

Bulletin

Entomological Society of Canada
Société d'entomologie du Canada

Volume 49
Number / numéro 4



December / décembre 2017



Published quarterly by the
Entomological Society of Canada

Publication trimestrielle par la
Société d'entomologie du Canada



List of Contents / Table des matières

Volume 49(4), December / décembre 2017

| | |
|--|-------------------|
| Up front / Avant-propos | 130 |
| 2017 ESC Award Recipients / Récipiendaires des prix SEC | |
| Norman Criddle Award / Prix Norman Criddle : Todd Lawton..... | 133 |
| Bert and John Carr Award / Le prix Bert et John Carr : Ana Dal Molin..... | 135 |
| Memories of JAM 2017 / Souvenirs de la RAC 2017..... | 137 |
| STEP Corner / Le coin de la relève..... | 143 |
| Student scholarships and awards / Prix et bourses étudiants | 144 |
| Graduate student showcase / Vitrine aux étudiants gradués | 145 |
| 2017 ESC Student Award Winners / Gagnants des prix étudiants SEC 2017..... | 149 |
| Special feature / Article spécial | |
| The BioBlitz Canada 150 Signature Project – a key component of Canada 150 Celebrations (Cory S. Sheffield, Annie Belair and Daralyn J. Sheffield)..... | 153 |
| In memory / En souvenir de : Terry Wheeler | |
| (Julia Mlynarek, Stephanie Boucher and Doug Currie)..... | 157 |
| Book review / Critique de livre | |
| The Observation Hive Handbook: Studying Honey Bees at Home. By F. Linton (C. Gillott)..... | 160 |
| Books available for review / Livres disponibles pour critique..... | 162 |
| Society business / Affaires de la Société | |
| Highlights from the Board of Directors meeting in Winnipeg..... | 163 |
| Minutes of the 67th Annual General Meeting, Fairmont Winnipeg Hotel, Winnipeg, Manitoba, 24 October 2017..... | 165 |
| Call for Nominees: ESC Achievement Awards / Appel à candidature: Prix d'excellence de la SEC..... | 171 |
| ESC Annual Photo Contest Winners..... | 174 |
| Executive Meeting – Call for Agenda Items / Réunion du conseil exécutif – Points à l'ordre du jour..... | 175 |
| Announcement / Annonce | |
| Special Issue of TCE published, celebrating 40 years of the Biological Survey of Canada Un numéro spécial du TCE est publié, célébrant les 40 ans de la Commission biologique du Canada..... | 175 |
| Content of newsletters published by / Contenu des bulletins publiés par | |
| The Canadian Weed Science Society / la Société canadienne de malherbologie..... | 176 |
| The Canadian Phytopathological Society / la Société canadienne de phytopathologie..... | 177 |
| Meeting Announcements / Réunions futures..... | 178 |
| Officers of affiliated societies / Dirigeants des sociétés associées | 180 |
| The last word / Le dernier mot | 181 |
| Governing board/Conseil d'administration | inside back cover |

Captions for cover photos can be found on the back cover.

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



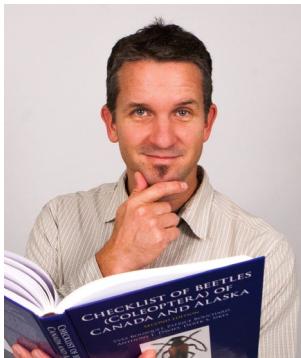
One of the 50+ *Megarhyssa atrata* (Hymenoptera:
Ichneumonidae) observed ovipositing on a single dead limb of a
maple tree [Winnipeg, Manitoba, Canada]

Une femelle parmi au moins 50 *Megarhyssa atrata* (Hyme-
noptera: Ichneumonidae) observées en pleine ponte sur une
seule branche morte d'un érable [Winnipeg, Manitoba, Canada]

Photo: Jordan Bannerman

Up front / Avant-propos

Patrice Bouchard, President of ESC / Président de la SEC



It's official: SMALL IS BEAUTIFUL!

It was a real pleasure to meet old and new friends at the Joint Annual Meeting (JAM) of the Entomological Society of Canada (ESC) and the Entomological Society of Manitoba! The theme for the meeting was **Small is Beautiful**, a reference both to the size of the organisms being celebrated but also to the relative size of the event (when considering that it was preceded by the International Congress of Entomology in 2016 and will be followed by another large meeting in 2018 – more on this below). The Fairmont Hotel in Winnipeg, the venue chosen for this year's JAM, proved to be very welcoming and appropriate for all the scientific and social activities. I spoke with many people who had a great time either attending lots of interesting presentations, discussing ongoing research projects, or networking with possible future collaborators. I was especially pleased to see all the students in attendance (including at the Annual General Meeting of the members of the Society – perhaps thanks to the lure of a free lunch!); these are our future ento-leaders and we need to provide them with the best possible opportunities to thrive in our Society. I would like to congratulate and thank the organizing committee for putting together a fantastic event!

It is humbling for me to address you as the President of the Entomological Society of

C'est officiel : PETIT, C'EST BEAU!

C'était un vrai plaisir de rencontrer d'anciens et de nouveaux amis à la réunion annuelle conjointe de la Société d'entomologie du Canada (SEC) et de la Société d'entomologie du Manitoba! Le thème de la réunion était « **Petit, c'est beau** », en référence autant à la taille des organismes célébrés qu'à la taille relative de l'événement (considérant qu'il a été précédé par le congrès international d'entomologie en 2016 et qu'il sera suivi par une autre grosse réunion en 2018 – d'autres informations suivront plus bas). L'hôtel Fairmont à Winnipeg, le lieu choisi pour la réunion de cette année, s'est avéré très accueillant et approprié pour les activités scientifiques et sociales. J'ai parlé avec plusieurs personnes qui ont eu du très bon temps en assistant à bon nombre de présentations intéressantes, en discutant des projets de recherche en cours ou en faisant du réseautage avec des futurs collaborateurs potentiels. J'étais particulièrement ravi de voir tous les étudiants présents (incluant à l'assemblée annuelle des membres de la Société – peut-être grâce à l'attrait d'un dîner gratuit!) : ils sont nos futurs meneurs entomologiques et nous devons leur fournir les meilleures opportunités possibles pour s'épanouir dans notre Société. J'aimerais féliciter et remercier le comité organisateur d'avoir mis sur pied un événement fantastique!

C'est avec modestie que je m'adresse à vous en tant que Président de la Société d'entomologie du Canada. Cette Société est passée par des changements majeurs depuis 1863 et a réussi à demeurer pertinente à ce jour. C'est principalement grâce à l'implication de plusieurs personnes qui

Canada. This Society has gone through major changes since 1863 and has managed to stay relevant to this day. This is due mostly to the involvement of many people who volunteer their time and skills. I would like to take this opportunity to thank all volunteers who continue to make tremendous contributions to the Society. In particular, I would like to acknowledge the significant involvement of Neil Holliday (as President) and Christopher Dufault (as Treasurer) during the last year, under trying circumstances (e.g., the unfortunate death of our Past President Terry Wheeler): to them we are very grateful! We all hope that the Society will prosper for many decades to come and this is one of the reasons why the Board of Directors and Officers are currently involved in a strategic review of its activities. More details about our upcoming strategic plan will be presented shortly.

As I have heard many times in the past, maintaining a high quality of production of our journal *The Canadian Entomologist* is essential for the long-term prosperity of our Society. Our journal has done exceptionally well under the leadership of outgoing Editor-in-Chief Kevin Floate over the last few years. I would like to thank Kevin and his team for an awesome job! The ESC is in the process of negotiating a new agreement with our current publisher Cambridge University Press (CUP). We want to further develop our positive collaboration with CUP while keeping an eye on the rapidly-evolving scientific publishing industry (and responding adequately). I am very confident that Dezene Huber, the incoming Editor-in-Chief, and his team will ensure that the quality of *The Canadian Entomologist* remains at a high level.

Over the next 2 years, members of the ESC will be able to experience larger annual events which will be co-hosted by like-minded external partners. The 2018 annual meeting **Crossing Borders: Entomology in a Changing World** will take place 11-14 November in Vancouver, British Columbia (<https://www.entsoc.org/entomology2018>). This event, hosted by the Entomological

donnent de leur temps et de leur compétence. J'aimerais saisir cette opportunité pour remercier tous les bénévoles qui continuent d'apporter des contributions considérables à la Société. J'aimerais tout particulièrement remercier l'implication importante de Neil Holliday (comme Président) et Christopher Dufault (comme trésorier) durant la dernière année, dans des circonstances difficiles (p. ex. le décès malheureux de notre président-sortant, Terry Wheeler) : je leur suis très reconnaissant! Nous espérons tous que la Société va prospérer pour de nombreuses décennies et c'est une des raisons pour laquelle le conseil d'administration et les administrateurs sont présentement impliqués dans une révision stratégique de ses activités. Plus de détails sur notre prochain plan stratégique seront présentés sous peu.

Comme je l'ai entendu plusieurs fois dans le passé, il est essentiel pour la prospérité à long terme de notre Société de maintenir une production de haute qualité pour notre revue *The Canadian Entomologist*. Notre revue s'est exceptionnellement bien portée dans les dernières années sous la gouverne de notre éditeur en chef sortant, Kevin Floate. J'aimerais remercier Kevin et son équipe pour un travail incroyable! La SEC est en plein processus de négociation d'une nouvelle entente avec notre maison d'édition actuelle, les presses de l'Université Cambridge (CUP). Nous voulons développer davantage notre collaboration positive avec CUP tout en gardant un œil sur l'industrie de la publication scientifique qui évolue rapidement (et y répondre adéquatement). Je suis très confiant que Dezene Huber, l'éditeur en chef entrant, et son équipe s'assureront de maintenir à un niveau élevé la qualité de *The Canadian Entomologist*.

Durant les 2 prochaines années, les membres de la SEC pourront vivre des événements annuels plus gros qui seront co-organisés par des partenaires externes qui partagent la même vision. La réunion annuelle 2018 « Au-delà des frontières : l'entomologie dans un monde en changement » se tiendra du 11

Society of America, Entomological Society of Canada, and Entomological Society of British Columbia, is expected to attract more than 3000 entomologists, including 800 or more students. Planning for this event is well underway, and we hope to see you all in about a year's time. The next year, the Canadian Society for Ecology and Evolution, the Entomological Society of Canada and the Acadian Entomological Society will be co-hosting their annual meeting 18-22 August in beautiful Fredericton, New Brunswick. A return to the regular rotation of JAMs hosted by the ESC and a regional society is planned to take place in Alberta in 2020.

The relationship with our Association management Company (Strauss event and association management) will continue with the extension of their current contract until the end of September 2019. Maintaining an effective collaboration with Strauss is essential for the ESC as, amongst other roles, they are the first point of contact for our clients, they manage our membership list and membership renewal process, they provide assistance with our annual meetings, and they handle the finances of the Society in collaboration with the Treasurer. The three employees at Strauss who handle most of our Society's affairs are Geoff Powell (ESC Executive Director), Victoria Peers (ESC Administrative Coordinator) and Pam Forsyth (ESC Accountant). We are looking forward to continuing to work with them.

Note that we always welcome constructive comments, and the involvement of passionate members of the Society. Do not hesitate to contact me or anyone listed on the last page of this *Bulletin* if you have ideas to share.

au 14 novembre à Vancouver, Colombie-Britannique (<https://www.entsoc.org/entomology2018>). Cet évènement, organisé par la Société d'entomologie d'Amérique, la Société d'entomologie du Canada, et la Société d'entomologie de Colombie-Britannique, s'attend à attirer plus de 3000 entomologistes, incluant au moins 800 étudiants. La planification de cet évènement va bon train et nous espérons vous y voir dans environ un an. L'année suivante, la Société canadienne d'écologie et d'évolution, la Société d'entomologie du Canada et la Société d'entomologie acadienne co-organiseront leur réunion annuelle du 18 au 22 août dans la belle ville de Fredericton au Nouveau-Brunswick. Un retour à la rotation régulière de la réunion annuelle organisée par la SEC et une société régionale devrait reprendre en Alberta en 2020.

La relation avec notre compagnie de gestion d'associations (Strauss event and association management) continuera avec la prolongation de leur contrat actuel jusqu'à la fin septembre 2019. Il est essentiel pour la SEC de maintenir une collaboration efficace avec Strauss puisque, entre autres rôles, ils sont le premier point de contact pour nos clients, ils gèrent la liste de nos membres et le processus de renouvellement, ils fournissent du soutien lors de nos réunions annuelles et ils s'occupent des finances de la Société avec la collaboration du trésorier. Les trois employés de Strauss qui s'occupent principalement des affaires de la Société sont Geoff Powell (directeur exécutif de la SEC), Victoria Peers (coordinatrice administrative de la SEC) et Pam Forsyth (comptable de la SEC). Nous avons hâte de continuer de travailler avec eux.

Veuillez noter que nous recevons toujours les commentaires constructifs et l'implication de membres passionnés de la Société. N'hésitez pas à me contacter, moi ou n'importe qui sur la liste de la dernière page du *Bulletin*, si vous avez des idées à partager.

2017 ESC Award Recipients / Récipiendaires des prix SEC



Norman Criddle Award Todd Lawton

Todd Lawton grew up enthusiastic about nature and the outdoors, being a keen collector of mammal skeletons in his early years. He was turned on by insects when he made a collection for an introductory entomology course at the University of Western Ontario. Although beetles were his first fascination, tiger beetles soon became his passion. When he moved to Manitoba in 1980, he continued to collect tiger beetles and soon developed considerable expertise in the group. After a short hiatus, he resumed his intense study of tiger beetles in 2002. Todd is an extraordinarily determined and knowledgeable collector, willing to risk life and limb to reach just the right habitat or location to find his insect quarry. This includes climbing treacherous mountainsides in the dark, working in areas populated by a variety of poisonous snakes, and traversing fast rivers while fully clothed! He thinks nothing of driving thousands of kilometres to check his traps set months earlier. He has persisted through inclement weather, including tornadoes, hurricanes, heavy rains, floods, snow storms, and debilitating heat, as well as biting insects. Todd is an accomplished writer (with a robust sense of humour) of entomological articles, and has contributed to the Newsletter of the Entomological Society of Manitoba.

His innovations in developing pitfall-trap techniques include a super bait for collecting

Prix Norman Criddle Todd Lawton

Dès sa jeunesse, Todd Lawton est un amateur de plein air et de la nature, et un grand collectionneur de squelettes de mammifères. Son enthousiasme pour les insectes se développe alors qu'il monte une collection pour un cours d'introduction à l'entomologie à l'Université de Western Ontario. Et bien que son premier amour porte sur les coléoptères, les cicindèles prennent vite le dessus. Arrivé au Manitoba en 1980, il continue à collectionner des cicindèles, de sorte qu'il cultive une expertise reconnue parmi le groupe. À la suite d'un bref hiatus, il reprend l'étude intense des cicindèles en 2002. Todd est un collectionneur particulièrement assidu et connaissant, prêt à tout risquer pour se rendre à l'habitat ou le lieu parfait pour capturer sa proie. Cela comprend l'escalade dangereuse de flancs de montagnes à la noirceur, la recherche dans des endroits peuplés d'une variété de serpents vénéneux et la traversée de rivières torrentielles tout habillé! Il n'hésite pas à conduire des milliers de kilomètres pour vérifier des pièges qu'il avait installés plusieurs mois auparavant. Il persiste malgré toutes les intempéries, y compris tornades, ouragans, pluies torrentielles, inondations, tempêtes de neige et chaleur écrasante, sans parler des insectes voraces. Todd est un écrivain accompli (doté d'un sens de l'humour féroce), qui a publié des articles entomologiques dans le Bulletin de la Société d'entomologie du Manitoba.

Ses innovations dans la conception de techniques pour les pièges à fosse comprennent un « super-appât » pour la collecte de certains carabidés et d'autres taxons dans diverses régions du Canada et des États-Unis. Ce travail a mené à la découverte d'au moins une nouvelle espèce

certain rare carabids and other taxa in various regions of Canada and the United States. This work has led to the discovery of at least one new species in the Appalachians. He is preparing the description of a new species of *Scaphinotus* (Carabidae) that he discovered in the eastern USA. His attention to detail is illustrated by his careful dissections of beetle genitalia, and his pen and ink drawings of beetles. For example, his rendition of *Amblycheila cylindriformis* is exceptional. Todd and Robert Wrigley have recently undertaken to complete a manuscript on the tiger beetles of Manitoba.

He has amassed one of the most comprehensive collections of species and subspecies of tiger beetles (with the exception of the few endangered ones) in Canada and the United States, and has shared ecological information with many North American carabid experts. He makes annual donations to the Wallis/Roughley Museum of Entomology (WRME), University of Manitoba, and the Canadian National Collection of Insects, Arachnids and Nematodes. The total number of specimens donated to the WRME alone is approaching 10 000. His specimens are beautifully prepared and fully labelled with complete collection data, and have been a valuable contribution to the WRME.

dans les Appalaches. Il prépare la description d'une nouvelle espèce de *Scaphinotus* (Carabidae) qu'il a découvert dans l'est des États-Unis. Son souci du détail est manifeste dans ses dissections soigneuses des organes génitaux de coléoptères, ainsi que ses dessins à l'encre de Chine de coléoptères. Son rendement de l'*Amblycheila cylindriformis*, par exemple, est vraiment exceptionnel. Todd et Robert Wrigley ont récemment entrepris de rédiger un texte sur les cicindèles du Manitoba.

Il a amassé une des collections les plus complètes d'espèces et de sous-espèces de cicindèles (à l'exception de quelques-unes en voie de disparition) du Canada et des États-Unis, et il a partagé son information écologique avec de nombreux experts nord-américains en carabidés. Il contribue chaque année au musée d'entomologie Wallis/Roughley (WRME), Université du Manitoba, et à la Collection nationale canadienne d'insectes, d'arachnides et de nématodes (CNC). Le nombre de spécimens donnés au seul WRME s'élève à près de 10 000. Ceux-ci sont préparés avec grand soin; pleinement étiquetés, portant les données complètes de la collecte, et ils représentent une contribution précieuse au WRME.



ATELIER JEAN PAQUET INC.

MATÉRIEL ENTOMOLOGIQUE
ENTOMOLOGICAL SUPPLIES

Courriel: jeanpaquet@webnet.qc.ca

www.atelierjeanpaquet.com

(paid advertisement/ publicité payée)



Bert and John Carr Award Dr Ana Dal Molin

The Bert and John Carr Award is a cash award given to support research activities on the faunistics, natural history or taxonomy of Canada's insect fauna. This year's awardee, Ana Dal Molin, used the funds provided by the Carr Award to collect information for continued development of digital, multiple-entry identification keys and to make them more accessible to lay users. Because mobile technologies have greatly expanded the potential reach of such tools, in order to encourage their use, it is increasingly necessary to make them user-friendly and improve the ways taxonomists can update them based on user feedback.

Ana received her PhD in Entomology from Texas A&M University in 2014, during which she supervised several students on the development of Lucid keys for chalcid wasps. She began working on digital tools for taxonomy during her MSc at Universidade Federal do Paraná, Brazil, in 2005, developing web sites and working on the electronic version of Mouré's Neotropical Bee Catalogue. In 2015 she started working on multiple-entry keys for applied entomology as a postdoc at the University of Manitoba under Dr Barbara Sharanowski, who envisioned a mobile tool for IPM that would include interfaces for organism identification, for pest monitoring and forecasting, and for crop management logs. Digital matrix-based, multiple-entry keys are particularly useful for this because they can be more easily expanded and adjusted than dichotomous keys. One of the central concerns

Le prix Bert et John Carr Dre Ana Dal Molin

Le prix Bert et John Carr est une récompense monétaire remise afin de soutenir les activités de recherche sur la faunistique, l'histoire naturelle ou la taxonomie de la faune entomologique du Canada. La récipiendaire de cette année, Ana Dal Molin, a utilisé les fonds fournis par le prix Carr afin d'amasser de l'information pour le développement continu de clés d'identification numériques à entrées multiples, et afin de les rendre plus accessibles aux utilisateurs profanes. Puisque les technologies mobiles ont grandement élargi la portée potentielle de ces outils, et afin d'encourager leur utilisation, il devient de plus en plus nécessaire de les rendre conviviaux et d'améliorer la façon dont les taxonomistes peuvent les mettre à jour en fonction des apports des utilisateurs.

Ana a obtenu son doctorat en entomologie à l'Université A&M du Texas en 2014, pendant lequel elle a supervisé plusieurs étudiants sur le développement de clés Lucid pour les guêpes de la famille des chalcidoidés. Elle a commencé à travailler sur les outils numériques pour la taxonomie durant sa maîtrise à l'Université fédérale du Paraná au Brésil en 2005, en développant des site web et en travaillant sur la version électronique du livre Mouré's Neotropical Bee Catalogue. En 2015, elle a commencé à travailler sur des clés à entrées multiples en entomologie appliquée comme post-doctorante à l'Université du Manitoba sous la direction de Dre Barbara Sharanowski qui envisageait un outil mobile pour la lutte intégrée qui inclurait des interfaces pour l'identification d'organismes, pour la surveillance et la prédition des ravageurs, et pour les entrées sur la gestion des cultures. Les clés à entrées multiple, basée sur des matrices numériques, sont particulièrement utiles pour cela puisqu'elles peuvent être plus facilement élargies et ajustées que les clés dichotomiques. Une des préoccupations majeures de l'application de lutte intégrée était d'encourager le dépistage et de prévenir les applications non nécessaires d'insecticides. Avec cela en tête, il est logique

of the IPM app was to encourage scouting and prevent unnecessary spraying of insecticides. With that in mind, it made sense to expand matrices to include not only pests and the occasional natural enemy, but also other arthropods that could be found around crops, so that one could effectively prevent the identification of non-pest organisms as pests. Canada is a special case in the sense that this objective is more achievable here than in many other countries, thanks to historical efforts to know and document its fauna, such as the Biological Survey of Canada, and because monitoring programs are already well established in the culture of the crop protection community. Manuals produced by Agriculture and Agri-Food Canada and provincial extension agencies increasingly facilitate access to species-specific information as well. With these resources, Ana was able to continue exploring the potential of expanded keys to help move taxonomic keys beyond their “ivory towers”.

Development of identification tools that will lead to correct results relies on more than the familiarity of the taxonomist with the taxa – it is necessary to keep user behavior in mind at all times, which is somewhat different from the usual path of development of taxonomic keys. In IT, this approach is called “user-centered design” (UCD) or “user-driven development” (UDD). The reliability of the key depends also on how well the developer can predict difficulties and errors that users are likely to make. Therefore, Ana used the resources from the Carr Award to bring multiple-entry keys to the 2017 Joint Annual Meeting in Winnipeg in order to obtain input from entomologists with different backgrounds and familiarity with such tools. This opportunity allowed the collection of valuable feedback on characters that might be misleading in the existing keys, on best practices for the development of new multiple-entry keys, and especially on how users behave when trying to identify unfamiliar organisms. All this is fundamental to optimize these tools using UCD and hopefully will contribute to the growing popularization of faunistics as a whole.

d’étendre les matrices afin d’inclure non seulement les ravageurs et les ennemis naturels, mais aussi les autres arthropodes qui peuvent être trouvés autour des cultures, afin de pouvoir empêcher de façon efficace l’identification des organismes qui sont des ravageurs. Le Canada est un cas particulier puisque cet objectif est plus facile à atteindre que dans plusieurs autres pays, grâce aux efforts historiques pour connaître et documenter sa faune, comme la Commission biologique du Canada, et parce que les programmes de surveillance sont déjà bien établis dans la culture de la communauté de protection des cultures. Les manuels produits par Agriculture et agroalimentaire Canada et par les agences de vulgarisation provinciales facilitent aussi de plus en plus l'accès à des informations sur des espèces spécifiques. Avec ces ressources, Ana a été en mesure de continuer à explorer le potentiel des clés élargies pour aider à amener les clés taxonomiques en dehors de leur « tour d'ivoire ».

Le développement d’outils d’identification qui mèneront vers le bon résultat dépend de plus que de la familiarité du taxonomiste avec le taxon – il est nécessaire de garder le comportement de l’utilisateur en tête, en tout temps, ce qui est une approche plutôt différente en comparaison du processus habituel du développement de clés taxonomiques. En TI, cette approche est appelée « conception centrée sur l’utilisateur ». La fiabilité de la clé dépend également à quel point le développeur peut prédire les difficultés et les erreurs que les utilisateurs vont probablement faire. Ana a donc utilisé les ressources du prix Carr afin d’amener les clés à entrées multiples à la réunion annuelle conjointe 2017 à Winnipeg afin d’obtenir les avis des entomologistes avec différents antécédents et familiarités avec ces outils. Cette opportunité a permis d’amasser des apports inestimables sur les caractères qui peuvent prêter à l’erreur dans les clés existantes, les meilleures pratiques pour le développement de nouvelles clés à entrées multiples, et particulièrement sur comment les utilisateurs se comportent quand ils essaient d’identifier des organismes avec lesquels ils ne sont pas familiers. Tout cela est fondamental pour optimiser ces outils qui utilisent la conception centrée sur l’utilisateur et va, avec un peu chance, contribuer à populariser la faunistique comme un tout.

Honours and Awards at JAM 2017

Tyler Wist for ESC



Todd Lawton, Criddle Award recipient, with Terry Galloway

Tyler Wist for ESC



Tara Gariepy receives the C. Gordon Hewitt Award from Bernie Roitberg

Tyler Wist for ESC



Carr Award recipient Ana Dal Molin with Patrice Bouchard

Tyler Wist for ESC



Gold Medalist Gerhard Gries with Bernie Roitberg

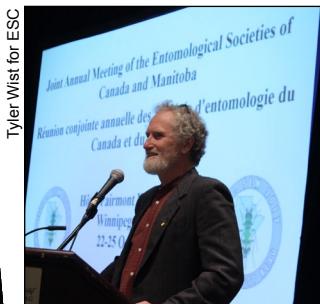


Highlights of JAM 2017



Tyler Wist for ESC

Rheal Lafreniere, General Chair of the 2017 JAM.



Tyler Wist for ESC

Paul Fields, Scientific Program Chair for the 2017 JAM.



Tyler Wist for ESC

Plenary speaker Angela Douglas discussing 'Bugs within bugs'.



Jason Gibbs for ESC

Attendees at the first Board of Directors Meeting. Back row (from left): Vincent Hervet, Christopher Dufault, Kevin Floate, Neil Holliday, Rob Currie, Jordan Bannerman, Jeff Boone, Boyd Mori, Dezene Huber, Geoff Powell, Patrice Bouchard, Cedric Gillott; front row (from left): Gail Anderson, Bill Riel, Katernity Rochon, Suzanne Blatt, Haley Catton, Sophie Cardinal, Rachel Rix.



Tyler Wist for ESC

Neil Holliday hands over the gavel to Patrice Bouchard.



Tyler Wist for ESC

Terry Galloway giving the Heritage Lecture.

Service Awards JAM 2017

Service Awards were presented by Pat Bouchard to (clockwise from upper left) Neil Holliday, Aynsley Thielman (accepted on her behalf by Dezene Huber), Kevin Floate, Bill Riel, and Gary Gibson (received on his behalf by Peter Mason).



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC

Student Mixer JAM 2017



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC

General Mixer JAM 2017



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC



Tyler Wist for ESC

President's Reception JAM 2017



Tyler Wist for ESC



Tyler Wist for ESC

STEP Corner / Le coin de la relève

Anne-Sophie Caron and Rachel Rix



ESC JAM 2017

We want to congratulate all students who participated in the ESC JAM this year in Winnipeg. The presentations were exceptional. We are looking forward to seeing all of you for the next meeting in Vancouver!

Research Roundup

We continue to publicize graduate student publications to the wider entomological community through our Research Roundup initiative. Check out the ESC blog for most recent featured articles. If you want your recently published article featured (or we missed yours last month!), send us an email at entsoccan.students@gmail.com. For regular updates on new Canadian entomological research, you can join the ESC Students Facebook page or follow us on Twitter @esc_students.

Getting involved with the ESC

The Student and Early Professional Affairs Committee (SEPAC) is looking for new members (especially Early Professionals). Volunteering for the SEPAC is a great way to get involved with the society and promote entomology to students 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 annesophie.caron.p@gmail.com or Rachel.Rix@dal.ca. We look forward to hearing from you,

Anne-Sophie and Rachel

Réunion annuelle conjointe de la SEC 2017

Nous voulons féliciter tous les étudiants ayant participé à la réunion annuelle conjointe de cette année à Winnipeg. Les présentations étaient d'un calibre exceptionnel. Nous avons très hâte de vous retrouver à la prochaine réunion annuelle à Vancouver !

Aperçu de la recherche

Nous continuons à faire la publicité des publications des étudiants gradués auprès de la communauté entomologique via notre initiative Aperçu de la recherche. Consultez le blogue de la SEC pour les plus récents articles. Si vous voulez que votre plus récent article soit mis en vedette (ou si nous l'avons manqué le mois dernier!), envoyez-nous un courriel à entsoccan.students@gmail.com. Pour des mises à jour régulières sur la recherche entomologique canadienne, adhérez à la page Facebook des étudiants de la SEC ou suivez-nous sur Twitter à @esc_students.

S'impliquer au sein de la SEC

Le comité des affaires étudiantes et des jeunes professionnels cherche de nouveaux membres (particulièrement des jeunes professionnels). S'impliquer bénévolement pour le comité est une excellente façon de s'impliquer avec la Société et promouvoir l'entomologie auprès des étudiants au Canada. Si vous êtes intéressés à joindre le comité, ou si vous avez des suggestions pour de nouvelles initiatives pour la prochaine année, écrivez-nous à students@esc-sec.ca. Vous pouvez aussi nous contacter personnellement à annesophie.caron.p@gmail.com ou Rachel.Rix@dal.ca. Au plaisir d'avoir de vos nouvelles,

Anne-Sophie et Rachel

Thesis Roundup / Foisonnement de thèses

If you or a student you know has recently defended an entomology-related thesis at a Canadian University, and would like notice of this accomplishment published here and on the ESC website, please email students@esc-sec.ca with the relevant information (name, date, degree, thesis title, supervisor[s], and university).

Si vous, ou un étudiant que vous connaissez, avez récemment soutenu votre thèse dans un domaine lié à l'entomologie dans une université canadienne, et que vous voulez publier l'avis de cette réalisation ici et sur le site web de la SEC, merci d'envoyer les informations pertinentes (nom, date, diplôme, titre de la thèse, directeur[s] et université) à students@esc-sec.ca.

Achty michuk, Kim A.R.M. MSc, 2017. Distribution and morphology of a phoretic mite, *Anoetus halictonida* (Histiostomatidae), on an urban population of *Halictus rubicundus* in central Saskatchewan. Supervisor: Art Davis, University of Saskatchewan.

Caron, Anne-Sophie. MSc, 2017. Stand diversification and tropical ecosystems: community ecology of beetles and ecosystem functioning in Sardinilla, Panama. Supervisor: Chris Buddle, McGill University.

Phillips, Iain D. PhD, 2017. Biological tools for water security in the northern Great Plains. Supervisor: Doug Chivers, University of Saskatchewan.

Student scholarships and awards

In 2018 a competition for the following Entomological Society of Canada scholarships and awards will be held: MSc and PhD Scholarships, the Research Travel Awards, the John H. Borden Scholarship in IPM, the Biological Survey of Canada Scholarship for studies on insect (terrestrial arthropod) faunistics, the Dr Lloyd M. Dosdall Memorial Scholarships in arthropod community ecology, the Danks Scholarships for studies on Canadian arthropod fauna, and the Becker Conference Travel Awards. Details of the application procedures are available on the Society website <http://esc-sec.ca/student/student-awards/>. Students are encouraged to apply for these awards. The deadline for all but the Becker Awards is 16 February 2018. For the Becker Awards, the deadline will be the same as that for abstract submissions for the Joint Meeting with the Entomological Society of British Columbia and the Entomological Society of America in Vancouver.

Prix et bourses étudiants

En 2018, une compétition pour les prix et bourses suivants de la Société d'entomologie du Canada se tiendra : la bourse pour études graduées, les bourses de voyage pour la recherche, la bourse John H. Borden en lutte intégrée, la bourse d'études supérieures de la Commission biologique du Canada pour les études sur la faunistique des insectes (arthropodes terrestres), la bourse Dr Lloyd M. Dosdall pour l'écologie des communautés d'arthropodes, les bourses Danks pour l'étude de la faune canadienne d'arthropodes, et les bourses Ed Becker pour la réunion annuelle. Les détails de la procédure d'application sont disponibles sur le site Internet de la Société <http://esc-sec.ca/student/student-awards/>. Nous encourageons les étudiants à appliquer pour ces bourses. La date limite pour toutes les bourses, sauf la bourse Ed Becker, est le 16 février 2018. Pour la bourse Ed Becker, la date limite est la même que pour la soumission des résumés pour la réunion conjointe avec la Société d'entomologie de Colombie-Britannique et la Société d'entomologie d'Amérique à Vancouver.

Graduate Student Showcase / Vitrine aux étudiants gradués Moderator / Modératrice: Jess Vickruck

Adam J. Blake (Simon Fraser University), with S. Couture, M.C. Go, G.S. Hahn, H. Grey, K. Arikawa and G. Gries

Polarized light and host selection in *Pieris rapae*

Studies of visual host plant selection by phytophagous insects have focused on spectral characteristics of plants, disregarding polarization information even though sensitivity to polarized light is widespread among insects. Using *Pieris rapae* (Lepidoptera: Pieridae) as a model species, we tested the hypothesis that phytophagous insects respond to polarized light as an essential attribute of light reflected by the host plant. We (1) determined the angle and degree of linear polarization (AoP & DoLP) of various plants through photographic polarimetry, (2) studied the polarization sensitivity of *P. rapae* photoreceptors through electrophysiological recordings and electron microscopy, and (3) bioassayed the responses of *P. rapae* females to plants, or plant images, that differed in the AoP or DoLP. We found that the DoLP of host and non-host plants varied more markedly than their color. Moreover, most host plants of *P. rapae* had a relatively low DoLP. Electron microscopy and electrophysiology revealed that *P. rapae* have polarization-sensitive blue, green and red photoreceptors. In bioassays, *P. rapae* females significantly preferred plants, or images of plants, with a low DoLP over to those with a high DoLP. This preference disappeared when we experimentally reduced the DoLP of plants to near 0%. In further experiments, females avoided plants with an AoP of 45 or 135° and a DoLP atypical of a host plant (25%). Our data support the hypothesis that polarized light is an essential attribute of the host plant gestalt that affects host plant selection by female *P. rapae* and possibly other phytophagous insects.

Lumière polarisée et sélection de l'hôte chez *Pieris rapae*

Les études sur la sélection visuelle de la plante hôte par les insectes phytophages se sont concentrées sur les caractéristiques spectrales des plantes, ignorant l'information de polarisation malgré le fait que la sensibilité à la lumière polarisée est répandue chez les insectes. En utilisant *Pieris rapae* (Lepidoptera : Pieridae) comme espèce modèle, nous avons testé l'hypothèse que les insectes phytophages répondent à la lumière polarisée comme attribut essentiel de la plante hôte. Nous avons (1) déterminé l'angle et le degré de la polarisation linéaire (AoP & DoLP) de la lumière reflétée par plusieurs plantes par polarimétrie photographique, (2) étudié la sensibilité des photorécepteurs de *P. rapae* à la polarisation par des enregistrement électrophysiologiques et par microscopie électronique, et (3) testé les réponses des femelles *P. rapae* aux plantes, ou aux images de plantes, qui diffèrent par leur AoP ou DoLP. Nous avons trouvé que le DoLP des plantes hôtes et non-hôtes varie plus fortement que leur couleur. De plus, davantage de plantes hôtes de *P. rapae* ont un DoLP relativement bas. La microscopie électronique et l'électrophysiologie ont révélé que les photorécepteurs bleu, vert et rouge de *P. rapae* sont sensibles à la polarisation. Dans les bio essais, les femelles *P. rapae* préféraient significativement les plantes, ou images de plantes, avec un faible DoLP à celles avec un fort DoLP. Cette préférence disparaissait quand nous avons réduit expérimentalement le DoLP des plantes à près de 0%. Dans des expériences subséquentes, les femelles évitaient les plantes avec un AoP de 45 ou 135° et un DoLP atypique de plante hôte (25%). Nos données supportent l'hypothèse que la lumière polarisée est un attribut essentiel de la plante hôte qui affecte la sélection de la plante hôte

par la femelle *P. rapae* et possiblement d'autres insectes phytophages.

Diana M. Wilches (University of Lethbridge), with R.A. Laird, K.D. Floate and P.G. Fields

Effects of extreme temperatures on the survival of the quarantine stored-product pest, *Trogoderma granarium* (khapra beetle) and on its associated bacteria.

Trogoderma granarium is a pest of stored-grain products in Asia and Africa, and a quarantine pest for much of the rest of the world. To evaluate extreme temperatures as a control strategy for this pest, I investigated the effect of low temperatures on the survival and on the microbiome of *T. granarium*. The cold tolerance of *T. granarium* was assessed by measuring the supercooling points (SCP) of different life stages. The lowest SCP for larvae, -24.3 ± 0.3 °C, was obtained for diapausing-acclimated larvae. According to LT50 values, the most cold tolerant stage at -10 °C, was the diapausing-acclimated larva (87 days, CI = 78-97 days). In light of the long exposure time needed to control *T. granarium* even at -20 °C, cooling to below -27 °C (i.e., below the SCP of eggs) will quickly kill all life stages and may be the best way to control this insect with low temperatures. The microbiome of *T. granarium* seems to be dominated by *Spiroplasma* bacteria. The microbiome was affected by life stage, but an effect of low temperatures was not detected. Further research is necessary to understand the *Spiroplasma-T. granarium* relationship. Future research should also investigate combinations of extreme temperatures with other techniques to shorten the time required for mortality.

Effets des températures extrêmes sur la survie du ravageur de produits entreposés de quarantaine, *Trogoderma granarium* (trogoderme des grains), et ses bactéries associées.

Trogoderma granarium est un ravageur des grains entreposés en Asie et en Afrique, et un ravageur de quarantaine pour la plupart du reste du monde. Pour évaluer les températures extrêmes comme stratégie de contrôle pour ce ravageur, j'ai étudié l'impact de basses températures sur la survie et sur le microbiome de *T. granarium*. La tolérance au froid de *T. granarium* a été évaluée en mesurant les points de surfusion de différents stades de vie. Le plus bas point de surfusion pour les larves, -24.3 ± 0.3 °C, a été obtenu pour les larves diapausantes acclimatées. Selon les valeurs de TL50, le stade le plus tolérant au froid à -10 °C étaient les larves diapausantes acclimatées (87 jours, IC= 78-97 jours). À la lumière de la longue exposition requise pour contrôler *T. granarium* même à -20 °C, un refroidissement à -27 °C (c.-à-d. en-dessous du point de surfusion des œufs) tuera rapidement tous les stades de vie, et pourrait être la meilleure façon de contrôler cet insecte avec de basses températures. Le microbiome de *T. granarium* semble dominé par les bactéries *Spiroplasma*. Le microbiome a été affecté par le stade de vie, mais aucun effet des basses températures n'a été détecté. Des recherches additionnelles sont nécessaires pour comprendre la relation *Spiroplasma-T. granarium*. Des recherches devraient également explorer l'impact de combinaisons de températures extrêmes avec d'autres techniques afin de raccourcir le temps requis pour obtenir la mortalité.



**Megan J. Colwell (University of Manitoba), with R.W. Currie and S.F. Pernal
Epidemiological implications of wax- and airborne honey bee (*Apis mellifera*) viruses and potential treatments**

Honey bee viruses have been studied extensively since their discovery, but much basic work remains to be done. Possible transmission routes, like surface contamination, have scarcely been studied. Our earlier work showed that honey bee viruses are present, with high prevalence, on wax from dead colonies. Additionally, viruses are introduced to wax via simple worker activity, even when excluding food storage and brood rearing; with evidence for virus transmission through aerosolization. Our current work examines infectivity and stability of wax-borne and airborne viruses with four experiments: wax wash injection, wax brood rearing, airborne infectivity, and, storage and heat treatment. For wax wash injections, pupae were injected with washes of high virus (HV) wax and controls, incubated and sampled for viruses at 48 and 72 h. For wax brood rearing, wax from HV and low virus (LV) colonies were inserted into observation hives with mated queens, which were restricted to frames for egg laying. Eggs and pupae were sampled and queens dissected for spermathecae and ovaries. It was repeated with wax stored for 30 days. For airborne infectivity, HV and LV adult workers were caged and separated by either single mesh (contact cages) or double mesh (air only cages) and LV only baseline controls. Cages were incubated with individual air supplies. For storage and heat treatment, HV wax was taken and stored at several beekeeper-appropriate temperatures and held at high a temperature to test for declines in virus levels. Viruses in each experiment were quantified by RT-qPCR and compared by treatment.

Implications épidémiologiques des virus de l'abeille à miel (*Apis mellifera*) transmis par la cire et par l'air, et leurs traitements potentiels

Les virus des abeilles à miel ont été étudiés intensivement depuis leur découverte, mais beaucoup de travail de base reste à faire. Les routes possibles de transmission, comme la contamination par surface, ont rarement été étudiées. Nos travaux précédents ont montré que les virus des abeilles à miel sont présents, avec une forte prévalence, sur la cire des colonies mortes. De plus, les virus sont introduits dans la cire simplement par les activités des ouvrières, même en excluant l'entreposage de nourriture et la nutrition des couvées : avec des indications de transmission du virus par aérosolisation. Nos travaux actuels examinent l'infectiosité et la stabilité des virus transmis par la cire ou l'air à l'aide de quatre expériences : des injections de rinçage de cire, l'exposition du couvain à la cire, l'infectiosité par l'air, et des traitements d'entreposage et de chaleur. Pour les injections de rinçage de cire, les nymphes ont été injectées avec des rinçages de cire à haut virus (HV) et des témoins, incubées, et échantillonnées pour des virus après 48 et 72 h. Pour l'exposition du couvain à la cire, la cire de colonies à HV et faible virus (FV) a été insérée dans des ruches d'observation avec des reines accouplées, qui étaient contraintes de pondre dans les cadres. Les œufs et les pupes ont été échantillonnés et les reines disséquées pour leurs spermatheque et ovaires. Cela a été répété avec de la cire entreposée durant 30 jours. Pour l'infectiosité par l'air, des ouvrières adultes de colonies HV et FV ont été encagées et séparées soit par un simple grillage (cages de contact) ou par grillage double (cages avec air seulement) avec des témoins de FV. Les cages étaient incubées avec un circuit d'air individuel. Pour les traitements d'entreposage et de chaleur, la cire de HV a été prise et entreposée à différentes températures appropriées pour des apiculteurs et maintenue à une forte température pour tester le déclin dans le niveau des virus. Les virus dans chaque expérience étaient quantifiés par RT-qPCR et comparés par traitement.

**Ronald Batallas (University of Alberta), with M. Evenden
The basis for cutworm (Lepidoptera: Noctuidae) Integrated Pest Management: Understanding crop-pest interaction and moth community structure in Prairie agro-ecosystems.**

Cutworms (Lepidoptera: Noctuidae) include pest species that affect crops throughout the Canadian Prairies. Although population outbreaks can lead to crop destruction, no tools have yet been developed to monitor cutworm populations in the Prairie Provinces. To establish an effective monitoring program, it is important to understand cutworm-crop interactions at individual and population levels. The aim of this research is to build the basis for cutworm Integrated Pest Management through investigating the larval nutritional ecology and the chemical ecology of adult feeding behaviour. We tested the effect of host plant species and plant nutrition on larval performance and feeding preference for two common cutworm pest species. Larval feeding studies provide insight into the potential use of agricultural practices, like crop rotation and crop fertilization, for management of cutworm populations. The feeding behaviour of adult cutworms involves response to volatile cues in the habitat, including host plant volatiles, floral compounds and microbial emissions from fermented sugars. To exploit this behaviour, and develop a semiochemical-based monitoring tool, we tested various food bait lures that provided volatile cues from different sources, at different release rates and from different dispenser types. The importance of moth physiological state on response to feeding attractant lures was tested using electroantennogram assays. This work has led to the development of a semiochemical-based tool for monitoring multiple cutworm species that also minimizes pollinator bycatch in baited traps. Studying diversity of moths attracted to different food-based semiochemicals will further our knowledge on the diversity of noctuid moths in agroecosystems.

Les bases de la lutte intégrée contre les vers gris : comprendre l'interaction culture-ravageur et la structure de la communauté de papillons dans l'agroécosystème des Prairies.

Les vers gris (Lepidoptera : Noctuidae) incluent des espèces de ravageurs qui affectent les cultures dans l'ensemble des prairies canadiennes. Bien que les épidémies peuvent mener à la destruction des cultures, aucun outil n'a encore été développé pour surveiller les populations de vers gris dans les provinces des prairies. Afin d'établir un programme de surveillance efficace, il est important de comprendre les interactions vers gris-culture aux niveaux individuel et populationnel. Le but de cette recherche est de construire les bases pour la lutte intégrée contre les vers gris en investiguant l'écologie nutritionnelle des larves et l'écologie chimique du comportement de nutrition des adultes. Nous avons testé l'effet de l'espèce de plante hôte et de la nutrition de la plante sur la performance larvaire et la préférence nutritionnelle pour deux espèces de vers gris ravageurs communs. Les études sur la nutrition des larves ont fourni un aperçu de l'utilisation potentielle de pratiques agricoles, comme la rotation des cultures et la fertilisation, pour la gestion des populations de vers gris. Le comportement de nutrition des adultes vers gris implique une réponse aux indices volatiles dans l'habitat, incluant les volatiles des plantes hôtes, les composés floraux et l'émission microbienne des sucres fermentés. Pour exploiter ce comportement et développer un outil de surveillance basé sur les sémiocochimiques, nous avons testé différents appâts de nourriture qui fournissent des indices volatiles de différentes sources, à différents taux d'émission, et de différents types de distributeur. L'importance de l'état physiologique du papillon sur la réponse aux appâts nutritionnels a été testé en utilisant des tests d'électroantennographie. Ce travail a mené au développement d'un outil basé sur les sémiocochimiques pour surveiller plusieurs espèces de vers gris qui minimise également les captures accidentelles de pollinisateurs dans les pièges à leurres. Étudier la diversité des papillons attirés par différents sémiocochimiques liés à la nourriture approfondira notre connaissance de la diversité des papillons noctuelles dans les agroécosystèmes.

Graduate student showcase / Vitrine aux étudiants gradués



Graduate Student Showcase Participants (from left): Ronald Batallas, Diana Wilches, Adam Blake. Inset: Megan Colwell.

2017 ESC Student Award Winners Gagnants des prix étudiants SEC 2017



Tyler Wist for ESC

The **PhD Postgraduate Award** was awarded to **Victoria MacPhail** who is based at York University, Ontario. For her thesis, Victoria is trying to understand the decline of native bumble bees (*Bombus spp.*) and assessing the value of citizen science in this endeavour. She already has considerable experience in pollinator conservation and public outreach and her studies are likely to have a broad impact on defining the status of rare bumblebees, prioritization of species and potential recovery plans.

Victoria also won a **Danks Scholarship** for her work, as well as an **Ed Becker Conference Travel Award**.



Sabrina Rondeau of the Université Laval won the **MSc Postgraduate Award**. Her project investigates the potential of using the predatory mite *Stratiolaelaps scimitus* to control *Varroa* mites in honey bee colonies. The project is looking at both the impact on the honey bee and *Varroa* and the feasibility of introducing the predatory mite into hives as a control measure.

Sabrina also won the **John H Borden Scholarship in IPM**.

Sabrina Rondeau was the recipient of the MSc Postgraduate Student Award and also the John H. Borden Scholarship.

The **PhD Research Travel Award** was awarded to **Nur Yusof** who is studying at the University of Guelph. Nur planned to use the award to visit the Bernice Pauahi Bishop Museum in Honolulu, Hawaii, USA, to study their collection of Micropezidae flies. This will greatly aid her revision of the subfamily Eurybatinae.



Nur Yusof

Nur Yusof , the recipient of The PhD Graduate Research Travel Award.



Sarah Nason of the Université du Québec à Montréal won the **MSc Research Travel Award**. The funding is to be used in partial support of a field trip to New Zealand to study the weta, *Hemideina crassidens*, a nocturnal orthopteran insect native to New Zealand. Sarah will carry out morphological analysis of populations on the Somes and Maud Islands and also collect material for genetic analysis.

Greg Pohl accepted the MSc Graduate Research Travel Award on behalf of Sarah Nason.

Tyler Wist for ESC



Ryan Oram received the Keith Kevan Scholarship.

Ryan Oram, who is based at the University of Regina, was awarded the **Keith Kevan Scholarship** for his work on the taxonomic revision of the bee genus *Hylaeus* Fabricius (Hymenoptera: Colletidae) in Canada. Previous taxonomic work on *Hylaeus* was conducted solely using morphology; Ryan is revising the genus *Hylaeus* using a combination of DNA-sequencing combined with traditional information based on morphology and geography.

Jason Gibbs for ESC



Rachel Rix accepted a Dr Lloyd Dosdall Memorial Scholarship on behalf of Gail MacInnis.



A Dr Lloyd Dosdall Memorial Scholarship was awarded to Tina Dancau.

Tyler Wist for ESC

The two winners of the **Dr Lloyd M. Dosdall Memorial Scholarships** were **Gail MacInnes** from McGill University and **Tina Dancau** from Carleton University. Gail is studying the impact of bee diversity on pollen quality and quantity, focusing on strawberry fields. Tina is working on the diamondback moth, *Plutella xylostella*, with a particular focus on producing a life table with a detailed analysis of natural enemies using DNA techniques.

The second **Danks Scholarship** was awarded to **Thaís Guimaraes** from the University of Manitoba. Thaís' thesis looks at landscape effects on the flea beetles, *Phyllotreta cruciferae* (Goeze) and *P. striolata* (Fab.) (Coleoptera: Chrysomelidae), and their natural enemies in the Canadian Prairies, with a particular focus on movement between crop and more natural habitat.



Hugh Danks presented the second Danks Memorial Scholarship to Thaís Guimaraes.

Tyler Wist for ESC

President's Prize Awards:

Back row (left to right): Jaime Chalissery (accepting for Tamara Babcock), Mike Hrabar, Elton Ko, Yonathan Uriel (accepting for Asim Renyard), Danielle Hoefele, Ryan Oram; Front row (left to right): Kari Zurowski, Joanna Konopka, Rachel Rix, Amélie Gervais, Amanda Martens, Jenny Liu. (Missing from picture: Robert Pivar, Asim Renyard and Tamara Babcock.)



Tyler Wist for ESC



Special feature / Article spécial

The BioBlitz Canada 150 Signature Project – a key component of Canada 150 Celebrations

Cory S. Sheffield, Annie Belair and Daralyn J. Sheffield

Canada is a very large country and is known for its diverse peoples, landscapes, and its flora and fauna. To mark Canada's 150th anniversary, the Canadian Wildlife Federation (CWF), with the assistance of many partnering groups, organized one of the 38 Pan-Canadian Signature projects – large-scale, high impact, public participation-oriented activities conducted at the national level. One of these signature projects was **BioBlitz Canada 150** (<http://www.bioblitzcanada.ca/>). The main objectives of **BioBlitz Canada 150** were to connect Canadians with nature and familiarize them with the country's biodiversity at scales ranging from an individual's backyard to large sites within some of the most important ecological areas in Canada.



BioBlitz Canada 150 had a number of steering committee members, including the Alliance of Natural History Museums of Canada, the Biodiversity Institute of Ontario, Bird Studies Canada, the Canadian Museum of Nature, the Canadian Wildlife Federation, Nature Canada, NatureServe Canada, the New Brunswick Museum, Parks Canada, *rare* Charitable Research Reserve, the Royal Ontario Museum, the Toronto Zoo, and the Vancouver Aquarium. In addition to these major contributors, there were a number of partnering organizations including the Biological Survey of Canada, Canadian Wildlife Service (Environment and Climate Change Canada), iNaturalist Canada, Nature Conservancy of Canada, Royal Saskatchewan Museum, and Stanley Park Ecology Society. Lastly, a number of organizations provided additional support, including the Canadian Botanical Association, Canadian Parks and Recreation Association, Canadian Parks Council, Every Living Thing, iNaturalist.org, Ontario Nature, Ontario Science Centre, Manitoba Conservation Data Centre, Nature Saskatchewan, Quebec Centre for Biodiversity Science (McGill University), Royal Botanical Gardens, Toronto and Region Conservation Authority, Living City Foundation, Université de Montréal, and Yukon Conservation Data Centre. Thus, a large number of organizations were involved in this milestone event.

To accommodate a wide range of participants, several types of bioblitzes were held across the country. The “Flagship” events were large-scale, public-oriented celebrations, though still had biodiversity inventories as their main focus. Flagship events aimed at bringing together the public and experts to expose the participants to the biodiversity in their local area; they were conducted in green spaces in the middle of cities, though people could also participate by contributing data from their own backyard. The Flagship events also functioned to increase public awareness of the science behind their bioblitz, stressing the benefits of such events, and allowing all participants to become citizen-scientists who would contribute to increase biodiversity knowledge. In addition to the surveys, there were a number of guided natural history tours, workshops, and other activities organized by local partners to increase local biodiversity knowledge, and to explore a full range of

Cory S. Sheffield (cory.sheffield@gov.sk.ca) is the Curator of Invertebrate Zoology at the Royal Saskatchewan Museum in Regina. Annie Belair is the Partner Liaison, BioBlitz Canada 150, with the Canadian Wildlife Federation, Ottawa. Daralyn J. Sheffield is the Life Sciences Program Specialist at the Royal Saskatchewan Museum in Regina.

ways of knowing nature (i.e., artistic, creative, musical, by personal experience, through different cultural traditions). The “Community” events were also public-oriented, though usually on a small- to mid-sized scale. Similar to the Flagship events, Community events focused on increasing knowledge of local biodiversity and increasing public awareness of the importance of bioblitzes.

Lastly, “Science-intense” bioblitzes were conducted in areas considered of ecological interest, with the main goal of contributing new biodiversity data for the conservation of wild species and spaces in Canada. These sites were selected based on input from partnering groups, and mainly carried out by taxonomic specialists and expert naturalists using standardized protocols. However, the public were able to participate virtually via social media feeds and iNaturalist (<http://inaturalist.ca/>) projects dedicated to their specific bioblitz.

Across the country, 35 **Canada 150 BioBlitzes** were held, including 5 Flagship events in major cities, 20 Community events, and 10 Science-intense events. Across all events, iNaturalist was used by organizers and participants to record species observations at specific sites. Prior to each event, a project was created in iNaturalist for each bioblitz, with the event-specific parameters (i.e., site and geographic boundaries, dates of event) pre-selected to ensure data was collected in accordance with the event. In addition, a national tally of observations and species was recorded in the BioBlitz Canada 150 project on iNaturalist.

As of 31 October 2017 (the pre-selected end date for the events), over 34 000 observations were added to iNaturalist by almost 1100 observers across the country as part of **BioBlitz Canada 150** events, these records representing 5 500 taxa. These values will continue to increase throughout 2017 and 2018. The insects (over 6 600 observations) were second only to the plants (over 15 500 observations) in terms of the number of observations recorded in iNaturalist across all events, with birds (over 4 600 observations) coming in a close third (Table 1). However, in terms of the number of taxa recorded, the insects were very close to the plants, both groups with almost 1 800 “species”. However, these numbers are somewhat misleading due to taxonomic resolution. The insects (and other invertebrate taxa) are particularly speciose, and due to the enormous species richness and taxonomic difficulty with many taxa, most observations were likely identified in the field (or on iNaturalist) to family or genus level, so “species” may actually mean “taxon” and various super-specific levels. However, many specimens were collected and will be identified later, and these data will also be added to iNaturalist. From an entomological perspective, these numbers are evidence of both the ubiquity of insects throughout the country and the strong interest in Canada’s entomofauna.

Table 1. Major taxa observed and collected for the **BioBlitz Canada 150** events nationally (all events pooled), and for the two Saskatchewan events in Regina (Flagship) and Cypress Hills (Science). (“Obs.”: observations)

| | National Obs. | “Species” | Regina Obs. | “Species” | Cypress Hills Obs. | “Species” |
|-----------------|------------------|-----------|----------------|-----------|-----------------------|-----------|
| Insects | 6 611 | 1 798 | 243 | 87 | 267 | 140 |
| Plants | 15 686 | 1 976 | 152 | 65 | 218 | 130 |
| Birds | 4 643 | 323 | 150 | 54 | 56 | 46 |
| Arachnids | 636 | 210 | 31 | 9 | 89 | 44 |
| Mammals | 606 | 75 | 33 | 11 | 13 | 10 |
| Fungi & Lichens | 1 828 | 430 | 8 | 2 | 17 | 10 |
| Ray-finned Fish | 413 | 113 | 4 | 3 | 1 | 1 |
| Molluscs | 494 | 139 | 1 | 1 | 9 | 5 |
| Amphibians | 480 | 24 | - | - | 3 | 1 |

Special Feature

Two of us (CSS, DJS) directly participated in both of the events held in Saskatchewan. The first of these, held 9-10 June, was a Flagship event held in Regina's Wascana Habitat Conservation area and had more than 500 visitors. Entomology was well represented at this event, with several public walks and field trips to one of the islands in Wascana Lake, evening light trapping (Figure 1), Malaise trapping, and a small army of people of all ages with nets (Figure 2). Visitors were encouraged to bring specimens to the identification tables which had taxonomic experts from the Royal Saskatchewan Museum (Figure 3) and the Entomological Society of Saskatchewan (Figure 4). During this 24-hour period, we had 669 observations from 54 people (most of the visitors were not using iNaturalist), with 240 species. Most of the observations (243) and species (87) were insects (Table 1).



Daralyn Sheffield

Figure 1. Light trapping at Regina's Wascana Habitat Conservation area.



Daralyn Sheffield

Figure 2. A budding entomologist excited about the bioblitz.



Daralyn Sheffield

Figure 3. Cory Sheffield at one of several insect identification stations.

Figure 4. Members of the Entomological Society of Saskatchewan collecting during the Flagship event.



Sarah Schaefer

The second bioblitz held in Saskatchewan was in Cypress Hills Interprovincial Park on 28–29 July. This was a Science-intense (or “science in tents”!) event, with a small component dedicated to public outreach led by the Royal Saskatchewan Museum and Biological Survey of Canada. This bioblitz had a small core of about 20 scientists, several of whom were entomologists with specific focus on mites, Coleoptera, and Hymenoptera, though a broad range of taxa were observed and collected. Again, the Royal Saskatchewan Museum and Entomological Society of Saskatchewan contributed several folks to this event, with other participants coming from the University of Alberta, University of Regina, University of Saskatchewan, Canadian Museum of Nature, and other natural history and science groups from within the province. As with the Regina event, the insects formed the largest component, with 267 observations on iNaturalist, representing 140 species, with the plants also well represented (Table 1). The western bumble bee, a threatened species in Canada, was observed in relatively high numbers (Figure 5). Arachnids were also well represented (the benefits of having a world renowned acarologist involved!), with 89 observations representing 44 species (Table 1).

Canada has a strong history of entomology, and bioblitzing. Events that provide opportunities to engage the public on the importance of biodiversity and biodiversity science, natural history, and community are a great way to promote entomological education. Increasing awareness of Canada’s biodiversity, the main goal of the Biological Survey of Canada, is an ongoing task, and the **BioBlitz Canada 150** events held across the country provide a snapshot dated “2017” of our diverse flora and fauna. We hope that the fun had and knowledge gained will lead to more bioblitzes in the future.



Daralyn Sheffield

Figure 5. The western bumble bee, *Bombus occidentalis*, a threatened species in Canada.



C. Sheffield

The Cypress Hills, which straddle the border between Alberta and Saskatchewan

In memory / En souvenir de

Terry Wheeler 8 June 1960 – 25 July 2017

The entomological community lost one of its active members on 25 July 2017 with the premature death of Terry A. Wheeler at the age of 57 due to Glioblastoma multiforme, a malignant form of brain cancer. The encouragement he received from many of you kept him smiling even through the most difficult moments. Terry fought a very brave fight and would not give up hope.

Most of us remember the first encounter we had with Terry. Be it Doug Currie's first impression when he didn't quite know what

to make of Terry, who was decked out in a formal-looking jacket and bowtie that would make Ed Becker¹ blush until he saw him speak about his PhD research in 1990 at the 2nd International Congress of DipteroLOGY in Bratislava, Slovakia, and knew Terry would be a force to be reckoned with, or Julia Mlynarek's amazement when Terry first came into the Evolution and Systematics class dressed way too smartly for a biology professor but talked about the history of evolution with such enthusiasm that it automatically influenced her career choice.

Terry was born in St. John's, Newfoundland, in 1960 and moved often throughout the Maritimes and Ontario in his formative years; he counted having lived in at least 20 houses. As a kid, he often spent time fishing capelin and helping on his grandfather's farm, playing music with his band and just hanging out. Entomology was not on his radar until he was in university. He completed a BSc in Biology at Memorial University in 1985, later obtaining an MSc in 1987 in parasitology and PhD in Diptera systematics (on the Sphaeroceridae) in 1991 from the University of Guelph. After encouragement from Kurt Sabrosky², Terry completed a postdoc in Chloropidae systematics at Carleton University and the Canadian National Collection. In 1995, fate proved kind to Terry when he landed a faculty position at Macdonald Campus of McGill University in Ste-Anne-de-Bellevue. This was a dream position for him as he could devote time to his research on flies and teach some of his favorite topics through diverse university courses including Systematics and Evolution, Zoogeography, Systematic Entomology, Field Entomology, Desert Ecology, Insect Diversity and Phylogeny, and Evolving Earth. Terry's broad knowledge and interests would regularly contribute to colorful debates and discussions in class. He had a profound respect for students and always encouraged them to question authority. In one of his blog posts he wrote: "Some of the best ideas and innovations in science today come from students and postdocs who don't simply accept what's written in the papers or pronounced by professors. That's how science keeps moving forward. Always ask WHY?". Terry's passion for entomology, ecology and natural history was contagious and his multiple stories, anecdotes and sense of humour in class resulted in Terry becoming rapidly one of the best teachers at McGill, a fact



J. Mlynarek

Terry Wheeler on the shores of Lake Kluane taking notes for future projects, July 2016.

¹Edward C Becker was a coleopterist and longtime member of the Canadian entomological community who was famous for his large collection of bowties.

²Curtis W. Sabrosky was an American dipterist that had an inordinate fondness for Chloropidae, a fondness he passed on to Terry.

supported by the multiple teaching awards he received including the Macdonald Campus Award for Teaching Excellence and the Principal's Prize for Excellence in Teaching.

After his arrival at McGill, the “Wheeler lab” or “the Lyman lab” soon became very active with motivated graduate students taking on projects in ecology, taxonomy and phylogeny. Terry was extremely helpful and supportive to his students, always stressing the importance of building a network with the scientific community, publishing in scientific journals and presenting at scientific conferences. Terry’s rigor in science was a great legacy to his multiple students (the Lymanite alumni), and it is not a surprise that so many of them now occupy important scientific and academic positions in the country.

In addition to duties associated with his academic position, Terry was Director of the Lyman Entomological Museum, one of the largest insect collections in Canada. This was a perfect combination of his love for taxonomy, museology and natural history. As Director, Terry developed an impressive collection of Diptera over his 22 year tenure; he increased the size of the collection, adding hundreds of thousands of identified specimens (mainly flies!) that he or his students collected through diverse field trips ranging from the Arctic to tropical regions. His strong networking, his presence in multiple international conferences, his scientific publications, social media communications and his Lyman Museum blog posts, all contributed to the great reputation that the museum has today. Terry will stay forever an important part of the Lyman Entomological Museum history.

Outside the lab, he would often reconnect with other entomologists and dipterists at scientific meetings and was an active member on the Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods), which he joined in 1997 and where he remained active for 20 years. He was also an active member in the Entomological Society of Canada since his grad school days. In 1999, Terry won the C. Gordon Hewitt Award. He made sure the ESC-SEQ JAM 2006 in Montreal was a success. He rarely missed an ESC meeting and usually made sure his students also attended. He was always present at the AGMs making sure students and diversity were at the forefront of the issues discussed because he truly believed that students and a diverse membership is the future of the Society. Terry was the Society’s President in 2015-2016. He became ill at the end of the tenure and was very disappointed he couldn’t attend the ICE 2016 to pass the gavel to Neil Holliday.

He also continued to be active in research until he became ill, jotting down ideas for new projects in his notebook wherever he went. His last big project was with fellow Scientific Committee members of the BSC (Doug Currie, Chris Buddle and Donna Giberson) on a successful NSERC Strategic Project Grant titled “Ecological Structure of Northern Arthropods: Adaptations to a Changing Environment”. With multiyear funding in place from NSERC and other partners, the Northern Biodiversity Program was launched in 2010 to systematically quantify arthropod diversity at 12 sites across northern Canada. There was one site in particular (Banks Island) that became memorable for all involved and best demonstrates the kind of human being and renaissance man Terry really was. In July, 2011, a Twin Otter transported our 6-person field crew from Inuvik to Aulavik National Park, where we would remain isolated from the outside world for more than 2 weeks. Everything we needed to sustain us during that period was jammed onto the plane, including tents, sleeping bags, food and the like. In addition to the usual array of life-sustaining goods, Terry brought supplemental items that made this particular trip extra special: biscuits, crackers, fine cheeses, and a remarkably diverse selection of Scotch and Irish whiskies — all freely shared with other members of the field crew. He brought a guitar to plunk out tunes, and even composed a hilarious song about our wilderness toilet, attached tenuously to the tundra by guy lines strapped to boulders. One day, Terry brought out a set of watercolor paints to capture the pastel tones of the arctic landscape. On another, he composed

Haiku poems (of which he was especially fond) to memorialize their experiences. Perhaps the most enduring memory from that trip was of Terry traipsing about the tundra in a kilt — even though that strategy risked injury from mosquitoes. The kilt somehow reminded Doug of that fellow he met 20+ years ago, decked out in a formal jacket and floppy bowtie. The Biological Survey of Canada's 2016 BioBlitz in Carmacks was Terry's last trip to the Yukon. He was thrilled to be up north again and was looking forward to a well-earned sabbatical.

Although Terry's reputation of not always replying to his emails or returning his phone calls will remain legendary, most learned that the best way to get a hold of him was simply to drop by his office for a chat (or through a tweet for long distance correspondents!). He would always make time for an in-person conversation no matter how busy he was.

It seems inconceivable that such a vigorous and diversely-talented colleague would be taken from us so quickly and just over a year after his final trip north. From the numerous messages and tributes that were posted after he left us, it is unquestionable that Terry had a great impact on people. Terry's wit and wisdom will be sorely missed, but it's comforting to know his legacy lives on through his students, colleagues, collaborators, collections, scientific publications, blog posts, and Tweets. Fly free Terry!

Julia Mlynarek (Harrow), Stephanie Boucher (Montreal), and Doug Currie (Toronto)

An ode to Terry Wheeler (written as a series of non-strict Haikus)

By Julia Mlynarek

With hope and big smile
Sharing knowledge and love of nature
A person can inspire

Tiny flies, rocks and more
On mountains, in deserts, and tundra
He found beauty in all

Teaching us to think
Talking of science and art
Making connections

Insects, mostly flies
Species and communities
Forging an alliance

Devoted to students
Wrote three lines about six legs
No need to say more

Book review / Critique de livre

The Observation Hive Handbook: Studying Honey Bees at Home. Linton, Frank. 2017. Cornell University Press, Ithaca, New York. xvi + 91 pp. ISBN 978-1-5017-0726-1. Paperback. US\$24.95.

When this excellent little book arrived unexpectedly in my mailbox (normally, books for review are sent to the Chair of the Publications Committee), I immediately offered to review it based on my experience as a one-time hobby beekeeper.

At the outset, the author makes it clear that the book is designed 'for backyard and urban beekeepers', though even professional beekeepers and institutions such as museums and schools will find information of interest therein. Implicit in this statement is the premise that operators of observation hives will have a basic knowledge of honey bee management.

The book includes eight chapters, a Foreword by Clarence Collison (Emeritus Professor, Mississippi State University), Preface, Acknowledgements, Appendix, Bibliography, and Index. Chapter 1 (Benefits of Observing Honey Bees at Home) summarizes the advantages of an observation hive (a beehive with windows) over a conventional hive for studying bee behaviour (apparently, even Karl von Frisch had an observation hive for watching his bees), whether as a tool for hobby beekeepers to learn more about the colony or as an educational resource for attracting visitors and students.

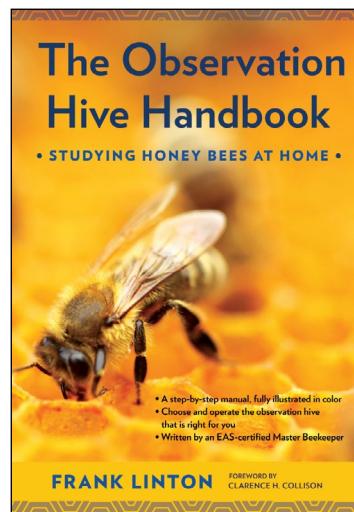
In Chapter 2 (Preparing for and Selecting an Observation Hive) the author discusses what needs to be done *before* the observation hive is set up, including deciding where to locate the hive and (if indoors) its exterior opening, preparing the family and neighbours(!) who may be affected by the bees, and selecting/making an observation hive. The latter is a very good summary of general design considerations, comparison of some commercially available observation hives, and examples of hives constructed by beekeepers.

Chapter 3 (Installing Your Observation Hive) provides detailed information on setting up the observation hive indoors and locating its external entrance. Especially interesting is the discussion of observation hives placed in multi-use rooms (including the dining room, guest bedroom and office!) when used for their alternative purpose.

Chapter 4 (Working an Observation Hive) considers the everyday maintenance of an observation hive: opening/closing the hive, installing bees, parasites and pests, colony die-off, and overpopulation leading to swarming (and what to do in this event). The latter is apparently the most frequent issue that arises with an observation hive due to its limited size.

The fifth chapter (Maintaining Your Observation Hive) is essentially an extension of Chapter 4, dealing with feeding the colony, maintaining the correct colony temperature, and cleaning the windows. Proper attention to the first two chores is especially important because, in contrast to the situation in a regular hive, in an observation hive very little food is stored and there are insufficient bees to form a cluster capable of maintaining its core temperature under cold conditions.

Chapter 6 (Observation Hives in Public Spaces) deals with permanent hives (typically found in institutions) and temporary (portable) hives seen at fairs, farmers' markets, 4-H gatherings, etc. Being in the public eye, these hives require more effort to maintain, to ensure they are clean,



healthy, not overcrowded, and adequately fed. As well, the author recommends that supporting materials be available to generate interest in the display.

The two remaining chapters (7: Bee Photography and Your Observation Hive; and 8: Things to Try with Your Observation Hive) provide suggestions and tips for getting maximum enjoyment from an observation hive. They are followed by a 1-page Appendix comprising a checklist for installation and selection of an observation hive, a 2-page Bibliography for those wanting to learn more, and a detailed Index.

To conclude, the book is well written and packed with useful information. The text is well supported by colour photographs, mainly taken by the author. Although its scope is clearly limited, it will appeal to its intended audience.

Cedric Gillott
University of Saskatchewan

ATMOS 41: Weather Stations, Reimagined

While the **ATMOS 41** packages **12 weather sensors** into a single device for atmospheric conditions, pairing it with the EM60G data logger allows the **flexibility** to add other sensors, like **soil moisture**.

- Affordable + compact
- Measures solar radiation + precipitation
- ◆ Humidity, temperature + atmospheric pressure transmitted over single wire
- ※ Plug-and-play atmospheric data logging and cloud-based data storage and management (when paired with EM60G)



The All-In-One plus One, or Two, or Three...



www.hoskin.ca | salesb@hoskin.ca
Vancouver | Burlington | Montreal

(paid advertisement/ publicité payée)

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 (Maya Evenden, mevenden@ualberta.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.

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.

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 (Maya Evenden, mevenden@ualberta.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.

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.

Currently available for review / Disponibles pour critique

- 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]
- Danks, H.V. 2017. The Biological Survey of Canada: A Personal History. Biological Survey of Canada. ISBN: 978-0-9689321-9-3 [e-book]
- Kirk-Spriggs, A.H. and B.J. Sinclair [Eds.]. 2017. Manual of Afrotropical Diptera, Volumes 1 & 2. South African National Biodiversity Institute.
- Allison, J.D. and R.T. Cardé [Eds.]. 2016. Pheromone Communication in Moths: Evolution, behavior and application. University of California Press. ISBN: 978-0-520-27856-1 [hard cover].
- Appel, E. & S.N. Gorb. 2015. Comparative Functional Morphology of Vein Joints in Odonata. Zoologica Vol. 159; ISBN-978-3-510-55046-3. [paperback]
- Cárcamo, H.A., & D.J. Giberson [Eds.]. 2014. Arthropods of Canadian Grasslands. Vol. 3: Biodiversity and Systematics, Part 1. Biological Survey of Canada. ISBN 9780968932162 [soft cover]
- Giberson, D.J., & H.A. Cárcamo [Eds.]. 2014. Arthropods of Canadian Grasslands. Vol. 4: Biodiversity and Systematics, Part 2. Biological Survey of Canada. ISBN 9780968932179 [soft cover]

Highlights from the Board of Directors Meetings in Winnipeg

Future Joint Annual Meetings

The Board approved a memorandum of understanding between the ESC, Entomological Society of British Columbia, and the Entomological Society of America (ESA) governing their joint annual meeting (JAM) in Vancouver in 2018. ESA has booked the Vancouver Convention Centre for meetings both in 2018 and 2022, and it is anticipated that if the normal JAM rotation were to be followed, a joint meeting with the Entomological Society of Saskatchewan (ESS) in 2022 would fare poorly in competition with an ESA meeting in Vancouver within a few weeks. Therefore, the ESC Board approved that “in principle” (pending all going well in 2018) the ESC will again join the ESA meeting in Vancouver in 2022, and, in due course, a request will be made for ESS to host the JAM in 2025. There was discussion of the general implications of more frequent ESA meetings in Canada, both at the Board meeting and at a subsequent meeting with ESA delegates.

The 2019 JAM will take place in Fredericton on 18–21 August 2019, and will be held jointly with the Acadian Entomological Society and the Canadian Society for Evolution and Ecology. Because of the early date, the audited financial statements for 2019 will not be available at the time of the JAM. This means that, although most matters can be considered at the Annual Members Meeting in Fredericton, a teleconference membership meeting will have to take place after the JAM to approve the financial statements.

The Board is anticipating an invitation from the Entomological Society of Alberta to hold the 2020 JAM in that province. There was some discussion of potential venues and costs.

Treasurer’s Report

The audited financial statements (available in the member’s area of the Society’s website) for ESC for 2016–2017 were approved and those of the ESC Scholarship Trust were received as information. The ESC overall income for 2016–2017 was \$113,140, which was \$31,640 higher than budgeted. The extra revenue arises mainly from the sale of digital archives of *The Canadian Entomologist* and *Memoirs of the Entomological Society of Canada*, which Cambridge University Press sells to libraries on behalf of ESC. This has provided a good source of income to the ESC in the last 6 years, and each sale provides the purchaser with perpetual access to the archives. Consequently, fewer potential customers remain with each passing year; the Treasurer projects that income from this source will soon be near or at zero. The ESC Board is looking at additional sources of income. The financial statements for 2016–2017 were audited because ESC revenue exceeded \$250,000, due primarily to two large scholarship donations. Statements for the 2017–2018 financial year will be subject to a review engagement, provided that income does not exceed \$250,000.

The honorarium for those presenting in the Graduate Students Showcase was historically \$100 per person, but it has now been changed to \$200 to reflect the rate of inflation.

Changes to Standing Rules to be proposed at the Annual Business Meeting

The Fund-Raising and Marketing Committee will now be the Fund-Raising Committee as it will no longer be involved with marketing. The Committee will now focus not only on annual meeting sponsorship but also on annual sponsorship to make relationships between ESC and potential sponsors more meaningful and longer-lasting. Additionally, to establish and maintain effective relationships with sponsors, one person will be identified to be the point of contact for

communications with potential sponsors. The Board approved modifications to Section X 4 (o) of the Standing Rules, to reflect this change in the Committee.

In order to define their roles and better protect them from liability, the Board approved adding the positions of Webmaster and of Social Media Administrator(s) to the Officers section of the Standing Rules.

The Board approved changes to Section XI Meetings, part 4 of the Standing Rules, so that they conform to the previously agreed policy defining financial support and profit sharing for JAMs.

Software for layout of *ESC Bulletin*

It was noted that current software for *Bulletin* layout was becoming increasingly difficult to use. The Board approved leasing up-to-date InDesign software beginning in 2019. It was noted that the two installations that the lease permits would allow the software to be used both by the *Bulletin* and the *Canadian Journal of Arthropod Identification*. The Board requested that there be a review of whether the *Bulletin* should become an on-line document, or remain as a pdf for download.

Contract with Strauss event & association management

The Board noted ongoing performance issues with Strauss services. ESC's current contract with Strauss will expire on 30 June 2018. In light of steps that are expected to improve performance, the Board approved development with Strauss of an extension of the existing contract to 30 September 2019. During this time Strauss is expected to achieve performance milestones and expectations set out by ESC. Additionally, an SOP defining how Strauss operates to provide ESC's needs is being developed between Strauss and the Executive Council.

Ad hoc Committee on Negotiation of Discounts for ESC Members

Charles Vincent provided a report on his activities to negotiate discounts from suppliers for ESC members. These would augment the existing agreements with Annual Reviews (two titles) and Cambridge University Press that provide a 20% discount on academic books for personal purchases by ESC members. Discounts were obtained from the Entomological Society of America and Elsevier. ESC members will now enjoy a discount similar to ESA members when purchasing books from the ESA. Discussions with Elsevier are still in progress. It was decided that the activities of this committee be discontinued for the next 3 years as it is unlikely that additional approaches will be fruitful in the near future.

ESC/BioQuip Junior Entomologist Award

The ESC is planning to approach BioQuip to ask for their sponsorship of an ESC/BioQuip Junior Entomologist Award. If accepted, this award, of which there would be two per year, would provide \$100 in cash and a student membership provided by ESC to be matched by a \$200 BioQuip credit.

Minutes of the 67th Annual General Meeting Fairmont Winnipeg Hotel, Winnipeg, Manitoba 24 October 2017

1. Call to Order

The meeting was called to order at 12:15 pm by President Neil Holliday, with 116 members present.

2. Notice of Meeting

Notice of the meeting was sent to all members by email on 27 September 2017 and was published in the June and September 2017 issues of the Bulletin.

3. Additions to and approval of the Agenda

The Agenda was approved as circulated on a motion by Pat MacKay; seconded by Charles Vincent.

Carried.

4. Minutes of the 66th Annual General Meeting

The minutes of the 66th Annual General Meeting were published in the December 2016 issue of the Bulletin. The minutes are also posted in the member's area of the Entomological Society of Canada website.

The minutes of the 66th Annual General Meeting were approved as distributed on a motion by Tyler Wist; seconded by Rob Currie.

Carried.

5. Commemoration of deceased members of the entomological community

The Heritage Committee reported the deaths since the previous Annual Meeting of Anne Howden, Christopher Hinks, and Terry Wheeler.

Patrice Bouchard presented a tribute to Terry Wheeler, who was Past-President of the ESC at the time of his death.

A moment of silence was observed in memory of all deceased members.

6. Report from the Board of Directors

President Neil Holliday read the following report:

Since the last Annual Business Meeting in Orlando, Florida, on 27 September 2016, the Board of Directors of ESC has met three times by teleconference and twice in person. In addition, the Executive Council has had two formal teleconference meetings, and a number of informal meetings. The Board and Executive Council suffered the loss of two members during the year: Fiona Hunter resigned as second Vice-President in May 2017, and Past-President Terry Wheeler was ill for most of the year, and died in July 2017. To address the vacancy in the presidential stream created by Fiona's resignation, the June member plebiscite was converted to one to select a candidate for First Vice-President, and there was a second plebiscite finishing in September to select a candidate for Second Vice-President. Staffan Lindgren, "Past Past President" stepped into two of the roles that Terry could not perform by chairing the Scholarship Fund Trust and the Nominations Committee, and the Board is grateful for his willing and efficient service in these roles.

At the Board Meetings in Orlando, there were concerns about declining membership and the long term financial sustainability of the Society, and it was agreed that we should undertake a Strategic Planning Process. A facilitator was engaged in early 2017 and a stakeholders' survey was sent to regional entomological societies, ESC committees and others. The Board, with a few others, engaged in a visioning exercise on 21 October, and Executive Council had a follow-up meeting with the facilitator, to guide development of a Strategic Planning report.

That report, together with a document prepared by the treasurer on ways to address financial sustainability, will be considered at a Board meeting in December 2017.

Membership in September 2017 was 409, a 15% increase over the membership in September 2016. The membership committee has been very active and innovative this year, one evidence of this is the membership desk at this joint annual meeting. It is now possible for General and Emeritus members to elect automatic membership renewal, where their credit card is charged annually to renew their membership.

The ESC Board, with the approval of the affiliate regional entomological societies, has approved a new policy for funding of advances and profit sharing for joint annual meetings. ESC is moving ahead to develop a more active fund-raising strategy, focused on developing long-term sustained relationships with national level funders.

In mid-2018, the current contract with our association management company, Strauss, is due to terminate and the Board has decided to negotiate an extension to that contract until 30 September 2019. We envisage that Strauss will have a significant role in the fund-raising initiative I just mentioned, and during 2017, we developed protocols for use of Strauss's secure digital archive facility which now contains records of ESC affairs from current activities back to 1960.

Also terminating in 2018 is our contract with the publisher of *The Canadian Entomologist*, Cambridge University Press. The Board has indicated to Cambridge the wish, subject to satisfactory outcome of negotiations, to renew the contract. The switch by Cambridge to a new website platform (Cambridge Core) in 2016 interfered with member access to the journal and with the ability of non-members to purchase articles from *The Canadian Entomologist* and to purchase pdf files of Memoirs. Most of these issues are now resolved and progress is being made on the remainder.

The current Editor-in-Chief of *The Canadian Entomologist*, Kevin Floate, will be replaced by Dezene Huber on 1 November 2017. The Board thanks Kevin for his outstanding service, during which the journal has prospered. The ESC is also responsible for appointing the editor of the *Canadian Journal of Arthropod Identification*. The founding editor of CJAI, Steve Marshall, has decided to resign. A successful search for a replacement was recently conducted, as a result of which, one of the first actions of the new Board will be to appoint Heather Proctor as Editor of CJAI.

For several years, the Board has been talking about the need to update the ESC website. In December 2016, a joint meeting of Executive Council, the webmaster, and the Web Content Committee developed a plan for the new website, and our webmaster, Jordan Bannerman, has been working to implement the plan ever since. The new site will go live within the next couple of weeks. The Board is very grateful to Jordan for his diligent work on this enormous undertaking.

The 2018 annual meeting will be joint between the Entomological Societies of Canada, British Columbia and America, and will be held at the Vancouver Convention Centre from 11 to 14 November. The Memorandum of Understanding for this meeting was signed on behalf of ESC on 23 October 2017. The Board has approved joining with the Acadian Entomological Society and the Canadian Society for Ecology and Evolution for a joint annual meeting to be held in Fredericton, New Brunswick, from 18 to 21 August 2019. Because the Entomological Society of America has a strategy of obtaining better rates for venues by booking two meetings in the same location 4 years apart, ESA will be meeting in the Vancouver Convention Centre again in 2022. In 2022, our normal rotation would have our joint annual meeting hosted by the Entomological Society of Saskatchewan, and it was realized that competition from the ESA meeting in Vancouver would jeopardise the success of a Saskatchewan meeting within a few

weeks of it. Therefore, the Board has decided that “in principle” it will meet jointly with ESA and ESBC in 2022, and that ESS will be the host of the 2025 meeting, a year in which ESBC would be the host according to our normal rotation. This decision is “in principle” because it allows us to change our minds should our experiences with the 2018 ESC/ESBC/ESA meeting be unfavourable.

The Board wishes to express its thanks to all officers, committee chairs, and committees for their work in the 2016–17 society year. I have already singled out several people for their outstanding service, and I would like to single out one more. Our Treasurer, Christopher Dufault, has served the Society for 3 years, years of transition, challenge and high levels of activity in the treasury. As you will hear later in the meeting, Christopher is desirous of stepping down, and we are looking for a replacement. The Board is extremely grateful for all of Christopher’s efforts.

7. Resolution to approve the actions of the Board

Motion that all by-laws, contracts, acts and proceedings of the Board of Directors of the ESC enacted, made, done or taken since 27 September 2016, being the date of the last Annual General Meeting, be approved, adopted, ratified, sanctioned and confirmed. Moved by Neil Holliday; seconded by Jeremy McNeil.

Carried.

8. Treasurer’s Report

8.1. Financial Statements for 2016 – 2017

Treasurer Christopher Dufault reviewed the Financial Statements for 2016 – 2017, which have been posted in the Members’ Area of the website.

Motion that the members approve the 2016-2017 financial statements for the Entomological Society of Canada. Moved by Christopher Dufault; seconded by Rob Curie.

Carried.

Motion that the members approve the 2016-2017 financial statements of the Entomological Society of Canada Trust. Moved by Christopher Dufault; seconded by Gail Anderson.

Carried.

8.2. Review Engagement for 2017 – 2018

Motion that Bouris, Wilson LLP of Ottawa be appointed as public accountants to ESC and the ESC Scholarship Trust to conduct the review engagement of both sets of financial statements for the 2017-2018 financial year. Moved by Christopher Dufault; seconded by Hugh Danks.

Carried.

Christopher mentioned that we are seeking a new Treasurer. Volunteers should contact Patrice Bouchard. Neil added that members can suggest to Patrice names of those who might be asked to be Treasurer. It should be noted that it is no longer necessary for the Treasurer to be located in the Ottawa area.

9. Standing Rules changes

9.1. Change in Standing Rule I., section 4., subsection (p) Fund-Raising and Marketing Committee.

Motion by Patrice Bouchard; seconded by Bill Riel, **to replace:**

Fund-Raising and Marketing Committee

The Committee shall consist of at least four Members, one of whom shall be designated Chair by the President.

The Committee shall develop ways of increasing revenue for the Corporation, notably through services or promotion and marketing of the publications and other saleable items of the Corporation.

With:

Fund-Raising Committee

The Committee shall consist of at least four Members, one of whom shall be designated Chair by the President.

The Committee shall develop ways of increasing revenue for the Corporation, notably through developing and maintaining sponsorships of the Corporation and its activities by national level sponsors, while coordinating with Regional Societies' fundraising efforts for Joint Annual Meetings.

Carried.

9.2. Addition of two Officer positions (Standing Rule VII. Officers)

Motion by Bill Riel; seconded by Tyler Wist, that two sections to the Standing Rules pertaining to Officers positions be added:

(m) **Webmaster:** The *Webmaster* shall be responsible for the web site of the *Entomological Society of Canada*. The Webmaster shall receive, edit, post, and remove material consistent with the objects of the Corporation.

i. The *Webmaster*, although responsible to the Board, will normally consult with the Web Content Committee on policies relating to the web site and its design, and with the Finance Committee on matters relating to expenditures and financing.

ii. The *Webmaster* shall give priority to postings dealing with Corporation affairs, including announcements of meetings, minutes of general meetings, actions of the Board, actions of committees, appointments, honours, etc.

iii. The *Webmaster* may also post news of entomology and entomologists, and items of interest consistent with the objects of the Corporation.

iv. The *Webmaster* shall provide links to, or other accommodation for, Social Media approved by the Board, but shall not be responsible for administering the content of such media.

And:

(n) **Social Media Administrator(s).** The *Social Media Administrator(s)* shall be responsible for the social media platforms of the *Entomological Society of Canada*. The *Social Media Administrators* shall receive, edit, post, and remove material consistent with the objects of the Corporation.

i. The *Social Media Administrators*, although responsible to the Board, will normally consult with the Web Content Committee on policies relating to the choice of media employed and to allowable content, and with the Finance Committee on matters relating to expenditures and financing.

ii. The *Social Media Administrators* may post news and items of interest for and about entomology and entomologists, and foster communication among Canadian entomologists where these are consistent with the objects of the Corporation.

Carried.

9.3. Change in Standing Rule XI. Meetings, section 4.

During 2016–2017, ESC agreed with its regional entomological society affiliates new arrangements with respect to financing and profit sharing for joint annual meetings. As a result, it is necessary to amend the standing rules to conform to these new arrangements. Motion by Neil Holliday; seconded by Martin Erlanson that the members approve the following revisions to Standing Rule XI. Meetings, section 4:

Replace:

For a joint annual scientific meeting, the Corporation shall provide, upon request of an affiliate, financial support specifically for the scientific program of the meeting in the amount of:

(a) Twenty-five hundred dollars (\$2,500.00) to assist with arranging the scientific program,

such as notices of meeting, printing of programs, rental of conference halls, etc.

(b) Up to fifteen hundred dollars (\$1,500.00) to pay expenses and honoraria for special speakers who, in general, would be other than Corporation members. The twenty-five hundred dollars (\$2,500.00) shall be paid as an unaccountable advance to the affiliate hosting the meeting (or to the Program Committee) and the remainder paid as requested and shall be accounted for by the recipient.

(c) If a meeting is profitable after return of the monetary advances then a portion of the profits, to be negotiated between the Corporation and the affiliate, shall be returned to the Corporation for use to support its general objectives.

With:

For a joint annual scientific meeting, the Corporation shall provide, upon request of an affiliate, financial support specifically for the scientific program of the meeting in the amount of:

(a) Up to \$5,000 to assist with arranging the scientific program, such as notices of meeting, printing of programs, rental of conference halls, etc.

(b) Up to \$3,000 to pay expenses and honoraria for special speakers who, in general, would be other than Corporation members.

(c) With respect to the balance sheet of joint annual meetings between the ESC and affiliated societies, the following arrangements regarding the advance and cost sharing will apply:

i. ESC functions (Student Mixer, President's Reception and two Governing Board meetings) are part of the meeting package and are to be included in the registration fee, and not billed separately to the ESC. The ESC, however, is responsible for the meeting expenses of certain award recipients (see Awards Committee).

ii. If the "profit before repayment of the advance" is $>$ the amount of the advance then the advance should be repaid in full to ESC and the residue should be divided 50-50 between the regional society and ESC. The portion of the residue provided to ESC should be remitted without designation of its purpose (i.e., "no strings attached").

iii. If the "profit before repayment of the advance" is $> \$0$ but \leq the amount of the advance, then all of it should be paid to ESC. It should be noted that there is not a 50-50 split of this money.

iv. If, before repayment of the advance, the meeting balance is negative, then ESC forgives the amount of the advance and pays $\geq 50\%$ of the deficit. The actual amount paid by ESC would be subject to negotiation between ESC and the regional society.

Carried.**10. Election of Directors**

The following slate of Directors was proposed for election by Alec McClay; seconded by Julia Mlynarek:

| Position | Candidate | Length of term | Ends at AGM |
|--|------------------|----------------|-------------|
| Societal Director (1 st VP) | Kevin Floate | 2 years | 2019 |
| Societal Director (2 nd VP) | Gail Anderson | 3 years | 2020 |
| Director at Large | Deepa Pureswaran | 3 years | 2020 |
| Regional Director, ESS | Boyd Mori | 3 years | 2020 |
| Regional Director, ESM | Kateryn Rochon | 3 years | 2020 |

Carried.

Deepa Pureswaran was not present at the meeting. As required, she sent a statement, by email, indicating agreement that she be elected to the position of Director at Large.

At this point, Neil Holliday presented the gavel to incoming President, Patrice Bouchard, and escorted the newly-elected 1st Vice-President and 2nd Vice-President to the podium.

11. Presentation of Service Awards

President Patrice Bouchard presented service awards to:

- Neil Holliday (former President)
- Aynsley Thielman (former Secretary) accepted on her behalf by Dezene Huber
- Kevin Floate (retiring Editor-in-Chief of *The Canadian Entomologist*)

Two awards for guiding changes in ESC Governance documents to comply with new Canadian not-for-profit legislation:

- Bill Riel
- Gary Gibson (accepted on his behalf by Peter Mason)

12. Resolutions on behalf of the ESC

12.1. Resolution of thanks

Hugh Danks presented the resolution of thanks on behalf of the ESC:

“Whereas the Entomological Society of Canada has met jointly with the Entomological Society of Manitoba at the Fairmont Hotel, Winnipeg, Manitoba; and

Whereas there has been a full and interesting meeting of lectures, symposia, papers, and posters; and

Whereas the meeting has been planned with care and concern for those attending; and

Whereas there has been ample opportunity for social interaction and visits to Winnipeg and surrounding areas;

Be it resolved that the Entomological Society of Canada expresses its sincere thanks to the Organizing Committee for their hard work and skill in arranging a worthwhile and entertaining program; and

Be it further resolved that the Society thank the Organizing Committee and meeting contributors for their generous assistance; and

Be it further resolved that the Society express its thanks to the Management and Staff of the Fairmont Hotel for their courteous assistance during the Meeting.”

Carried by a round of applause

13. Notice of 68th Annual General Meeting

Next year's AGM is scheduled to take place on Tuesday, November 13, 2018, at the Vancouver Convention Centre, Vancouver, British Columbia.

14. Adjournment

The meeting was adjourned at 1:07 pm on a motion by Boyd Mori; seconded by Bill Riel.

Carried.



Call for Nominees: ESC Achievement Awards / Appel à candidature: Prix d'excellence de la SEC

Do you know a well-respected entomologist who deserves recognition because of their outstanding contributions to their science in Canada? Is this person a leader in their field due to successes in publishing, patenting, editorial work and/or grant acquisition, in the teaching and mentoring of students, or through active volunteer involvement in the ESC and other societies/organizations? If yes, consider nominating them for one of our Society's Achievement Awards. Do not hesitate to contact the Chair of the Achievement Awards Committee, Kevin Floate (Kevin.Floate@agr.gc.ca), if you have any questions about eligibility or the nomination process.

Connaissez-vous un entomologiste respecté qui mérite une reconnaissance pour ses contributions remarquables à sa science au Canada? Cette personne est-elle leader dans son champ d'étude par ses succès en publication, brevets, travail éditorial et/ou obtention de subventions, enseignement, mentorat d'étudiants, ou par son implication bénévole auprès de la SEC et d'autres sociétés/organisations? Si oui, veuillez considérer de nominer cette personne pour un des prix d'excellence de notre Société. N'hésitez pas à contacter le président du comité des prix d'excellence, Kevin Floate (Kevin.Floate@agr.gc.ca) si vous avez des questions sur l'éligibilité ou le processus de nomination.

Gold Medal and C. Gordon Hewitt Award

Both awards are for outstanding entomological contributions in Canada by an individual, but the nominees for the C. Gordon Hewitt Award must have successfully defended their doctoral thesis in the 12 years ending on December 31 of the year in which the Award is received. Parental, compassionate or medical leave is not counted as part of the 12-year period; however, such periods must be identified in the letter from the nominator.

Nominations can only be made by members of the ESC, and signed by the nominator and by at least one seconder (also to be a member of the ESC). Verified communication from a recognized email address will be accepted in lieu of a signature. Nominators should include the following information for both awards: 1. The name and address of the nominee(s); 2. A statement of relevant achievements (3–5 pages) which may include, but is not limited to, the following: outline of research areas, particularly major contributions; number of articles in refereed journals, books, book

Médaille d'or et prix C. Gordon Hewitt

Les deux prix sont pour des contributions entomologiques exceptionnelles au Canada par un individu, mais les candidats pour le prix C. Gordon Hewitt doivent avoir soutenu avec succès leur thèse de doctorat dans les 12 dernières années au 31 décembre de l'année de remise du prix. Les congés parentaux, de soignant ou de maladie ne comptent pas dans la période de 12 ans : ces périodes doivent cependant être identifiées dans la lettre de présentation.

Les candidatures doivent être soumises par des membres de la SEC, et doivent être signées par la personne qui soumet la candidature et par au moins une personne qui l'appuie (également membre de la SEC). Une communication vérifiée par une adresse courriel reconnue sera acceptée comme signature. Les candidatures doivent inclure les informations suivantes pour les deux prix : 1. Le nom et l'adresse du candidat; 2. Un énoncé des accomplissements pertinents (3-5 pages) qui peuvent inclure, mais ne se limitent pas à : le domaine de recherche et particulièrement les

chapters, patents; editorial activities; teaching history, numbers of graduate students, teaching awards; value of grants; involvement in ESC; active involvement and/or memberships in other Societies; entomological extension/ community involvement; organizing of symposia or meetings; 3. A current curriculum vitae; and 4. The name of the nominator and at least one seconder. The documentation should stress the particular achievement or achievements to be considered and not merely the general competences of the nominee. Other seconders may merely state their support, without documentation, in a letter of endorsement of the nomination. The Committee will not prepare the documentation nor conduct research connected with it. Please send nominations by e-mail to the Chair of the Achievement Awards Committee, Kevin Floate (Kevin.Floate@agr.gc.ca), no later than **28 February 2018**.

Honorary Members of the Entomological Society of Canada

An Honorary Member is deemed to have made an outstanding contribution to the advancement of entomology, and may be an Active Member or former Active Member of the Society at the time of nomination.

Collectively, Honorary Members are not to comprise more than 10 members or 1% of the active membership of the Society. Nominations should be supported by at least five members of the Society, and are to be sent by e-mail to the Chair of the Achievement Awards Committee, Kevin Floate (Kevin.Floate@agr.gc.ca) no later than **28 February 2018**.

contributions majeures; le nombre d'articles dans des revues avec évaluation par les pairs, livres, chapitres de livres, brevets; activités éditoriales; historique d'enseignement, nombre d'étudiants gradués, prix d'enseignement; valeur des subventions; implication au sein de la SEC; implication active et/ou adhésion à d'autres Sociétés; implication dans la communauté entomologique et vulgarisation; organisation de symposiums ou de réunions; 3. Un curriculum vitae à jour; et 4. Le nom de la personne qui soumet la nomination et au moins une personne qui l'appuie. La documentation devrait mettre en évidence le ou les accomplissements particuliers à considérer, et pas seulement les compétences générales du nominé. D'autres personnes peuvent aussi manifester leur appui, sans documentation, dans une lettre de soutien de la nomination. Le comité ne préparera aucune documentation et ne fera aucune recherche en lien avec la nomination. Merci d'envoyer vos nominations par courriel au président du comité des prix d'excellence, Kevin Floate (Kevin.Floate@agr.gc.ca), au plus tard le **28 février 2018**.

Membres honoraires de la Société d'entomologie du Canada

Un membre honoraire est considéré comme ayant apporté des contributions remarquables à l'avancement de l'entomologie et peut être un membre actif ou un ancien membre de la Société au moment de la nomination.

Collectivement, les membres honoraires ne peuvent pas totaliser plus de 10 membres ou 1% des membres actifs de la Société. Les nomination doivent être appuyées par au moins cinq membres de la Société, et doivent être envoyées par courriel au président du comité des prix d'excellence, Kevin Floate (Kevin.Floate@agr.gc.ca), au plus tard le **28 février 2018**.

Fellows of the Entomological Society of Canada

Fellows are deemed to have made a major contribution to entomology, and are to be Active Members of the Society at the time of nomination. Their contribution may be in any area (e.g., research, teaching, application or administration), and may be judged on the basis of contribution to and stimulation of the work of others, as well as by direct personal effort.

Collectively, Fellows may not comprise more than 10% of the active membership of the Society. Nominations should be supported by at least four members of the Society, and are to be sent by e-mail to the Chair of the Achievement Awards Committee, Kevin Floate (Kevin.Floate@agr.gc.ca), no later than **28 February 2018**.

Wanted: Applicants for the Bert & John Carr Award

The Bert and John Carr Award was created in 2010 (see *ESC Bulletin*, June 2010 [p.102] or September 2010 [p. 170]) to support research activities by individuals who study insect faunistics, or the natural history and taxonomy of Canada's insect fauna. Preference is given to applications by amateurs, but those by students and others will be considered. Applications should consist of: 1.The name and address of the applicant; 2. A statement of the research activity to be undertaken, including a cost estimate of up to \$500; and 3. A current curriculum vitae. Applications are to be sent by e-mail to the Chair of the Achievement Awards Committee, Kevin Floate (Kevin.Floate@agr.gc.ca) no later than **28 February 2018**.

Fiduciaires de la Société d'entomologie du Canada

Les fiduciaires sont considérés comment ayant apporté une contribution majeure à l'entomologie et doivent être des membres actifs de la Société au moment de la nomination. Leur contribution peut se situer dans n'importe quel domaine (p.ex. recherche, enseignement, application ou administration), et ils seront jugés selon leur contribution et la stimulation du travail des autres, ainsi que par leurs efforts personnels.

Collectivement, les fiduciaires ne peuvent pas totaliser plus de 10% des membres actifs de la Société. Les nominations doivent être appuyées par au moins quatre membres de la Société, et doivent être envoyées par courriel au président du comité des prix d'excellence, Kevin Floate (Kevin.Floate@agr.gc.ca), au plus tard le **28 février 2018**.

Recherchés : Candidats pour le prix Bert & John Carr

Le prix Bert et John Carr a été créé en 2010 (voir le bulletin de la SEC, juin 2010 [p.102] ou septembre 2010 [p.170]) afin de soutenir des activités de recherche par des individus qui étudient la faunistique des insectes ou l'histoire naturelle et la taxonomie de la faune entomologique du Canada. La préférence sera donnée aux candidatures provenant d'amateurs, mais les candidatures d'étudiants ou d'autres individus seront considérées. Les candidatures devront inclure : 1. Le nom et l'adresse du candidat; 2. Un énoncé sur les activités de recherche qui seront entreprises par le candidat, incluant le coût estimé jusqu'à 500\$; et 3. Un curriculum vitae à jour. Les candidatures doivent être envoyées par courriel au président du comité des prix d'excellence, Kevin Floate (Kevin.Floate@agr.gc.ca), au plus tard le **28 février 2018**.

ESC Annual Photo Contest Winners

The ESC Publications Committee is pleased to announce the winners of the annual ESC photo contest and thank the entrants for their participation. There were some technical issues with submissions this year and I would like to thank Bob Lalonde and Neil Holiday for figuring things out so that the competition could go on! The winning photos will be enjoyed by ESC members throughout the year as they will be used to decorate the covers of our publications, *The Canadian Entomologist* and *Bulletin*.

The top entries are:

1st place: Adam Blake, for his picture of a flower longhorn beetle, *Cortodeera subpilosa*.

2nd place: Bernie Roitberg, for his picture of a foraging bombyliid.

3rd place: Tim Haye, for his picture entitled “When camouflage fails” that depicts a nymph of the stink bug, *Palomena prasina*.

In the **Entomologists in Action** category, the winner is Julien Saguez, for his picture of an automated pest monitoring system.

Honourable mentions go to:

Ward Strong, for his picture of horsefly eyes.

Julien Saguez, for his picture of *Glyptapanteles militaris*, a parasitoid of *Mythimna unipuncta*.

Donna Giberson, for her picture of the eight-spotted skimmer, *Libellula forensis*.

Amanda Roe, for her picture of an Asian long-horned beetle, *Anoplophora glabripennis*.

Thank you to Bob Lalonde for organizing another successful competition and to the judges who helped to select the winners among the many excellent photographs that were entered. Don’t forget to keep taking high quality pictures of arthropods and entomology-related activities for next year’s competition!

Maya Evenden
Chair, Publications Committee



Executive Meeting – Call for Agenda Items / Réunion du conseil exécutif – Points à l'ordre du jour

The next Interim Meeting of the ESC Executive will take place by conference call on a date to be determined in February 2018. If members have any items they wish to be discussed by the Executive, please send them to the Secretary, Vincent Hervet (vincent.hervet@gmail.com), as soon as possible.

La prochaine réunion intérim du conseil exécutif de la SEC se tiendra par appel conférence à une date à déterminer en février 2018. Si des membres aimeraient ajouter des points à l'ordre du jour pour discussion par le conseil exécutif, merci de les envoyer au secrétaire, Vincent Hervet (vincent.hervet@gmail.com), le plus tôt possible.

Announcement / Annonce

Special Issue of TCE published, celebrating 40 years of the Biological Survey of Canada

Un numéro spécial du TCE est publié, célébrant les 40 ans de la Commission biologique du Canada

The Canadian Entomologist: Volume 149 - Issue 6 - December 2017 /
The Canadian Entomologist : Volume 149 - Numéro 6 - Décembre 2017
(<https://www.cambridge.org/core/journals/canadian-entomologist/bsc-40th-anniversary-celebration>)

Danks H.V. Benefits and principles of the Biological Survey of Canada: a model for scientific cooperation.

Floate K.D., Shorthouse J.D., Giberson D.J., and Cárcamo H.A. Arthropods of Canadian grasslands: a retrospective of a 40-year project of the Biological Survey of Canada.

Vankosky M.A., Cárcamo H.A., Catton H.A., Costamagna A.C., and De Clerck-Floate R. Impacts of the agricultural transformation of the Canadian Prairies on grassland arthropods
Sheffield C.S., Heron J., Gibbs J., Onuferko T.M., Oram R., Best L., deSilva, N., Dumesh, S., Pindar, A., and Rowe, G. Contribution of DNA barcoding to the study of the bees (Hymenoptera: Apoidea) of Canada: progress to date.

Giberson D.J. and Burian S.K. How valid are old species lists? How archived samples can be used to update Ephemeroptera biodiversity information for northern Canada.

Acorn J.H. Entomological citizen science in Canada.

List of Contents: CWSS / Table des matières : SCM



Canadian Weed Science Society
Société canadienne de malherbologie

Contents of Newsletter Fall 2017 / Contenu du bulletin du automne 2017

| | |
|---|-------|
| President's Message | 1-3 |
| Join our Society | 3 |
| Schedule for 2017 CWSS-SCM Meeting | 4-9 |
| Radisson Hotel, Saskatoon | 10 |
| 2018 Canadian Weed Science Society's Annual Meeting | 10 |
| 2019 Canadian Weed Science Society's Annual Meeting | 11 |
| Canadian Journal of Plant Science | 11 |
| 2018 Herbicide Resistance Summit | 11 |
| CWSS-SCM 2017 Saskatoon Photo Contest | 12-13 |
| CWSS-SCM 2017 Local Arrangements Committee | 13 |
| Tribute to Gerry Stephenson | 14-15 |
| BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF CANADA | 16 |
| Our sponsors | 17 |
| Upcoming Meetings | 18 |
| CWSS-SCM Facebook and Twitter | 18 |
| 2017 CWSS-SCM Board of Directors | 18 |

List of Contents: CPS / Table des matières : SCP



THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

LA SOCIÉTÉ CANADIENNE DE PHYTOPATHOLOGIE

CPS.SCP News

Vol 61 (3) September 2017

<http://phytopath.ca/wp-content/uploads/2017/09/CPS-SCP-News-61-3-September-2017-v02.pdf>

Table of Contents:

| | |
|---|----|
| President's Message..... | 49 |
| Message de la présidente..... | 51 |
| Grad Students' Corner..... | 53 |
| Minutes from the 88th Annual Meeting of Members Canadian Phytopathological Society / La Société canadienne de phytopathologie..... | 54 |
| Appendix - CPS Financial Statements for Year End Dec. 31, 2016/Auditor's Report..... | 61 |
| Ébauche du compte rendu de la 88e réunion annuelle des membres de la Société canadienne de phytopathologie/ Canadian Phytopathological Society..... | 64 |
| Annexe: États financiers de la SCP pour l'année se terminant le 31 décembre 2016 / Rapport de l'auditeur..... | 71 |
| Recognition of the Outgoing Board and Members..... | 74 |
| Awards..... | 75 |
| 2016 CPS Awards Committee Report..... | 75 |
| CPS Membership Grows in Manitoba..... | 83 |
| Dr. Dilantha Fernando Wins the University of Manitoba Faculty of Graduate Studies' Excellence in Graduate Student Mentoring Award..... | 83 |
| Announcements..... | 83 |
| Introducing the CPS Mentorship Program..... | 84 |
| Important Change to Student Memberships..... | 85 |
| 2018 Canadian Plant Disease Survey: Call for Reports..... | 86 |
| Upcoming Meetings..... | 88 |
| Employment..... | 89 |
| Meeting Reports..... | 91 |
| Publications..... | 92 |
| ISPP - International Newsletter on Plant Pathology..... | 92 |
| Entomological Society of Canada..... | 94 |
| Newsletter News..... | 95 |
| Contact the Editor..... | 96 |

Meeting announcements / Réunions futures

Meeting announcements / Réunions futures

23rd Biannual International Plant Resistance to Insects Symposium

Rothamsted, United Kingdom, 7-9 March 2018

<https://www.rothamsted.ac.uk/events/23rd-biannual-international-plant-resistance-insects-symposium>

Ninth International IPM Symposium: Improving Health, Environment and Global Sustainability

Baltimore, Maryland, 19-22 March 2018

<https://ipmsymposium.org/2018/>

2nd International Conference “Insects to Feed the World” (IFW 2018)

Wuhan, China, 15-20 May 2018

<http://ifw2018.csp.escience.cn/dct/page/1>

The XV International Conference on Ephemeroptera and XIX International Symposium on Plecoptera

Aracruz, Brazil, 4-8 June, 2018

<http://ephemeroptera.com.br/jointmeeting/>

ICAE 2018: 20th International Conference on Advances in Entomology

Vienna, Austria, 14-15 June 2018

<https://www.waset.org/conference/2018/06/vienna/ICAE>

XI European Congress of Entomology

Naples, Italy, 2-6 July 2018

<http://www.ece2018.com/>

XV International Congress of Acarology

Antalya, Turkey, 2-8 September 2018

<http://www.acarology.org/ica/ica2018/>

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

Vancouver, 11-14 November 2018

<http://www.entsoc.org/events/annual-meeting>

Joint Meeting of the Entomological Society of Canada, the Acadian Entomological Society and the Canadian Society for Ecology and Evolution

Fredericton, 18-21 August 2019

For more information: Twitter [@CSEE_ESC2019](#); email csee.esc.2019@gmail.com

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

Helsinki, Finland, 19-24 July 2020

<http://www.ice2020helsinki.fi/>

Readers are invited to send the 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.

Published by the
Entomological Society of Canada
386 Broadway, Suite 503
Winnipeg, Manitoba R3C 3R6
E-mail: info@esc-sec.ca
www.esc-sec.ca/

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.

Send correspondence to:
Cedric Gillott
Bulletin Editor
Department of Biology
University of Saskatchewan
112 Science Place, SK S7N 5E2
Telephone: (306) 966-4401
Fax: (306) 966-4461
E-mail: cedric.gillott@usask.ca

ISSN: 0071-0741

Contents copyrighted 2017 by the Entomological Society of Canada

Submission deadline for the next issue: 31 January 2018



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.

Publié par la
Société d'entomologie du Canada
386 Broadway, Suite 503
Winnipeg, Manitoba R3C 3R6
E-mail: info@esc-sec.ca
www.esc-sec.ca/

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.

Envoyer vos soumissions à:
Cedric Gillott
Rédacteur du *Bulletin*
Department of Biology
University of Saskatchewan
112 Science Place, SK S7N 5E2
Telephone: (306) 966-4401
Fax: (306) 966-4461
courriel : cedric.gillott@usask.ca

ISSN: 0071-0741

Droits d'auteur 2017 Société d'entomologie du Canada

**Date de tombée pour le prochain numéro:
31 janvier 2018**

Officers of affiliated Societies, 2017-2018

Dirigeants des Sociétés associées, 2017-2018

Entomological Society of British Columbia

| | |
|--------------------|--|
| President | Jenny Cory |
| 1st Vice President | Lisa Poirier |
| 2nd Vice President | Tammy McMullan |
| Past President | Brian van Hezewijk |
| Treasurer | Ward Strong |
| Editor (Journal) | Katherine Bleiker |
| Editor (Boreus) | Gabriella Zilahi-Balogh |
| Webmaster | Brian Muselle |
| Secretary | Tracy Hueppelsheuser B.C. Ministry of Agriculture 1767 Angus Campbell Road, Abbotsford, BC, V3G 2M3 Tel: (604) 556-3031 E-mail: Tracy.Hueppelsheuser@gov.bc.ca secretary@entsocbc.ca http://entsocbc.ca |

Entomological Society of Alberta

| | |
|----------------------|---|
| President | Ralph Cartar |
| Vice-President | Bette Beswick |
| Past President | Shelley Hoover |
| Treasurer | Caroline Whitehouse |
| Editor (Proceedings) | Tonya Mousseau |
| Webmaster | Dylan Sjolie |
| Secretary | Ken Fry Olds College 4500 - 50 Street, Olds, AB T4H 1R6 Tel: (403) 556-8261 E-mail: esalberta@gmail.com http://www.entsocalberta.ca |

Entomological Society of Saskatchewan

| | |
|-------------------|--|
| President | Cory Sheffield |
| Vice-President | Danielle Stephens |
| Past President | Tyler Wist |
| Treasurer | Dwayne Hegedus |
| Newsletter Editor | Nicole Pillipow |
| Secretary | Iain Phillips Saskatchewan Watershed Authority 101-108 Research Drive, Saskatoon, SK, S7N 3R3 Tel: (306) 933-7474 Email: iain.phillips@swa.ca http://www.entsocsask.ca |

Entomological Society of Manitoba

| | |
|--------------------|--|
| President | Mahmood Iranpour |
| President-Elect | Erica Smith |
| Past President | John Gavloski |
| Treasurer | Kathy Cano |
| Newsletter Editors | Marjorie Smith and Jordan Bannerman |

Editor (Proceedings) Terry Galloway
Webmaster Rob Currie
Secretary Sarah Semmler
Living Prairie Museum
2795 Ness Ave
Winnipeg MB R3J 3S4
E-mail: SSemmler@winnipeg.ca
<http://home.cc.umanitoba.ca/esm/>

Entomological Society of Ontario

| | |
|------------------|---|
| President | Antonia Guidotti |
| President-Elect | David Beresford |
| Past President | Gard Otis |
| Treasurer | Shiyou Li |
| Editor (Journal) | Chris MacQuarrie |
| Webmaster | Trevor Burt |
| Secretary | Michelle Locke Vista Centre 1830 Bank St. P.O. Box 83025 Ottawa, ON K1V 1A3 E-mail: entsocont.membership@gmail.com http://www.entsocont.ca |

Société d'entomologie du Québec

| | |
|-----------------------|--|
| Présidente | Geneviève Labrie |
| Vice-présidente | Valérie Fournier |
| Président sortante | Julien Saguen |
| Trésorier | François Fournier |
| Rédactrice (Antennae) | Louise Voynaud |
| Webmestre | Thierry Poiré |
| Secrétaire | Danielle Thibodeau Centre de recherche et de développement en horticulture 430, boul. Gouin Saint-Jean-sur-Richelieu (Québec) J3B 3E6 Tél : (579)224-3063 Email : secretariat@seq.qc.ca thibodeaudanielle@hotmail.com |

Acadian Entomological Society

| | |
|---------------------|--|
| President | Drew Carlton |
| Vice-President | Kirk Hillier |
| Past President | Chris Cutler |
| Journal Editor | Don Ostaff |
| Webmaster | Rick West |
| Secretary/Treasurer | Andrew Morrison Atlantic Forestry Centre P.O. Box 4000, 1350 Regent Street South Fredericton, NB, E3B 5P7 Tel: (506) 260-6176 E-mail: treasurer@acadianes.ca http://www.acadianes.org/ |

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

The last word / Le dernier mot

Cedric Gillott, Editor / Rédacteur



When does a JAM become a jam?

Scientifically and socially the meeting in Winnipeg was very good. As usual, there was a fine array of presentations from senior professionals and students alike. Two of my favorites were the Plenary Talk, given by Angela Douglas demonstrating the essential metabolic interactions between insects and their intracellular microbes, and the paper by Mike Hrabar with its amazing videos of ‘attempted’ sex in stylopoids! However, as shown in the STEP corner, many other students were recognized for their excellent work.

To my mind, the national society’s annual meeting at the home of one of its regional counterparts, brings together just about the right number of delegates (in Winnipeg there were around 225 registrants, including about 80 students). Of course, even at meetings of this size there are concurrent sessions, but generally these can be arranged so as to enable participants to hear most papers of interest. More importantly, all delegates can be accommodated in a single location and it’s a simple matter to hook up with colleagues and friends, whether for serious scientific discussion or merely a bit of a chat over a beer.

In contrast, international congresses¹ and the annual entomological meetings of well populated countries such as the United States of America

¹I have been lucky enough to attend seven ICE: London (1964) (as a PhD student), Washington, D.C. (1976), Hamburg (1984), Vancouver (1988), Beijing (1992), Brisbane (2004), and Durban (2008).

De grandes et moins grandes réunions annuelles conjointes

Aux niveaux scientifique et social, la réunion de Winnipeg a été très bonne. Comme d’habitude, il y avait un bel assemblage de présentations par des professionnels séniors et des étudiants. Deux de mes préférées ont été la présentation plénière donnée par Angela Douglas, démontrant les interactions métaboliques essentielles entre les insectes et leurs microbes intracellulaires, et la présentation de Mike Hrabar avec ses vidéos incroyables sur les tentatives de sexe chez les stylopoides! Cependant, tel que montré dans le coin de la relève, plusieurs autres étudiants ont été reconnus pour leur excellent travail.

À mon avis, la réunion annuelle de la société nationale chez une de ses contreparties régionales assemble le nombre juste parfait de participants (à Winnipeg, il y avait autour de 225 participants, incluant environ 80 étudiants). Évidemment, même dans des réunions de cette taille, il y a des sessions parallèles, mais généralement il y a moyen que tous les participants assistent aux présentations qui les intéressent. Encore plus important, tous les participants peuvent être hébergés au même endroit et il est facile de rencontrer ses collègues et amis, que ce soit pour des discussions scientifiques sérieuses ou pour échanger quelques mots autour d’une bière.

Au contraire, les congrès internationaux¹ et les réunions entomologiques annuelles de pays très peuplés comme les États-Unis ont plusieurs milliers de participants, hébergés dans plusieurs hôtels et offrent un programme avec de multiples sessions en parallèle. Ces grandes réunions attirent proportionnellement

¹J’ai eu la chance d’assister à sept ICE: Londres (1964) (comme étudiant au doctorat), Washington, D.C. (1976), Hambourg (1984), Vancouver (1988), Beijing (1992), Brisbane (2004), et Durban (2008).

are attended by several thousand delegates, accommodated in several hotels and offered a program with multiple concurrent sessions. These large meetings attract a proportionately greater number of internationally known scientists, typically as plenary speakers or lead-offs in symposia. An added bonus of the international congresses specifically is that they enable delegates to tack on a pre- or post-congress tour, to savour the culture and sights of the host nation. On the down side, the sessions may be physically well separated, even in different buildings, making it almost impossible to slip between sessions to hear individual talks. With such numbers, it is also difficult to find ‘a person of interest’ at mixers or during refreshment breaks.

Next year, members of the Society will have another opportunity to sample such a large gathering when we meet jointly with our American colleagues in Vancouver, a meeting co-hosted by the Entomological Society of British Columbia. Over 3000 registrants (of which about one-third will be students) are expected to attend. While several hotels will be required to house participants, sessions will be held in Vancouver’s Convention Centre. A bit of planning now can help you to get the most out of the large meeting in Vancouver – Take advantage of the chances to meet and hear top researchers in your field as well as the up and coming ones, but also arrange your “smaller” meet-ups in advance. Such planning will ensure that you still get those after-session beers (and the craft beer scene in Vancouver is not to be missed!), and still experience the larger meeting advantages.

The Entomological Society of America has also booked the Convention Centre for its 2022 Annual Meeting. Whether this will be a joint affair with the ESC and ESBBC is totally up in the air at the moment, and in part will be based on the success or otherwise of the 2018 meeting. If you have an opinion on whether we should be involved in such large conventions, please take up the invitation issued by President Bouchard in his Up front and let him (or your regional director) know your feelings about our Society’s participation in these events.

plus de scientifiques connus mondialement, typiquement comme conférenciers pléniers ou invités dans les symposiums. Un bonus spécifique aux congrès internationaux est qu’ils permettent aux participants de se joindre à un tour pré- ou post-congrès, afin de découvrir la culture et les paysages de la nation hôte. L’envers de la médaille est que les sessions peuvent être physiquement séparées, parfois dans des édifices différents, rendant presque impossible de passer d’une session à l’autre afin d’entendre des présentations spécifiques. Avec autant de monde, il est également difficile de trouver une personne en particulier durant un cocktail ou une pause-café.

L’an prochain, les membres de la Société auront une autre opportunité de participer à un tel événement d’ampleur puisque nous nous réunirons conjointement avec nos collègues américains à Vancouver, une réunion co-organisée par la Société d’entomologie de Colombie-Britannique. Plus de 3000 participants (dont environ un tiers d’étudiants) sont attendus. Bien que plusieurs hôtels seront nécessaires pour accueillir tous les participants, les sessions se tiendront au centre des congrès de Vancouver. Un peu de planification dès maintenant vous aidera à tirer parti au maximum de cette vaste réunion à Vancouver – Profitez-en pour rencontrer et entendre les meilleurs chercheurs de votre domaine ainsi que ceux en ascension, mais organisez également vos « plus petites » rencontres à l’avance. Une telle planification vous permettra d’avoir quand même ces après-sessions de bières (et la scène de la bière artisanale est à ne pas manquer à Vancouver!), tout en profitant des avantages d’une grosse réunion.

La Société d’entomologie d’Amérique a également réservé le centre des congrès pour sa réunion annuelle de 2022. La question de savoir s’il s’agira d’un événement conjoint avec la SEC et la SECB est entièrement ouverte pour le moment, et dépendra en partie du succès de la réunion 2018. Si vous avez un avis sur la question de s’impliquer dans des congrès aussi gros, merci de saisir l’invitation lancée par le Président Bouchard dans son Avant-Propos et de lui laisser savoir (à lui ou à votre directeur régional) ce que vous pensez de la participation de votre Société à ces événements.

Entomological Society of Canada, 2017-2018

Société d'entomologie du Canada, 2017-2018

Executive Council / Conseil exécutif

President / Président

Patrice Bouchard
Canadian National Collection of Insects, Arachnids and Nematodes
Agriculture and Agri-Food Canada
Ottawa, ON, K1A 0C6
Tel: (613) 759-7510, Fax: (613) 759-1701
E-mail: patrice.bouchard@agr.gc.ca

First Vice-President / Premier vice-président

Kevin Floate
Lethbridge Research and Development Centre
Agriculture and Agri-Food Canada
Lethbridge, AB T1J 4B1
Tel: (403) 317-2242
E-mail: kevin.floate@agr.gc.ca

Second Vice-President / Seconde vice-présidente

Gail Anderson
School of Criminology, Simon Fraser University
8888 University Drive, Burnaby, B.C. V5A 1S6
Tel: 778 782 3589 Fax: 778 782 4140
E-mail: ganderso@sfu.ca

Past President / Président sortant

Neil Holliday
Department of Entomology
University of Manitoba
Winnipeg, MB, R3T 2N2
Tel: (204) 474-8365 Fax: (204) 474-7628
E-mail: Neil_Holliday@UManitoba.CA

Directors-at-Large / Conseillers

Véronique Martel (2018)
Laura Timms (2019)
Deepa Pureswaran (2020)

Regional Directors / Directeurs régionaux

Bill Riel (ESBC), Haley Catton (ESAB), Boyd Mori (ESS), Kateryn Rochon (ESM), Sophie Cardinal (ESO), Étienne Normandin (SEQ), Suzanne Blatt (AES)

Student and Early Professional Representative / Représentant des étudiants et des jeunes professionnels

Anne-Sophie Caron, McGill University
E-mail: anne-sophie.caron@mail.mcgill.ca

Officers / Dirigeants

Treasurer / Trésorier

Christopher P. Dufault
461 Tweedsmuir Ave.
Ottawa, Ontario, K1Z 5P1
Tel: (613) 261-1314
E-mail: christopher.p.dufault(at)gmail.com

Secretary / Secrétaire

Vincent Hervet
Lethbridge Research and Development Centre
Agriculture and Agri-Food Canada
5403 - 1 Avenue South
Lethbridge, AB T1J 4B1
vincent.hervet@gmail.com

Bulletin Editor / Rédacteur du Bulletin

Cedric Gillott
Dept. of Biology, University of Saskatchewan
112 Science Place, Saskatoon, SK S7N 5E2
Tel: (306) 966-4401 Fax: (306) 966-4461
E-mail: cedric.gillott@usask.ca

Asst. Bulletin Editor / Rédactrice adj. du Bulletin

Donna Giberson
Dept. of Biology, U. Prince Edward Island
Charlottetown, PE, C1A 4P3
E-mail: giberson@upei.ca

Webmaster / Webmestre

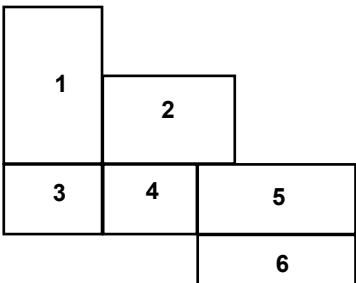
Jordan Bannerman
University of Manitoba
E-mail: jordan.bannerman@umanitoba.ca

The Canadian Entomologist Editor-in-Chief / Rédacteur en chef

Dezene Huber
University of Northern British Columbia
Ecosystem Science and Management Program
3333 University Way
Prince George BC V2N 4Z9
Tel: (250) 960-5119
E-mail: huber@unbc.ca

Head Office / Siège social

Entomological Society of Canada
386 Broadway, Suite 503
Winnipeg, Manitoba, R3C 3R6 Canada
Tel: 1-888.821.8387; +1-204.282.9823
Fax: +1-204.947.9767
E-mail: info@esc-sec.ca www.esc-sec.ca



Front cover/Plate supérieur:

1 Mayflies: *Hexagenia* (Ephemeroptera: Ephemeridae) in tandem from Spanish [north shore of Georgian Bay, Ontario, Canada]
 Mayflies: Hexagenia (Ephemeroptera: Ephemeridae) en tandem à Spanish [rive nord de la baie Georgienne, Ontario, Canada]
 [Photo: Rosemarie De Clerck-Floate]

2 Specialist Subcommittee of the Committee on the Status of Endangered Wildlife in Canada doing an insect survey in a bog [Corner Brook, Newfoundland, Canada]
 Les membres du sous-comité de spécialistes des arthropodes sur le comité sur la situation des espèces en péril du Canada faisant un inventaire d'insectes dans une tourbière [Corner Brook, Terre-Neuve, Canada]
 [Photo: Greg Pohl]

3 Face to face with the death's-head hawkmoth, *Acherontia atropos* (Lepidoptera: Sphingidae) [Delémont, Switzerland]
 Face à face avec le sphinx tête de mort, *Acherontia atropos* (Lepidoptera: Sphingidae) [Delémont, Suisse]
 [Photo: Tim Haye]

4 A male *Chionea alexandriana* (Diptera: Limoniidae), a wingless fly, on snow in the sub-alpine forest [Mount Seymour, British Columbia, Canada]
 Un mâle *Chionea alexandriana* (Diptera: Limoniidae), une mouche aptère, sur la neige dans la forêt subalpine [le mont Seymour, Colombie-Britannique, Canada]
 [Photo: Chris Ratzlaf]

5 A milkweed bug, *Oncopeltus fasciatus* (Hemiptera: Lygaeidae), moulting on milkweed Centreville, Ontario, Canada]
 Une punaise de l'asclepiaide, *Oncopeltus fasciatus* (Hemiptera: Lygaeidae), muant sur ne asclépiade [Centreville, Ontario, Canada]
 [Photo: Andrea Brauner]

6 Wolf spider (Araneae: Lycosidae) carrying her young on her abdomen collected from the field [Agassiz, British Columbia, Canada]
 Une araignée lycosidé (Araneae: Lycosidae) portant ses petits sur son abdomen, attrapée dans un champ [Agassiz, Colombie-Britannique, Canada]
 [Photo: Jesse MacDonald]

Back cover/Plate inférieur:

Male orchid bee, *Euglossa dilemma* (Hymenoptera: Apidae) [Everglades City, Florida, United States of America]
 Un mâle de l'abeille *Euglossa dilemma* (Hymenoptera: Apidae) [Everglades City, Florida, États-Unis d'Amérique]
 [Photo: Matthias Buck]

www.esc-sec.ca

Entomological Society of Canada
 Société d'entomologie du Canada
 386 Broadway
 Suite 503
 Winnipeg, Manitoba
 R3C 3R6
 E-mail: info@esc-sec.ca

Date of issue: December 2017 /
 décembre 2017

ISSN: 0071-0741