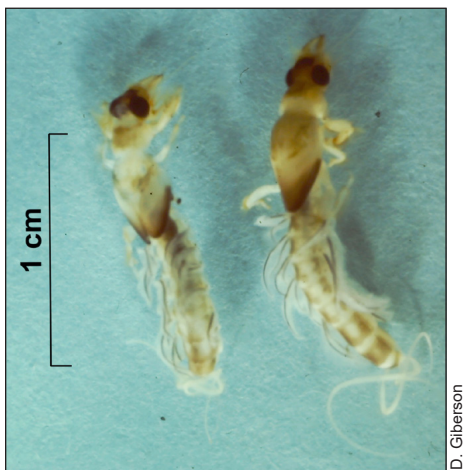
Ephoron album – a mayfly that creates a “snowstorm” when it swarms, and relies on cold winters and warm summers to survive

Donna Giberson and Terry Galloway

Ephoron album (Say) (Ephemeroptera: Ephemeroidea: Polymitarcyidae), is known for its spectacular crepuscular mating swarms on warm summer evenings. The “white fly” or “white drake” (as fly fishers refer to it), is a burrowing mayfly (Figure 1) that lives in low-gradient streams and along lake edges. It spends most of its life as an egg, then after rapid nymphal growth in summer, emerges to form its impressive swarms on warm, late-summer evenings. Mayflies are pretty “cool” insects generally, but *E. album* qualifies as a cool insect in two senses for this series: It has a distinctly Canadian temperature requirement (cold in the winter and warm in summer) and it has an extraordinary natural history.

Distribution:

Two species of *Ephoron* occur in North America: *Ephoron album* and *Ephoron leukon* Williamson. Nymphs of both species are found in low-gradient and moderately nutrient-enriched gravel streams (e.g., Figure 2), and *E. album* also inhabits finer substrates on stream or lake margins (Britt 1962; Edmunds and McCafferty 1996). *Ephoron album* is widespread in such low-gradient streams and lake edges across much of North America, reaching its greatest abundances between about 40–54° N latitude. In Canada, it has been reported in Alberta, Saskatchewan, Manitoba, Ontario, and Quebec (McCafferty 1975; Randolph 2002). *Ephoron album* is more western in distribution than *E. leukon*, but their distributions overlap in the northeastern United States.



D. Giberson

Figure 1. *Ephoron album* nymphs from the Valley River, Manitoba. Note the prominent mandibular tusks and feathery abdominal gills.



Figure 2. Above: *Ephoron album* habitat in a low-gradient riffle in the Valley River, Manitoba (100°05' W, 51°15' N). Left: Close-up view of the sediment shown with a Canadian 25 cent piece for scale.

Donna Giberson (giberson@upei.ca) is a professor emerita in the Department of Biology, University of Prince Edward Island. She has been lucky enough to have pursued her love of aquatic insects in every province and territory of Canada, but first truly fell in love with mayflies in the streams of southern Manitoba. Terry Galloway (Terry.Galloway@umanitoba.ca) is a professor emeritus in the Department of Entomology at the University of Manitoba, where he continues his research on ectoparasites of wildlife.

Habitat and feeding:

Burrowing mayflies (Superfamily Ephemeroidea) construct burrows in bottom substrates in running and standing water, and may use the burrows for feeding and for delivering respiratory currents past the nymph (McCafferty 1975). Most have prominent mandibular tusks and fossorial legs that aid in burrowing, and feathery abdominal gills (Figure 1). Nymphs beat the gills rhythmically to draw water and fine detritus/algae through the burrow. Mayfly burrows can vary from well constructed tubes in fine substrates in muddy streams or lake bottoms to interstitial excavations in the sand or gravel, depending on species (Bae and McCafferty 1995). A recent study has demonstrated that one polymitarcyid burrowing mayfly can even burrow into rock (Bolotov et al. 2022).

Ephoron album fits the general pattern for burrowing in mayflies but is one of the few mayflies that can construct both interstitial and tube-like burrows, so may be found in gravel streams and lake edges as well as in clay/silt stream banks or shallow bays (Bae and McCafferty 1995). They stay deep in their burrows during the day, rising to the tops of the burrows at night, where they feed on detritus and algae near and in the burrows (Britt 1962).

Life cycle:

Ephoron album spends most of its life as an egg and has an obligate egg diapause (Edmunds et al. 1956; Giberson and Galloway 1985). Britt (1962) also reported that eggs can survive brief periods of drying. Eggs are deposited in late summer, and develop for a few weeks before entering diapause (Figure 3). Diapause termination requires a cold period, though the precise temperature required to terminate diapause may vary geographically. Edmunds et al. (1956) found that exposure for 3 days at temperatures around 10 °C was sufficient to break diapause in Utah (nearer its southern geographical range extent). In contrast, populations in Lake Erie (Britt 1962) and the Valley River, Manitoba (Giberson and Galloway 1985) required freezing temperatures to break diapause. Hatching success in the Valley River population was positively correlated to the duration of the cold period: only about 5% of eggs hatched after short exposures to freezing (1-3 days), compared to 24% after 7 days of exposure, 60% after 14 days, and 84% after 60 days. It was an amazing experience to watch the tiny nymphs hatching in the lab after their cold treatment. Eggs began to hatch in late May in our Valley River site in Manitoba, when the water warmed to about 10 °C (Giberson and Galloway 1985) though other researchers (Edmunds et al. 1956; Phillips et al. 1994) reported capturing early-stage nymphs as early as 1 April in Utah and Arkansas, respectively.

Nymphal development is rapid in the warm shallow riffles or lake edges where nymphs are found. Nymphs (Figure 1) grew from 2 to 14 mm, and were ready to emerge in 8–10 weeks in Manitoba, near the northern extent of their range. The growth periods are longer in more southern

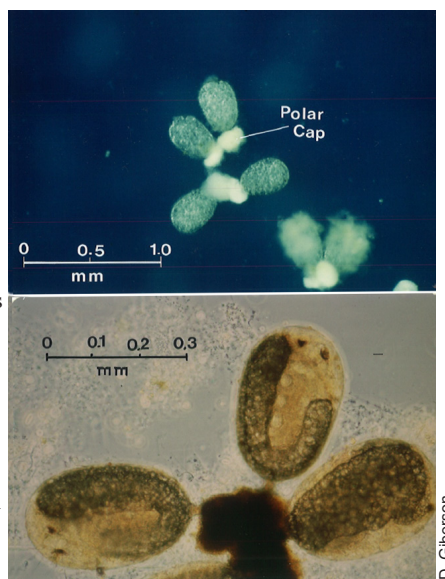


Figure 3. *Ephoron album* eggs. Newly deposited eggs (top) are white, with sticky polar caps that adhere to substrate materials in the water. After about 4 weeks (bottom), the embryo can be seen clearly through the chorion, but no further development occurs until eggs are exposed to a cold period.

locations, occurring over ~12 weeks in Lake Erie (Britt 1962), and ranging from 14 to 18 weeks in Utah (Edmunds et al. 1956) and Arkansas (Phillips et al. 1994). Mature nymphs were also larger in these locations, ranging from 17 to 20 mm. The first adults were seen in late July in all locations, so the longer growth period relates to stream temperatures warming earlier in spring in the more southern locations.

Adult emergence begins about a half hour after sunset, with nymphs swimming to the water surface and almost instantly shedding the nymphal skin and flying away. Males emerge first and fly to surrounding vegetation, where the subimagos moult to the imago over the span of a few minutes (Kraft *et al.* 1978) and begin flying over the water surface (Edmunds et al. 1956; Giberson and Galloway 1985). These swarms of gleaming white mayflies can reach a blizzard in abundance, reflecting the high nymphal densities in the stream (e.g., densities in the Valley River ranged from about ~1500 small nymphs/m² in June to ~400 larger nymphs/m² in July). Females begin emerging shortly after the male swarm begins, and do not moult again but are seized as subimagos by the males as they rise from the stream. Mated females drop to the water, expel their eggs, and die. In the Valley River, spent and dead females were seen on the water surface within minutes of first seeing the females enter the swarms. However, mated females are strongly attracted to lights so can be drawn away from the water; we discovered this by parking a car with the lights on near the stream edge and noting large numbers of females at the light. This made it easy to collect fertilized eggs by placing a water-filled pan beside the headlights and then scooping the spent females from the water (Figure 4). The adult lifespan is very short—a matter of minutes for most females and a few hours at most for males. Edmunds et al. (1956) reported that adults were present for only 1.5 hours at their site in Utah; adults at the Valley River site were still being collected at lights about 3.5 hours after emergence began. Next morning, few signs of the previous night's emergence remained. A few dead adults were seen in shallow back eddies or along the shore and some males were seen in spider webs (Figure 5). Emergence swarms ended in mid-August in Manitoba (Giberson and Galloway 1985) though they continued through September in Utah (Edmunds et al. 1956).



Figure 4. Adult females of *Ephoron alburn* collected by placing a pan in front of a light on the river shore along the Valley River, Manitoba.

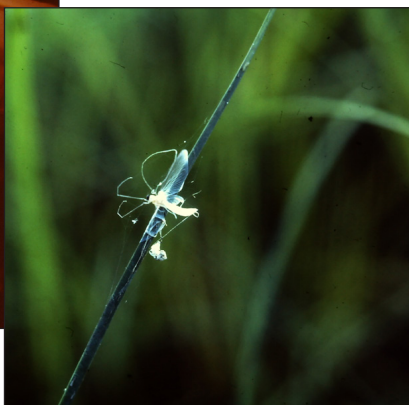


Figure 5. An adult male *Ephoron alburn* caught in a spider web near shore along the Valley River, Manitoba.

Other Notes:

Ephoron album was described from the Winnipeg River by Thomas Say in 1824 (as *Baetis alba*), after he observed an emergence swarm while traveling in 1823 with W.H. Keating on the “expedition to the source of the St. Peters River, Lake Winnipeg, Lake of the Woods, etc.”, carried out for the American Government. In the notes from that expedition, Keating (1824, p. 365) wrote:

“They became so abundant on Rainy River toward sunset, that they presented the appearance of a snow storm. They continued for some time, until they were driven by the wind into a small tributary valley where they formed white clouds beautifully relieved against the dark green of the forest, deepened in its shade by the approach of night. The ensuing morning their dead bodies were seen floating on the stream, and drifted by the wind into small coves near the shore. From their great abundance, Mr. Say was led to believe that this short-lived insect never witnesses a rising sun, but that after each performance, in a short time, all the duties assigned to it in its perfect state, it deposits its eggs and expires in the night, a few hours after it has been evolved from the chrysalis. The next evening the ephemera were again seen very abundantly, but it was evident that this was a new swarm, and not a part of that previously observed.”

Anthropogenic activities have potential to affect the distribution of *E. album* in Canadian streams. *Ephoron album* has moderate tolerance to organic pollution, so does well in rivers in moderately enriched agricultural streams such as may be found in the southern Canadian Prairies. Limits to northern and southern ranges for *Ephoron album* are apparently determined by the requirements for its various life history stages—a low temperature requirement to break egg diapause and summer temperatures sufficiently warm to complete nymphal development. These suggest that over time, its distribution may move northward, as stream temperatures warm with climate change. However, diapause requirements also mean that *E. album* can be affected by other anthropogenic activities, such as reservoir construction, if they alter the thermal regime of the river. For example, Lehmkuhl (1972) attributed the elimination of *E. album* for at least 30 km downstream of the Gardiner Dam on the South Saskatchewan River to warm water dam discharge that maintained temperatures above the required threshold to terminate diapause.

Ephoron album is truly a remarkable species. Although its production in the Valley River (a location near its northern range extent) of only ~1.42 g fresh dry weight/m²/yr (Giberson and Galloway 1985) was not greatly different than for other univoltine species of mayflies, one must keep in mind this production occurs over a brief period of about 72 days, as nymphs grow rapidly from 2 to 14 mm in body length. Southern populations have a longer nymphal growth period (100–120 days) and grow larger (17–20 mm) (Edmunds et al. 1956; Britt 1962), which contributes to markedly higher production rates (up to 6 g fresh dry weight/m²/yr in some locations; Phillips et al. 1994). This, combined with its prodigious numbers, shockingly brief adult lifespan, and ghostly appearance, clearly qualify the white drake as one of the river's coolest insects.

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In memory / En souvenir de

The Canadian entomological community lost an enthusiastic and talented member and a unique character on 28 September 2021 with the unexpected passing of Dustin Joseph Hartley at the age of 45. Dustin was born on 15 March 1976 in Drayton Valley, Alberta, where he grew up as the third of four children in a loving family. He graduated from Frank Maddock High School in 1994 and began his university education at Augustana University in Camrose the following autumn. He transferred to the University of Alberta in Edmonton at the start of his 3rd year and lived in Edmonton for the rest of his life. Having brought interest in entomology with him from exposure to David Larson at Camrose, he fell right into happy company among the students working in John Spence's laboratory in Edmonton and decided to become an entomologist.

As an undergraduate he participated widely in field work and insect collecting in Alberta and spent much time at the microscope identifying his beloved beetles. One of his favourite field trips was accompanying Spence and George Ball on beetle collection adventures in Mexico. During his last year of undergraduate study, he became interested and got deeply involved in the international GLOBENET project aimed at investigating the influence of urban-rural gradients on beetle distributions and assemblages. His first co-authored paper (Niemelä et al. 2002), involving work from his undergraduate thesis and printed in the prestigious journal *Landscape Ecology*, resulted from that interest. This initial work, focused on urban woodlands, inspired Dustin to extend the scope of this project to urban grasslands as an MSc project in the Spence lab. Supported by an NSERC post-graduate scholarship, Dustin brought his creativity, talents, quirky imagination and determined focus to this work.

During his graduate student years, Dustin organized and was lead singer in a country/rock band, Pinned, that involved a number of entomology students and post-docs from the University of Alberta. The band was a talented and much-enjoyed group of musicians that played in a number of venues around Edmonton, and who were widely sought out to perform at university functions. Their tune, Goin' Fishing, as written and belted out by Dustin, was a local hit.

Dustin's promising entomological career was complicated suddenly by sudden onset of schizophrenia in 2000. Dustin, his family, friends and co-workers accepted the situation immediately and supported Dustin as he learned to live with the condition through the combination of help from skilled mental health experts in Edmonton and personal grit. The condition slowed output from his entomological studies but Dustin's commitment to the work never wavered as entomology was something in which he found pleasure and purpose, and through which he continued to make valuable contributions. He completed and successfully defended his interesting MSc thesis, 'Impacts of urbanization on western Canadian beetle faunas', in 2003. Eventually the main findings of the thesis were reported in an excellent and most interesting paper printed in *Ecography* (Hartley et al. 2007).

Dustin found new outlets for his considerable talents through employment in entomology that could accommodate the challenges of his disease through work in David Langor's laboratory at the Northern Forestry Centre (NoFC) of the Canadian Forest Service. There, he used and



Dustin Joseph Hartley
(1976-2021)

further developed his ability to make high quality identification of carabid and rove beetles in support of numerous biodiversity studies pursued by Langor and colleagues. During the period between 2008 and his death, Dustin identified well in excess of 100,000 specimens of ground and rove beetles. He was an essential part of the NoFC forest biodiversity team and made many significant contributions to the research program. His work led to various publications, with more posthumous co-authorships to come. During this time, he also developed a strong passion for the rove beetle genus *Stenus*, and frequently expressed a desire to do a PhD thesis focused on the taxonomy of this genus, should his medical challenges allow. His colleagues and friends at NoFC also remember the many great conversations during lunch and coffee breaks on topics ranging from sports to current events and science. Dustin had something to contribute to any conversation, and the more esoteric the better. He loved thoughtful discussions and contributed much information to enrich them, drawn from his wide and eclectic reading. Dustin was hardly ever seen without his well-worn leather cowboy hat that so perfectly complemented his persona. That hat now sits proudly in a place of honour in the insect museum of NoFC, where it reminds those who knew him of a talented and respected colleague and generous and dependable friend.

In addition to entomology, Dustin pursued many interests, including travel, fishing, local rock/alt county music, carving, sports (especially, betting), cards and games. Most importantly, however, he was a genuine person with real interest in people. His unusual sense of humour, love of nature, good times and good food made him a fine friend and companion. He will be remembered by his many friends as the big guy with a bigger heart.

Dustin's determination, sense of humour, free spirit, positive disposition and high-quality contributions to insect science, despite the setbacks of his complex medical situation, was a particular inspiration to all who knew him. Dustin shall be missed by those in the Edmonton entomological community who had the pleasure and good fortune of working with him.

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John Spence, Professor Emeritus, University of Alberta, Edmonton

David Langor, Research Scientist, Northern Forestry Centre, Canadian Forest Service, Edmonton

Books available for review / Livres disponibles pour critique

The ESC frequently receives unsolicited books for review. A list of these books is available online (<http://esc-sec.ca/publications/bulletin/#toggle-id-2>) and is updated as new books are received.

If you wish to review one of these books, please send an email to the Chair of the Publications Committee (Véronique Martel, veronique.martel@NRCan-RNCan.gc.ca).

You should briefly indicate your qualifications to review the topic of the book, and be able to complete your review within 8 weeks.

Preference will be given to ESC members.

La SEC reçoit fréquemment des livres non demandés pour des critiques. Une liste de ces livres est disponible en ligne (<http://esc-sec.ca/publications/bulletin/#toggle-id-2>) et est mise à jour lorsque de nouveaux livres sont reçus.

Si vous souhaitez critiquer un de ces livres, veuillez envoyer un message au président du comité des publications (Véronique Martel, veronique.martel@NRCan-RNCan.gc.ca).

Vous devez brièvement indiquer vos qualifications pour critiquer le sujet du livre, et être en mesure de terminer votre critique en 8 semaines.

La préférence est donnée aux membres de la SEC.

Guidelines

Book reviews should be approximately 800-1200 words in length. They should clearly identify the topic of the book and how well the book meets its stated objective. Weaknesses and strengths of the book should be described.

Formatting of the review should follow that of reviews in recent issues of the Bulletin. A scan of the book cover (jpeg or tiff format, about 500 kb) should be submitted with the review.

Lignes directrices

Les critiques de livre doivent compter entre 800 et 1200 mots. Elles doivent clairement identifier le sujet du livre et si le livre rencontre bien les objectifs énoncés. Les forces et faiblesses du livre devraient être décrites.

Le format des textes doit suivre celui des critiques des récents numéros du Bulletin. Une version numérisée de la couverture du livre (en format jpeg ou tiff, environ 500 kb) devra être soumise avec la critique.

Books available for review

Books available for review

- Blomquist, G. and Vogt, R. [Eds.]. 2021. Insect Pheromone Biochemistry and Molecular Biology. Elsevier Inc. ISBN: 978-0-12-819628-1. [e-book].
- Curtain, C.G. and Allen, T.F.H. [Eds.]. 2018. Complex Ecology: Foundational Perspectives on Dynamic Approaches to Ecology and Conservation. Cambridge University Press. ISBN: 9781108235754 [paperback].
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- Saguez, J. 2017. Guide d'identification des vers fil-de-fer dans les grandes cultures au Québec. Centre de recherche sur les grains. ISBN: 978-2-9813604-5-8 [e-book].
- Volis, S. 2019. Plant Conservation: The Role of Habitat Restoration. Cambridge University Press. ISBN 978-1-108-72733-4 [paperback].
- Wilson, K., Fenton, A. and Tompkins, D. [Eds.]. 2019. Wildlife Disease Ecology. Linking theory to data and application. Cambridge University Press. 978-1316-50190-0 [paperback].

Announcements / Annonces

Advertising in the *Bulletin* / Publicité dans le Bulletin

The *Bulletin* welcomes enquiries regarding advertising within its pages.

For 2022, the advertising rates in the *Bulletin* have been set at \$235/annum for a half-page advertisement, and \$410/annum for a full-page advertisement, in each of the March, June, September and December issues.

For further information, please contact the *Bulletin* Editor (cedric.gillott@usask.ca).

Le *Bulletin* accueille les demandes de publicité dans ses pages.

Pour 2022, les tarifs publicitaires du *Bulletin* ont été fixés à 235 \$/an pour une demi-page et à 410 \$/an pour une page entière dans chacun des numéros de mars, juin, septembre et décembre.

Pour de plus amples informations, veuillez contacter le rédacteur du *Bulletin* (cedric.gillott@usask.ca).

Highlights of the recent Board of Directors meeting

The ESC Board of Directors met by videoconference on 29 November 2021. The meeting began with ESC Executive Director, Geoff Powell, providing orientation for new and returning Board members. The Board then dealt with new appointments. Bryan Brunet was appointed as ESC Treasurer, effective 1 December 2021. The Board learned that Véronique Martel has agreed to be Chair of the Publications Committee, while continuing in the position of Chair of the Bilingualism Committee. As the previous Regional Director for the Entomological Society of Saskatchewan (ESS) resigned after the 2021 Annual Members Meeting, the Board voted to appoint ESS' nominee, Danielle Stephens, to represent ESS until the next Annual Members Meeting. This manner of appointment is necessary because Regional Director is an elected position and legislation requires that elections occur at members' business meetings.

The Board received updates on Joint Annual Meetings (JAM). The 2021 JAM was the first ever fully virtual meeting, and was deemed successful. There were approximately 264 registrants and preliminary indications are that the meeting generated a surplus. The Board received a brief update on the 2022 JAM (joint with the Entomological Societies of British Columbia and of America); the organizing committee is currently searching for an ESC co-chair for the poster competition for the meeting. The 2023 JAM will be joint with the Entomological Society of Saskatchewan, and will be an in-person meeting in Saskatoon; many of the positions on the Local Organizing Committee for this meeting have now been filled. Étienne Normandin, regional director for the Société d'entomologie du Québec (SEQ) reported that SEQ is currently searching for a general chair to lead the organization of the 2024 JAM.

The Board received a document describing the procedures to be used if a report of contravention of the Meeting Code-of-Conduct is received. The Board was not completely satisfied that the document covered all aspects of the issue and requested that it be revised and the revision presented at its next meeting. The Board approved the ESC General Code of Conduct, which sets out expectations of behaviour of ESC members, volunteers, and employees. The General Code of Conduct is included elsewhere in this issue of the *Bulletin*, and will be posted on the ESC website in the "Society" drop-down menu.

The ESC Treasurer, Ward Strong, reviewed the recommendations that he had sent to the Finance Committee in response to motions passed by the Board at its 13 October meeting regarding the financial sustainability of *The Canadian Entomologist* and the protection of ESC funds from the effects of inflation. After the Committee's review, incoming Treasurer, Bryan Brunet, will follow up. ESC President, Felix Sperling, thanked Ward for his work on behalf of the Society.

The Board approved changes to the ESC's governance documents: the Standing Rules and Committee Guidelines. Changes included those occasioned by the change in format of *The Canadian Entomologist* to that of an E-journal, the creation of a Communications Committee responsible for the ESC's social media platforms and blog, revisions to accommodate Board actions since the December 2020 revisions to the governance documents, and to bring the governance documents in line with current practice. As required by Standing Rule XIII 3), details of the changes in Standing Rules are presented elsewhere in this issue of the *Bulletin*.

The Board received information on the Executive Council's plans for new initiatives in the new Society year. The Society will, with its affiliated regional societies, work to address the nature of JAMs, because several factors are likely to make it necessary for all or part of some future JAMs to be online. A second initiative will address the excessive workloads of ESC officers, particularly the Treasurer and Secretary. If workloads are not reduced, volunteer burn-out and difficulties in filling positions are likely consequences.

The Board received the information that Dr Maydianne Andrade, who had spoken on Equity, Diversity and Inclusion (EDI) at the 2021 JAM, had requested that her honorarium be donated to the Canadian Black Scientists Network to fund an award that would be named in recognition of ESC's donation. Sebastian Ibarra, EDI Director, alerted Board members to a second event sponsored by the EDI Committee: a workshop on combatting unconscious bias in STEM, to be presented by Dr Lisa Willis, University of Alberta. The Board then moved into a session of round-table information sharing, where it learned of activities in regional societies, including the receipt by Board member Étienne Normandin of the SEQ's Léon-Provancher award for excellence in the professional category.

72nd Annual Meeting of Members and Board of Directors Meetings (JAM 2022)

The Annual Business Meeting of Members of the Entomological Society of Canada is scheduled to occur in Room 211, Vancouver Convention Centre, 1055 Canada Place, Vancouver, British Columbia on Tuesday 15 November 2022, beginning at 2:30 PM. The incoming Board of Directors will meet in the same location immediately following the Annual Business Meeting of Members. The outgoing Board of Directors Meeting is planned to be in Oceanview Suite 2 of the Pan Pacific Hotel, 999 Canada Place, Vancouver, British Columbia on Sunday 13 November 2022, beginning at 8:00 AM. Matters for consideration at any of the above meetings should be sent to Neil Holliday, Secretary of the Entomological Society of Canada (see inside back cover for contact details).

72^e assemblée annuelle des membres et réunions du CA (réunion annuelle conjointe 2022)

L'assemblée annuelle des membres de la Société d'entomologie du Canada aura lieu dans la salle 211 du Centre des congrès de Vancouver, 1055 Canada Place, Vancouver, Colombie-Britannique, le mardi 15 novembre 2022, à partir de 14h30. Le nouveau Conseil d'administration se réunira au même endroit, immédiatement après la réunion annuelle des membres. La réunion du conseil d'administration sortant est prévue dans la suite Oceanview 2 de l'hôtel Pan Pacific, 999 Canada Place, Vancouver, Colombie-Britannique, le dimanche 13 novembre 2022, à partir de 8h00. Les propositions de sujets de discussion pour l'une des réunions ci-dessus doivent être envoyées à Neil Holliday, secrétaire de la Société d'entomologie du Canada (voir les coordonnées à l'intérieur de la couverture arrière).

Announcement of Changes to the ESC Standing Rules

At its meeting of 29 November 2021, the Board of Directors of ESC approved changes to the Standing Rules as shown below. Deletions are indicated by ~~strikethrough~~ and insertions are underlined.

Changes to Rules affecting *The Canadian Entomologist*

Changes were necessary to accommodate the change of *The Canadian Entomologist* to an E-journal and the Board's previous decision to cease publishing articles in French.

II. Dues and Charges

- 1) Dues for Regular, Student, and Early Professional membership, fees for online access to *The Canadian Entomologist* for Student and Emeritus Members, ~~additional charges for print subscription to *The Canadian Entomologist*~~, and other member fees and charges shall be proposed by resolution of the Board and take effect upon approval by members at an Annual Member Meeting.
- 2) The Board may prescribe charges for online access to *The Canadian Entomologist* for Student Members and Emeritus Members. ~~The Board may prescribe an additional charge to all Members for a print subscription in addition to online access.~~

XVIII Publications

- 2) *The Canadian Entomologist* accepts manuscript submissions in English. ~~or French and authors are required to provide an Abstract in the language in which their manuscript is written.~~ Should authors wish to have an Abstract in both languages, they will be required to provide a high-quality translation of their Abstract. A French abstract will be published upon acceptance of a manuscript if the authors provide the abstract.

Changes to fit with current practice and recent Board decisions

VI. Directors

- (b) Regional Director
- ~~iv) Regional Directors from Affiliated Societies hosting the next three Joint Annual Meetings shall serve as members of the Fundraising Committee:~~

VII Officers

- 2) (d) First Vice-President
- iv) Take special responsibility for ESC–Regional Society relationships. Organize a teleconference or videoconference meeting of the Executive Council with regional society presidents, presidents-elect, and Regional Directors in January or February of each year. The meeting should focus on improving relationships and communication between ESC and the regional societies. For the same purpose, the 1st Vice-President should also organize a one-hour face-to-face meeting of the Executive Council with Regional Directors and the regional society presidents who are in attendance at the JAM, or, when there is no in-person JAM, schedule a teleconference or videoconference meeting in its stead.
- 2) (h) Treasurer
- iv) ~~maintain an up-to-date list of members in good standing under By-law 12 so that the Secretary can ensure that only members cast votes in plebiscites or at the Annual or other member meetings~~
- 4) If the Secretary, Treasurer, an Editor-in-Chief or *Bulletin* Editor resigns or if the office otherwise

becomes vacant, an advertisement for a replacement shall be published in the *Bulletin*. If the Student and Early Professional Representative position becomes vacant, the Board shall appoint the Co-Chair of the Student and Early Professional Affairs Committee, if one exists. If there is no Co-Chair available, the Student and Early Professional Affairs Committee will be tasked with conducting a search among the student and early professional membership for a candidate to be recommended to the Board for appointment.

5) The Secretary, Treasurer, Editor(s)-in-Chief, and Bulletin Editor ~~and Student and Early Professional Representative~~ shall present a formal report at the Last Board meeting of the Board and at other Board and Member meetings as requested by the Chair.

X. Committees and Representatives

2) Continuing Committees

(e) Communications Committee

The Communications Committee shall be responsible for the social media platforms and blog of the Entomological Society of Canada. The committee shall receive, edit, post, and remove material consistent with the objects of the Corporation.

(j) Insect Common Names Committee

The Committee shall maintain a list of English and French names of insects and related arthropods in Canada. Lists shall be restricted to taxa that occur in Canada for which there are clear benefits to having names that are accessible to the general public: examples are economically relevant taxa, threatened species, and taxa, such as butterflies and dragonflies, that are easily distinguishable without specialized knowledge or equipment. The Committee shall receive proposals and assist in their preparation. It shall inform the Chair of the Committee on Common Names of Insects of the Entomological Society of America of English names it has approved. The Entomological Society of Quebec shall be consulted regarding proposals for French common names. The Committee shall strive for harmonization (whenever suitable) with existing English and French common names such as those approved by other organizations, including the Entomological Society of America.

(l) Nominating Committee

The Nominating Committee shall, not later than the last day of April of each year, provide to the Secretary the names of individuals to be submitted to member plebiscite for recommendations of Director-at-Large and the combined position of Societal Director and 2nd Vice-President, and in years when required the position of Director for Equity, Diversity, and Inclusion, and by early May shall provide information about the nominees to accompany the plebiscite ballot.

(q) Student and Early Professional Affairs Committee

The Student and Early Professional Affairs Committee shall be responsible for ensuring good liaison between the Corporation and Student and Early Professional Members on (1) matters and programs concerning Students and Early Professionals; (2) future employment opportunities; and (3) the training of entomologists in Canada, and when required shall provide to the Secretary the name of an individual to be elected Student and Early Professional Director at the Annual Member Meeting.

XL Meetings

4) In the event of a meeting jointly hosted by ESC, an affiliated society and a non-affiliated organization, the financial arrangements shall be negotiated with the non-affiliate organization by an ad-hoc committee appointed by the Board, a memorandum of understanding (MOU) shall be drawn up among the societies directly involved in the meeting with the final agreement subject to approval by the ESC Board. Among other things, that MOU shall describe the financial arrangements, including advances to be made and the division of any surpluses from the meeting.

The division of surpluses described in the MOU shall follow the principles below and, once the MOU is signed, is binding on all parties. The surplus referred to below as the “Canadian Entomological Surplus” is the total surplus allocated to the ESC and the affiliated society, after repayment of any advances, and after payment of expenses for any society-specific events (e.g., costs for board meetings, mixers).

- i) If the Canadian Entomological Surplus is less than or equal to \$40,000, then it shall be divided in accordance with the earlier agreement; i.e., divided 50-50 between the affiliate RES [Regional Entomological Society] and ESC with “no strings attached”.
- ii) If the Canadian Entomological Surplus is greater than \$40,000 then:
 - the first \$40,000 shall be divided in accordance with the earlier agreement; i.e., divided 50-50 between the affiliate RES and ESC with “no strings attached”.
 - the residual surplus that is above \$40,000 shall be divided equally among the eight affiliated entomological societies, namely the Entomological Society of Canada (ESC), the Entomological Society of British Columbia (ESBC), the Entomological Society of Alberta (ESAb), the Entomological Society of Saskatchewan (ESS), the Entomological Society of Manitoba (ESM), the Entomological Society of Ontario (ESO), la Société d’entomologie du Québec (SEQ), and the Acadian Entomological Society (AES) with “no strings attached”.

XII Member Plebiscites

1) (b) seek recommendations of the names of individuals for Director-at-Large and, the combined position of Societal Director and 2nd Vice-President, and when required Director for Equity, Diversity, and Inclusion, to be presented by the Board to members for election at the next Annual Meeting,

Change to establish how to deal with a tie in a plebiscite

XII Member Plebiscites

5) Each question on the ballot shall be determined by a simple majority of the votes cast unless otherwise specified in the By-Laws. In the event of a tie for a question, the Chair of the Board shall cast an additional vote.

In addition, there were a number of minor changes to correct typographic and similar errors, and changes to numbering to accommodate the addition and deletion of clauses. None of these affected the meaning of the document.

Avis sur les changements apportés aux Règles permanentes de la SEC

Lors de sa réunion du 29 novembre 2021, le Conseil d'administration de la SEC a approuvé les modifications suivantes aux Règles permanentes. Les suppressions sont indiquées par des ~~biffures~~ et les insertions sont soulignées.

Modifications des règles concernant *The Canadian Entomologist*

Des changements ont été nécessaires pour tenir compte de la transformation de *The Canadian Entomologist* en revue électronique et de la décision antérieure du CA de ne plus publier d'articles en français.

II. Cotisations et frais

- 1) Les cotisations pour l'adhésion comme membre régulier, étudiant et jeune professionnel, les frais pour l'accès en ligne à *The Canadian Entomologist* pour les membres étudiants et émérites, ~~et les frais additionnels pour l'abonnement à la version papier de *The Canadian Entomologist*~~, ainsi que les autres frais doivent être proposés par résolution du CA et prennent effet lors de l'approbation par les membres durant une assemblée annuelle des membres.
- 2) Le conseil d'administration peut demander des frais pour l'accès en ligne à *The Canadian Entomologist* pour les membres étudiants et les membres émérites. ~~Le conseil d'administration peut demander des frais additionnels à tous les membres pour l'abonnement à la version papier en plus de l'accès en ligne.~~

XVIII Publications

- 2) *The Canadian Entomologist* accepte la soumission de manuscrits en anglais ~~ou en français~~ et les auteurs doivent fournir un résumé dans la même langue que le manuscrit. Si les auteurs souhaitent avoir un résumé dans les deux langues, ils doivent eux-mêmes fournir une traduction de qualité de leur résumé. Un résumé en français sera publié lors de l'acceptation du manuscrit si les auteurs fournissent le résumé.

Changements pour s'adapter à la pratique actuelle et aux récentes décisions du CA.

VI. Administrateurs

(b) Directeur régional

- ~~iv) Les directeurs régionaux des Société affiliées qui accueilleront les trois prochaines réunions annuelles doivent être membres du comité du financement.~~

VII Dirigeants

2) (d) Premier vice-président

- iv) prendre comme responsabilité spéciale les relations SEC – Société régionale. Organiser une réunion par téléconférence ou visioconférence du conseil exécutif avec les présidents et présidents-élus des sociétés régionales et les directeurs régionaux en janvier ou février de chaque année. La réunion doit viser à améliorer les relations et la communication entre la SEC et les sociétés régionales. Dans le même but, le premier vice-président doit également organiser une rencontre d'une heure en personne entre le conseil exécutif et les directeurs régionaux et les présidents des sociétés régionales qui sont présents à la réunion annuelle conjointe, ou, lorsqu'il n'y a pas de réunion annuelle en personne, prévoir une réunion par téléconférence ou visioconférence à la place.

2) (h) Trésorier

- iv) maintenir une liste à jour des membres en règle en vertu du règlement intérieur 12 afin que le

secrétaire puisse s'assurer que seuls les membres votent dans les plébiscites ou à l'assemblée annuelle ou tout autre réunion des membres;

4) Si le secrétaire, le trésorier, un rédacteur en chef ou le rédacteur du *Bulletin* démissionne ou si le poste devient vacant, une annonce pour un remplacement doit être publiée dans le *Bulletin*. Si le poste de représentant des étudiants et jeunes professionnels se libère, le CA doit nommer le co-président du comité des affaires étudiantes et des jeunes professionnels, s'il y en a un. S'il n'y a pas de co-président disponible, le comité des affaires étudiantes et des jeunes professionnels aura la charge de mener une recherche auprès des membres étudiants et jeunes professionnels pour recommander un candidat au CA pour nomination.

5) Le secrétaire, le trésorier, le ou les rédacteurs en chef, et le rédacteur du *Bulletin* et le représentant des étudiants et jeunes professionnels doivent présenter un rapport formel à la dernière réunion du CA et d'autres réunions du CA ou assemblées des membres sur demande du président du CA.

X. Comités et représentants

2) Comités récurrents

(e) Comité des communications

Le comité des communications est responsable des plateformes de médias sociaux et du blogue de la Société d'entomologie du Canada. Le comité recevra, éditera, affichera et retirera le matériel conforme aux objectifs de l'Organisation.

(j) Comité des noms communs d'insectes

Le comité doit maintenir à jour une liste des noms communs d'insectes et autres arthropodes apparentés du Canada en anglais et en français. Les listes doivent être limitées aux taxons présents au Canada pour lesquels il y a des avantages clairs à avoir des noms qui sont accessibles au grand public : par exemple, des taxons d'importance économique, des espèces menacées, et des taxons, tels que les papillons et les libellules, qui sont facile à distinguer sans connaissances ou équipement spécialisés. Le comité doit recevoir les propositions et peut assister dans leur préparation. Il doit informer le président du comité des noms communs de la Société d'entomologie d'Amérique des noms anglais qu'il a approuvés. La Société d'entomologie du Québec doit être consultée concernant les propositions de noms communs en français. Le Comité s'efforcera d'harmoniser (chaque fois que cela sera possible) les noms communs anglais et français existants, tels que ceux approuvés par d'autres organisations, notamment la Société d'entomologie d'Amérique.

(l) Comité des nominations

Le comité des nominations doit, au plus tard le dernier jour d'avril de chaque année, fournir au secrétaire les noms d'individus à soumettre au plébiscite des membres pour recommandations comme conseiller et le poste combiné de directeur sociétal et second vice-président, et les années où cela est nécessaire, le poste d'administrateur pour l'équité, la diversité et l'inclusion, et doit au plus tard au début mai, fournir l'information sur les nominés à joindre au bulletin de vote du plébiscite.

(q) Comité des affaires étudiantes et des jeunes professionnels

Le comité des affaires étudiantes et des jeunes professionnels doit assurer une bonne communication entre l'Organisation et les membres étudiants sur (1) les questions et les programmes qui concernent les étudiants et les jeunes professionnels; (2) les perspectives

d'emploi; et (3) la formation des entomologistes au Canada, et, au besoin, fournir au secrétaire le nom d'une personne qui sera élue administrateur des étudiants et des jeunes professionnels lors de l'assemblée annuelle des membres.

XL Assemblées

4) Si une réunion était organisée conjointement par la SEC, une société affiliée et une organisation non affiliée, les arrangements financiers devraient être négociés avec l'organisation non affiliée par un comité spécial nommé par le CA, un protocole d'entente (PE) est établi entre les sociétés directement impliquées dans la réunion avec l'arrangement final sujet à approbation par le CA de la SEC. Ce PE décrit, entre autres, les dispositions financières, y compris les avances à verser et la répartition des surplus éventuels de la réunion.
La division des surplus décrite dans le PE doit suivre les principes ci-dessous et, une fois le PE signé, elle lie toutes les parties. Le surplus désigné ci-dessous comme le «surplus entomologique canadien» est le surplus total alloué à la SEC et à la société affiliée, après le remboursement de toute avance et après le paiement des dépenses pour tout événement propre à la société (p. ex. les coûts des réunions du CA, des cocktails).

- i) Si le surplus entomologique canadien est inférieur ou égal à 40 000\$, il sera divisé conformément à l'entente précédente, c.-à-d. divisé à parts égales entre la société affiliée SER [société entomologique régionale] et la SEC, sans aucune condition.
- ii) Si le surplus entomologique canadien est supérieur à 40 000\$, alors :
- la première tranche de 40 000\$ sera divisée conformément à l'entente précédente, c.-à-d. divisée à parts égales entre la société affiliée RES et la SEC, sans aucune condition.
 - le surplus résiduel qui est supérieur à 40 000\$ sera divisé également entre les huit sociétés d'entomologie affiliées, soit la Société d'entomologie du Canada (SEC), la Société d'entomologie de la Colombie-Britannique (ESBC), la Société d'entomologie de l'Alberta (SEAb), l'Société d'entomologie de la Saskatchewan (ESS), la Société d'entomologie du Manitoba (SEM), la Société d'entomologie de l'Ontario (SEO), la Société d'entomologie du Québec (SEQ) et la Société acadienne d'entomologie (SAE), sans aucune condition.

XII Plébiscites des membres

- 1) (b) chercher des recommandations de noms d'individus pour le poste de conseiller et le poste combiné de directeur sociétal et second vice-président, et lorsque nécessaire pour le poste d'administrateur pour l'équité, la diversité et l'inclusion, afin que le CA les présente aux membres pour élection à la prochaine assemblée annuelle,

Modification visant à établir comment traiter une égalité des voix lors d'un plébiscite

XII Plébiscites des membres

- 5) Chaque question sur le bulletin de vote doit être déterminée par une majorité simple au vote exprimé sauf si spécifié autrement dans le règlement intérieur. En cas d'égalité des voix sur une question, le président du CA procède à un vote supplémentaire.

En outre, un certain nombre de modifications mineures ont été apportées pour corriger des erreurs typographiques et autres, ainsi que des modifications de la numérotation pour tenir compte de l'ajout et de la suppression de clauses. Aucune de ces modifications n'a altéré le sens du document.

ESC Co-Secretary

The Entomological Society of Canada is looking for a member willing to serve in the position of Co-Secretary, starting in September 2022. The current Secretary position will be split into two Co-Secretary positions, and the current Secretary will continue as one of the Co-Secretaries. The two Co-Secretaries will share the secretarial duties in support of the President and Board of Directors by:

- Scheduling meetings of the Executive Council, Board, and the Members, preparing agendas, obtaining reports from Officers and others, sending out notices of meetings, attending the meetings, and recording minutes.
- Working with our Association Management Company (Strauss event & association management) to ensure that records of Society activities such as agendas, minutes, reports, and correspondence are preserved, and to prepare the Society's annual filings with Corporations Canada and other government agencies.
- Providing information on Society business to the Bulletin Editor, Webmaster, and Strauss for publication, posting, and circulation to the membership as necessary.
- Maintaining up-to-date lists and contact information for the Society's Board and Committees.
- Overseeing plebiscites to recommend candidates for nominations as Societal Director and Director-at-Large, and for any other questions on which votes may be required, and notifying of the results of voting. Advising affiliated societies when they need to provide names for nominations as Regional Directors.

A familiarity with the Society's by-laws, rules, and guidelines, past experience as a Board member, and the ability to work in French and English would all be assets. This is a great opportunity to serve one of the oldest biological societies in North America and to deepen your contacts with the Canadian entomological community. Any member interested in serving in this position may contact the current Secretary, Neil Holliday (Neil_Holliday@UManitoba.CA) for further information. Applications should be made to the President, Felix Sperling (Felix.Sperling@ualberta.ca), by **30 June 2022**. The final selection will be made by an ad hoc committee convened by the President.

Co-secrétaire de la SEC

La Société d'entomologie du Canada est à la recherche d'une personne membre de la SEC et prête à occuper le poste de co-secrétaire, à partir de septembre 2022. Le poste actuel de secrétaire sera divisé en deux postes de co-secrétaires, et le secrétaire actuel continuera à être l'un des co-secrétaires. Les deux co-secrétaires se partageront les tâches de secrétariat pour soutenir la présidence et le CA, soit :

- Planifier les réunions du Conseil exécutif, du CA et des membres, préparer les ordres du jour, obtenir les rapports des dirigeants et autres, envoyer les avis de convocation, assister aux réunions et rédiger les procès-verbaux.
- Travailler avec notre société de gestion d'association (Strauss event & association management) pour s'assurer que les dossiers des activités de la Société, tels que les ordres du jour, les procès-verbaux, les rapports et la correspondance, sont conservés, et pour préparer les déclarations annuelles de la Société auprès de Corporations Canada et d'autres agences gouvernementales.
- Fournir des informations sur les affaires de la Société à l'éditeur du bulletin, au webmestre et à Strauss pour la publication, l'affichage et la diffusion aux membres, au besoin.
- Garder à jour les listes et les coordonnées des membres du CA et des comités de la Société.
- Superviser les plébiscites visant à recommander des candidats pour les nominations aux

postes de Directeur sociétal et de Conseiller, et pour toute autre question sur laquelle un vote peut être requis, et notifier les résultats du vote. Conseiller les sociétés affiliées lorsqu'elles doivent fournir des noms pour les nominations en tant que directeurs régionaux.

Une bonne connaissance du règlement administratif, des règles permanentes et des lignes directrices de la Société, une expérience antérieure en tant que membre du CA et la capacité de travailler en français et en anglais sont des atouts. Il s'agit d'une excellente occasion de servir l'une des plus anciennes sociétés biologiques d'Amérique du Nord et d'approfondir vos contacts avec la communauté entomologique canadienne. Toute personne (membre de la SEC) intéressée à occuper ce poste peut contacter le secrétaire actuel, Neil Holliday (Neil_Holliday@UManitoba.CA) pour de plus amples informations. Les candidatures doivent être envoyées au président, Felix Sperling (Felix.Sperling@ualberta.ca), avant le 30 juin 2022. La sélection finale sera effectuée par un comité ad hoc convoqué par le président.

Executive Meeting - Call for Agenda Items

If members have any items they wish to be discussed at the next Board of Directors or Executive Council meeting, please send them to the Secretary, Neil Holliday (see inside back cover for contact details), as soon as possible.

Réunion du conseil exécutif – Points à l'ordre du jour

Si des membres aimeraient ajouter des points à l'ordre du jour pour discussion à la prochaine réunion du Bureau des directeurs ou du Conseil de l'exécutif, merci de les envoyer au secrétaire, Neil Holliday (voir le troisième de couverture pour les informations de contact), le plus tôt.

Members' discounts

Entomological Society of Canada members can enjoy discounts on publications from Annual Reviews, Elsevier, Cambridge University Press, and the Entomological Society of America. Details of how to benefit from these discounts are available on the member's area of the Entomological Society of Canada website at: <https://esc-sec.site-ym.com/>.

Remise pour les membres

Les membres de la Société d'entomologie du Canada peuvent bénéficier d'une remise lors d'achats de publications de : Annual Reviews, Elsevier, Cambridge University Press et de la Société d'entomologie d'Amérique. Les informations nécessaires pour profiter de ces remises sont disponibles dans la section des membres du site de la Société d'entomologie du Canada à : <https://esc-sec.site-ym.com/>.

ESC General Code of Conduct

The Entomological Society of Canada strives to promote, facilitate, communicate and advocate for research and education on insects and their relatives, mentor the development of younger entomologists, and showcase Canada's entomological expertise nationally and internationally. In accordance with this purpose, the Society asks that members, and particularly volunteers and employees representing the Society:

- Treat all people with kindness, respect and consideration
- Communicate openly and with respect for others
- Avoid personal attacks in all communications. Use positive communication skills such as constructive criticism; specific, actionable feedback; and focusing on the idea or situation rather than the person.
- Avoid discrimination, harassment or abusive language or behaviours in all circumstances
- Strive to uphold the highest standards of truthfulness and honesty in all scientific and professional endeavors

An individual's failure to follow these guidelines may result in the Governing Board initiating a dispute resolution process (Bylaw 40) and could result in member discipline (Bylaw 15),

To report a violation of this Code the President of the Society should be contacted. If the President is the subject of the complaint, the First Vice-President or Past President should be contacted. If none of these are appropriate, a complainant should contact the ESC Secretary to identify a Board member to whom the report can be made.

Code de conduite général de la SEC

La Société d'entomologie du Canada s'efforce de promouvoir, de faciliter, de communiquer et de défendre la recherche et l'éducation sur les insectes et leurs semblables, d'encadrer le développement de jeunes entomologistes et de mettre en valeur l'expertise entomologique du Canada à l'échelle nationale et internationale. Conformément à cet objectif, la société demande aux membres, et en particulier aux bénévoles et aux membres du personnel qui la représentent de :

- Traiter toutes les personnes avec gentillesse, respect et considération.
- Communiquer ouvertement et dans le respect des autres
- Éviter les attaques personnelles dans toutes les communications. Utiliser des techniques de communication positives telles que la critique constructive, la rétroaction spécifique et exploitable, et se concentrer sur l'idée ou la situation plutôt que sur la personne.
- Éviter toute discrimination, tout harcèlement ou tout langage ou comportement abusif en toutes circonstances.
- S'efforcer de respecter les normes les plus élevées de sincérité et d'honnêteté dans toutes les activités scientifiques et professionnelles.

Le non-respect de ces directives par une personne peut amener le conseil d'administration à entamer une procédure de règlement des différends (règlement administratif 40) et pourrait entraîner des mesures disciplinaires à l'encontre d'un membre (règlement administratif 15).

Pour signaler une violation du présent Code, il convient de contacter le président ou la présidente de la Société. Si le président est l'objet de la plainte, il convient de contacter le premier vice-président ou le président sortant. Si aucune de ces personnes n'est appropriée, le plaignant doit contacter le secrétaire de la SEC afin d'identifier un membre du CA à qui il peut adresser sa plainte.

List of Contents: Regional Journals / Table des matières : Revues des sociétés régionales

Contents of regional society journals

This regular feature highlights research published in the five regional society journals that include peer-reviewed papers. It should be noted that some regional society journals are not published on a regular basis and may not always include peer-reviewed articles.

Contenu des revues des sociétés régionales

Cette rubrique régulière met en lumière la recherche publiée dans les cinq revues des sociétés régionales qui incluent des articles révisés par les pairs. Veuillez noter que certaines revues des sociétés régionales ne sont pas publiées sur une base régulière et peuvent ne pas toujours inclure des articles évalués par les pairs.



Journal of the Entomological Society of British Columbia, Volume 118 (2021)

<https://journal.entsocbc.ca/index.php/journal/issue/view/269>

Articles

- Pinzon, J., Kent, K., Buckle, D.J., and Bennett R. 2021. Redescription of the spider *Robertus arcticus* (Chamberlin & Ivie) (Araneae: Theridiidae), with the first description of the female. pp. 3–11 [PDF](#)
- Balogh, S.L., Björklund, N., Huber, D.P.W., and Lindgren, B.S. 2021. Population size estimation for the Warren root collar weevil, *Hylobius warreni* Wood (Coleoptera: Curculionidae), a pest of regenerating lodgepole pine plantations. pp. 12–18 [PDF](#)
- Burton, D.K.. 2021. Distribution of the stonefly *Isonoides zionensis* Hanson, 1949 (Plecoptera: Perlodidae) in Canada. pp. 19–24 [PDF](#)
- Bennett, R., Copley, D.R., and Copley, C.R. 2021. Checklist of the spiders (Araneae) of British Columbia. pp. 25–52 [PDF](#)

Scientific Notes

- Pinzon, J., Kent, K., and Bennett, R. 2021. First record of *Pholcus opilionoides* (Schrank) (Araneae: Pholcidae) in Canada, with notes on its biology. pp. 53–56 [PDF](#)
- Floate, K.D. 2021. *Chilo thorax distinctus* (Coleoptera: Scarabaeidae): an occasional pest in agro-ecosystems on the Canadian Prairies? pp. 57–64 [PDF](#)
- Ullah, A., Ishangulyyeva, G., and Erbilgin, N. 2021. Drying techniques differentially affect bark beetle weight change. pp. 65–70 [PDF](#)

Natural History & Observations

- Cannings, R.A., and Kelly-McArthur, B. 2021 A dance on the snow: the mating of *Chionea alexandriana* (Diptera: Limoniidae) . pp. 71–75 [PDF](#)
- Cannings, R.A., Kelly-McArthur, B., Skevington, J.H., Higgins, R.J., and Gibson, J.F. 2021. *Microdon tristis* (Diptera: Syrphidae): notes on biology with a new ant host record from British Columbia. pp. 76–81 [PDF](#)
- Nelson, T.D., Moffat, C.E. 2021. A northern range extension of a Canadian species of Special Concern, *Dielis pilipes* (Hymenoptera: Scoliidae), in the Okanagan Valley of British Columbia. pp. 82–86 [PDF](#)



Proceedings of the Entomological Society of Manitoba, Volume 76 (2020; published Nov. 2021)

http://home.cc.umanitoba.ca/~fieldspg/pdf/Proceedings/ESMproceedings_V76.pdf

Obituary

Giberson, D., Wiens, A., Galloway, T., Resh, V., Reynoldson, T. and Newbury, B. (2021). David M. Rosenberg (1943-2021) Tribute and Bibliography.* pp. 5–26.

*This tribute, minus the Bibliography, first appeared in the *Bulletin of the Entomological Society of Canada* 53(3): 147–152, and was reprinted with permission.

Submitted paper

Galloway, T.D. (2020). Lice (Phthiraptera: Trichodectidae), fleas (Siphonoptera: Pulicidae, Ceratophyllidae) and ticks (Ixodida: Ixodidae) infesting American badger, *Taxidea taxus* (Mammalia: Mustelidae), in Manitoba, Canada. pp. 27–36.

Abstracts from the 76th Annual Meeting of the Entomological Society of Manitoba, Inc. pp. 37–48.



Journal of the Entomological Society of Ontario Volume 152 (2021)

<https://journal.lib.uoguelph.ca/index.php/eso/index>

Onuferko, T. and Hutchings, G. 2021. Discovery and description of the hospicidal first instar of *Epeolus americanus* (Cresson) (Hymenoptera: Apidae), a cleptoparasite of *Colletes consors mesocopus* Swenk (Hymenoptera: Colletidae). pp. 1–13.

Timms, L., Duthie, C., and Fraser G. 2021. The European fire ant, *Myrmica rubra* (Linnaeus) (Hymenoptera: Formicidae), in the Credit River watershed. pp. 15–28.

Dexheimer, E., Nascimento de Araújo, H., and Despland, E. 2021. Novel mutualistic interaction in introduced *Polyommatus icarus* larvae in Quebec. pp. 29–38.



Journal of the Acadian Entomological Society Volume 17 (2021)

<https://www.acadianes.ca/journal.php>

Hicks, B. 2021. The first record of *Polistes dominula* (Hymenoptera: Vespidae) in Newfoundland. pp. 25–28.

Parsons, C. and Dixon P. 2021. Parasitoids of the diamondback moth (Lepidoptera: Plutellidae): new records for Newfoundland and Labrador. pp. 29–32.



Canadian Weed Science Society Société canadienne de malherbologie

CWSS-SCM Newsletter

The Society has recently adopted a new style for its newsletter so that there is no longer a Table of Contents. To see what's new in Canadian weed science since the last *Bulletin*, go to:

December <https://secureservercdn.net/192.169.220.85/c8x.545.myftpupload.com/wp-content/uploads/2021/12/12December-2021-email-blast.pdf>

January <https://secureservercdn.net/192.169.220.85/c8x.545.myftpupload.com/wp-content/uploads/2022/02/1January-2022-newsletter.pdf>

February <https://secureservercdn.net/192.169.220.85/c8x.545.myftpupload.com/wp-content/uploads/2022/02/2february-2022-newsletter.pdf>





THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

LA SOCIÉTÉ CANADIENNE DE PHYTOPATHOLOGIE

CPS-SCP News

VOL. 65, NO. 4 (December 2021)

https://phytopath.ca/wp-content/uploads/2021/12/CPS-SCP-News-65-4-December2021_v1.pdf

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<http://biologicalsurvey.ca/newsletter/bsc.vol40.2.pdf>

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Meeting announcements / Réunions futures

Note: In view of the COVID-19 situation, readers should check the meeting website to ascertain if the conference is still proceeding and, if so, in what format.

Entomological Society of America International Branch, 2022 Virtual Symposium

Virtual meeting: 25–27 April 2022

<https://entsoc.org/membership/branches/international/virtual-symposium>

25th Biennial International Plant Resistance to Insects Workshop

Malmo, Sweden, 31 May–2 June 2022

<https://ipri25.com/>

26th International Congress of Entomology (Entomology for our planet)

Helsinki, Finland, 17–22 July 2022

<https://ice2020helsinki.fi/>

XVI International Conference on Ephemeroptera and XXI International Symposium on Plecoptera

Virtual meeting: 25–29 July 2022

(no website to date)

Ecology of Aphidophaga 15

Catalonia, Spain, 19–23 September 2022

<https://aphidophaga15.udl.cat/>

Joint Annual Meeting of the Entomological Society of Canada, Entomological Society of America, and the Entomological Society of British Columbia

Vancouver, 13–16 November 2022

<https://entsoc.org/events/annual-meeting>

Entomological Society of America International Branch, 2023 Virtual Symposium

24–26 April 2023

(no website to date)

XII European Congress of Entomology

Crete, Greece, 16–20 October 2023

www.ece2023.com

Entomology 23 (Annual Meeting of the Entomological Society of America)

National Harbor, Maryland, 5–8 November 2023

(no website to date)

Readers are invited to send the Bulletin Editor notices of entomological meetings of international, national or Canadian regional interest for inclusion in this list.

Les lecteurs sont invités à envoyer au rédacteur en chef des annonces de réunions entomologiques internationales, nationales ou régionales intéressantes afin de les inclure dans cette liste.

Bulletin of the Entomological Society of Canada

Editor: Cedric Gillott

Assistant Editor: Donna Giberson

The *Bulletin of the Entomological Society of Canada*, published since 1969, presents quarterly entomological news, opportunities and information, details of Society business, matters of wider scientific importance and book reviews.

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The Entomological Society of Canada was founded in 1863 primarily to study, advance and promote entomology. It supports entomology through publications, meetings, advocacy and other activities.

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Bulletin de la Société d'entomologie du Canada

Rédacteur: Cedric Gillott

Rédactrice adjointe: Donna Giberson

Le *Bulletin de la Société d'entomologie du Canada*, publié depuis 1969, présente trimestriellement des informations entomologiques, des occasions, des renseignements sur les opérations de la Société, des dossiers scientifiques d'importance et des analyses d'ouvrages.

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La Société d'entomologie du Canada a été établie en 1863 principalement pour promouvoir l'étude et l'avancement de l'entomologie. Elle soutient l'entomologie par l'entremise de publications, de réunions et d'autres activités.

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Droits d'auteur 2022 Société d'entomologie du Canada

Date de tombée pour le prochain numéro: 30 avril 2022

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Editor's note: Society Directors and Officers are reminded to check these lists, and submit corrections, including the names and positions of new officers.



Relax with a good book

Over the last year, the *Bulletin* has published only two book reviews (and one of these was unsolicited). As a result, the list of books available for review has grown steadily longer.

I urge readers to scan through the list on page 28 and see whether there's anything that whets your interest. Remember, in return for a short text on a book's contents and whether, in your opinion, the book meets the author's objectives, you get to keep the book. This is an opportunity, especially for our student members, to add a not-inexpensive volume to their library and to gain experience in critiquing other scientists' 'take' on a subject. The current list includes books that cover a range of disciplines, for example, ecology, biodiversity, specific insect taxa, conservation, human-wildlife interactions, habitat restoration, and insect pheromones. Not all are 'insect-focused'; rather they deal with subjects using a broader brush, thus providing readers with an opportunity to widen their horizons.

Should you find a book that is of interest, simply contact the Chair of the Publications Committee (email address on page 28) who will arrange for a copy of the book to be sent to you. When the review is ready, simply send it to the *Bulletin* Editor along with a scan of its front cover, and we'll take care of the rest. Many thanks.

Se détendre avec un bon livre

Au cours de l'année écoulée, le *Bulletin* n'a publié que deux comptes rendus de livres (dont un non sollicité). En conséquence, la liste des livres disponibles pour les critiques s'est allongée de façon constante.

J'invite les lecteurs à parcourir la liste de la page 28 pour voir si quelque chose suscite votre intérêt. N'oubliez pas qu'en échange d'un court texte sur le contenu d'un livre et sur la question de savoir si, à votre avis, le livre répond aux objectifs de l'auteur, vous pouvez garder le livre. Il s'agit d'une opportunité, en particulier pour nos membres étudiants, d'ajouter un ouvrage plutôt coûteux à leur bibliothèque et d'acquérir de l'expérience en critiquant la vision d'autres scientifiques sur un sujet. La liste actuelle comprend des livres qui couvrent une vaste gamme de disciplines, par exemple, l'écologie, la biodiversité, des taxons d'insectes spécifiques, la conservation, les interactions entre l'homme et la faune, la restauration des habitats et les phéromones d'insectes. Tous ne sont pas « centrés sur les insectes » ; ils traitent plutôt de sujets plus larges, offrant ainsi aux lecteurs la possibilité d'élargir leurs horizons.

Si vous trouvez un livre qui vous intéresse, il vous suffit de contacter la responsable du comité des publications (adresse électronique en page 28) qui se chargera de vous faire parvenir un exemplaire du livre. Lorsque la critique sera prête, il vous suffira de l'envoyer à la rédaction du *Bulletin*, accompagnée d'une image numérisée de la couverture, et nous nous occuperons du reste. Merci beaucoup.

Entomological Society of Canada, 2021-2022

Société d'entomologie du Canada, 2021-2022

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Front cover/Page couverture:

1. The face of a male leafcutter bee (*Megachile* sp.), resting on a yarrow inflorescence on a cold day in spring.
Le visage d'un mâle d'une abeille découpeuse (*Megachile* sp.) se reposant sur une inflorescence de millefeuille lors d'une froide journée de printemps.
Photo: Bob Lalonde
2. Mountain ash sawfly (*Pristiphora geniculata*) larvae feeding gregariously on host foliage (Vancouver, British Columbia).
Larves de la tenthrède du sorbier (*Pristiphora geniculata*) se nourrissant en groupe sur du feuillage de leur plante hôte (Vancouver, Colombie-Britannique).
Photo: Debra Wertman
3. Hickory tussock moth (*Lophocampa caryae*) in Centreville, Ontario.
Halysidote du caryer (*Lophocampa caryae*) à Centreville, Ontario.
Photo: Andrea Brauner
4. White tiger moth (*Spilosoma congrua*) This moth from the family Erebidæ! I found this beautiful tiger moth on the glass window at the Carins building at Brock University Ontario Canada.
Spilosoma congrua, de la famille des Erebidæ. J'ai trouvé ce magnifique papillon sur une fenêtre du bâtiment Carins de l'Université de Brock en Ontario, Canada.
Photo: Lauren Nesbitt
5. The strawberry blossom weevil or *Anthonomus rubi* crawling over its namesake host, a strawberry flower (Agassiz, Canada).
This invasive pest, originally from Europe, is now spread across the Fraser Valley of British Columbia, Canada.
L'anthonomie du fraisier, ou *Anthonomus rubi*, rampant sur son hôte, une fleur de fraisier (Agassiz, Canada). Ce ravageur envahissant, originaire d'Europe, est maintenant répandu dans la vallée du Fraser en Colombie-Britannique, au Canada.
Photo: Warren Wong
6. Marsh beetle (Coleoptera: Scirtidae: *Prionocyphon limbatus* LeConte); South Skunk River, Iowa.
Scirtidé (Coleoptera: Scirtidae: *Prionocyphon limbatus* LeConte); South Skunk River, Iowa.
Photo: Gregory Courtney

Back cover/Quatrième de couverture:

An inquisitive red-legged grasshopper (*Melanoplus femurrubrum*) in tall grass (Aldergrove, British Columbia).
Un criquet à pattes rouges (*Melanoplus femurrubrum*) se montre curieux dans les hautes herbes (Aldergrove, Colombie-Britannique).
Photo: Debra Wertman