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Halyomorpha halys (Hemiptera: Pentatomidae) is an emerging pest of fruit across North America. This is an individual from London (Ontario, Canada), where the overwintering biology is being studied.

Halyomorpha halys (Hemiptera : Pentatomidae) est un nouveau ravageur des fruits en Amérique du Nord. Ici un individu de London (Ontario, Canada), où la biologie hivernale est étudiée.

[Photo: Brent Sinclair]

Up front / Avant-propos

Gail Anderson, President of ESC / Présidente de la SEC



Looking Forward to an Exciting Year!

It is exciting to be writing my first Up Front article and such an honour to be President of the Entomological Society of Canada. I am excited to begin and am so grateful for the exceptional support of our Executive Committee and Board.

As I write this (in late July), the 2019 JAM is just around the corner and it promises to be an exceptional meeting. This JAM includes not only the ESC and the Acadian Entomological Society but also the welcome addition of the Canadian Society for Ecology and Evolution. As you read this, we will all be reflecting on our overall experiences of the JAM, the intellectual challenges, but in particular the fun of meeting up again with old friends and colleagues, meeting new friends and generally enjoying the overall ambience of just chatting, socializing and being with fellow entomologists. The JAM is the highlight of our year and I am sure it will be a great success. Please remember to complete the ESC JAM survey which will be sent to everyone after the meeting (22 August). We look at these carefully and use them to help plan future JAMs.

We are already thinking forward to our future meetings. As you know, it is advantageous to book large meetings well in

Une année excitante débute!

C'est stimulant d'écrire mon premier Avant-propos et un tel honneur d'être Présidente de la Société d'entomologie du Canada. Je suis enthousiaste de débuter et je suis reconnaissante du soutien exceptionnel de notre comité exécutif et de notre CA.

Alors que j'écris ces lignes (à la fin juillet), la réunion annuelle 2019 est à nos portes et elle promet d'être exceptionnelle. Cette réunion n'inclut pas seulement la SEC et la Société acadienne d'entomologie, mais accueille également la Société canadienne d'écologie et d'évolution. Alors que vous lisez ceci, nous serons tous à réfléchir à nos expériences générales lors de la réunion annuelle, au défi intellectuel, mais particulièrement au plaisir de revoir de vieux amis et collègues, de rencontrer de nouveaux amis, et d'apprécier de façon générale l'ambiance en discutant, en socialisant et en étant avec des collègues entomologistes. La réunion annuelle est le point culminant de notre année, et je suis certaine qu'elle sera un grand succès. Merci de penser à compléter le sondage de la SEC sur la réunion annuelle conjointe qui sera envoyé à tous après la réunion (22 août). Nous examinons les sondages attentivement et nous les utilisons afin d'aider à planifier les prochaines réunions annuelles. Nous pensons déjà à nos futures réunions. Comme vous le savez, il est avantageux de réserver les grosses réunions bien en avance et la Société d'entomologie d'Amérique (ESA) aime retourner au même endroit quatre ans plus tard pour de meilleures économies. La ESA est très intéressée à ce que la SEC et la Société d'entomologie de Colombie-Britannique (SECB) se joignent à elle à nouveau en 2022.

advance and the Entomological Society of America (ESA) likes to return to the same venue four years later for greater booking gains. ESA has been very keen for ESC and the Entomological Society of British Columbia (ESBC) to join them again in 2022 in Vancouver after our very successful joint meeting last year. We were cautious to commit until we could get a good overview of the success of the meeting from our point of view. The 2018 JAM in Vancouver proved to be an exceptionally successful meeting for all concerned so I am happy to announce that we have now reached a formal agreement with the ESA and ESBC to co-host a Joint Annual Meeting in Vancouver in 2022.

I also wanted to let you know about our new member category – that of Entomology Enthusiast, which will begin in 2020. We all know people in our community who are not working entomologists yet are fascinated by these wonderful six-legged creatures (and OK we will also accept the fascination with their eight-legged comrades). Amateur entomologists are very important in entomology and, in fact, much of the early natural history of insects was elucidated by such entomological enthusiasts. We chose the term ‘Entomology Enthusiast’ so as not to suggest anything about a person’s abilities or interest, but to indicate that a person does not derive a part or a whole of their income from entomology nor are they a student of entomology, but they do actively photograph, study and are captivated by, insects. Such enthusiasts are often very active in informing the public about insects and are invaluable in our community. Many enthusiasts are active in their regional societies but have traditionally been less involved in the ESC. As part of the ESC’s strategic planning process we decided to broaden the base of the national society’s membership to welcome entomology enthusiasts into the fold. This is an initiative which was spear-headed by the membership committee, chaired by Rose De Clerck-Floate. I would like to ask you to encourage any entomology enthusiasts that

à Vancouver suite à notre réunion réussie de l’an dernier. Nous avons été prudents à ne pas nous commettre avant d’avoir un bon aperçu du succès de la réunion de notre point de vue. La réunion annuelle conjointe de 2018 à Vancouver s’est avérée un succès exceptionnel à tous points de vue, je suis donc heureuse d’annoncer que nous avons maintenant un accord formel avec la ESA et la SECB afin de co-organiser une réunion annuelle conjointe à Vancouver en 2022.

Je voulais également vous faire connaître notre nouvelle catégorie de membre – celle des Enthousiastes de l’entomologie, qui débutera en 2020. Nous connaissons tous des gens dans notre communauté qui ne travaillent pas en entomologie mais qui sont fascinés par ces créatures à six pattes (et, d’accord, nous acceptons également la fascination pour leurs camarades à huit pattes). Les entomologistes amateurs sont très importants en entomologie et, en fait, la plupart des débuts de l’histoire naturelle des insectes a été élucidée par de tels enthousiastes de l’entomologie. Nous avons choisi le terme « Enthousiaste de l’entomologie » afin de ne pas suggérer quoique ce soit concernant les habiletés ou les intérêts de la personne, mais pour indiquer que la personne ne dérive pas une partie ou la totalité de ses revenus de l’entomologie et n’est pas un étudiant en entomologie, mais qu’elle photographie ou étudie activement, ou est captivée par les insectes. De tels enthousiastes sont souvent très actifs pour informer le public sur les insectes et ont une valeur inestimable pour notre communauté. Plusieurs enthousiastes sont actifs dans les sociétés régionales, mais ont traditionnellement été moins impliqués dans la SEC. Nous avons décidé, dans le cadre du processus de planification stratégique de la SEC, d’élargir la base des membres de la société nationale afin d’accueillir les enthousiastes de l’entomologie. Il s’agit d’une initiative qui a été menée par le comité des adhésions, présidé par Rose De Clerck-Floate. J’aimerais vous demander d’encourager tout enthousiaste de l’entomologie que vous

you know, including the younger ones, to join ESC in this category (hint great Christmas gift!). Membership will be cheaper than normal membership but will provide access to all current and back issues of *The Canadian Entomologist* and *Memoirs*.

2019 was the Inaugural Year for National Insect Appreciation Day (8 June – 6/8 or 8/6 – six legs or eight legs) and many people held events. This is a day to celebrate insects and get more people out and about simply looking at and appreciating the beauty of insects and gaining an understanding of the major role insects play in all our lives. The more that people, and particularly, little people, understand about insects, the more they are likely to engage and appreciate them, rather than ‘squish them like a bug’. We welcome all suggestions for festivities on and around that date every year (and all year for that matter). For ideas about activities, please go to our Education and Outreach section of the web page to see many webpages that discuss insect-related activities together with target age range (thank you to my student, Payten Smith, for putting this together). If you have a great insect activity, please let us know about it and we can add it to our web page. Pictures would be great! When you next see me, don’t forget to ask about “Maggot Art”. It is all done in the best possible taste and gets kids over the ‘ick, it’s a maggot’ stage and into the ‘wow, cool’ stage and produces some very excellent artwork – check out YouTube. In this vein, please don’t forget that ESC offers each regional society \$200 a year or a lump sum of \$600 for 3 years to help fund such outreach activities and a one-time \$1000. You just have to ask!

connaissez, incluant les plus jeunes, à adhérer à la SEC dans cette catégorie (c'est un très beau cadeau de Noël!). L'adhésion sera moins chère que l'adhésion régulière, mais donnera accès à tous les numéros actuels et anciens de *The Canadian Entomologist* et des *Mémoires*.

2019 a été l'année inaugurale pour la journée nationale des insectes (8 juin, 8/6 ou 6/8 – six pattes ou huit pattes) et plusieurs personnes ont tenu des événements. C'est une journée pour célébrer les insectes et amener les gens à sortir pour simplement regarder et apprécier la beauté des insectes et comprendre mieux le rôle majeur que jouent les insectes dans nos vies. Plus les gens, surtout les plus jeunes, comprendront les insectes, plus ils ont de chance de s'engager et de les apprécier, plutôt que de les « écraser comme des bestioles ». Nous accueillons toutes les suggestions pour des festivités autour de cette date chaque année (et toute l'année d'ailleurs). Pour des idées d'activités, consultez notre section Éducation et programme d'animation du site web pour voir plusieurs sites web qui discutent d'activités liés aux insectes ainsi que les âges cibles (merci à mon étudiante Payten Smith pour avoir assemblé tout ça). Si vous avez une activité géniale sur les insectes, merci de nous le faire savoir et nous pourrons l'ajouter à notre page web. Des photos seraient appréciées! La prochaine fois que vous me verrez, n'oubliez pas de me questionner à propos du « Maggot Art ». C'est fait avec le meilleur goût possible et permet aux enfants de surmonter le stade ‘beurk c'est un asticot’ pour passer à ‘wow, cool’ et produire d'excellentes œuvres d'art – regardez YouTube. Dans cette veine, n'oubliez pas que la SEC offre à chaque société régionale 200\$ par année ou un montant forfaitaire de 600\$ pour 3 ans pour aider à financer des activités de vulgarisation, et un montant de 1000\$ une seule fois. Vous n'avez qu'à demander!

STEP Corner / Le coin de la relève

Anne-Sophie Caron and Rachel Rix



2019 Eco-Evo-Ento meeting

We want to congratulate Catherine Scott (University of Toronto – Scarborough), Dr Joanna Konopka (Western University) and Erin Campbell (University of Alberta) for being selected for the Graduate Student Showcase. All applicants have shown incredible research abilities and we wish them the best in their future endeavours.

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 students@esc-sec.ca. 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.

La réunion Éco-Évo-Ento 2019

Nous voulons féliciter Catherine Scott (University of Toronto – Scarborough), Dre Joanna Konopka (Western University) et Erin Campbell (University of Alberta) d'avoir été sélectionnées pour la Vitrine aux étudiants gradués. Toutes les finalistes ont démontré des habiletés en recherche incroyables et nous leur souhaitons le meilleur dans leurs futurs plans.

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 students@esc-sec.ca. 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.

The advertisement features the Hoskin Scientific logo (a stylized 'H' with a maple leaf) and the text "Hoskin Scientific Entomology Specialists". Below this, the product name "HOBOnet Field Monitoring System" is displayed. The central image shows a field monitoring station with a solar panel and a sensor pole. A dashed line extends from the station to show a wide coverage area across a green field. Three inset circles provide close-up views of different components: a wind vane and anemometer, a soil probe connected to a controller, and a grey rectangular Onset HOBO data logger. At the bottom left is the website "www.hoskin.ca" and locations "Vancouver | Oakville | Montréal". At the bottom right is the brand name "ONSET".

(paid advertisement/ publicité payée)

News from the regions / Nouvelles des régions



Entomological Society of British Columbia

Public awareness

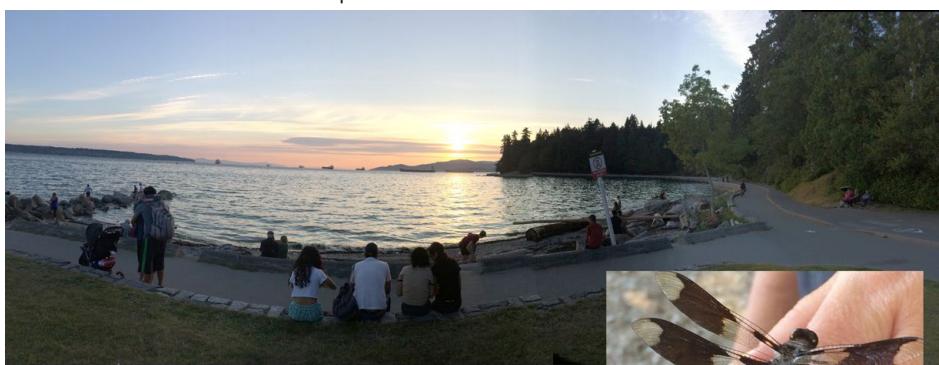
As summer slowly comes to the west coast, ESBC members have emerged from their hibernacula to organize and participate in entomologically related events.

In June, VanDusen Botanical Garden hosted its annual "Pollinator Days" and Tammy McMullen, our vice-president, organized the ESBC volunteer team to run an entomological scavenger hunt over the two-day event. School children searched the gardens for insects and learned about the often-specialized relationships between insect pollinators and the plants they visit, as well as the important role that insects play in natural ecosystems and agriculture. Supplies for the activity were purchased using the public outreach grant provided by the ESC.

On July 21st Dr Dan Peach, ESBC Graduate Student Director, organized an insect Bioblitz in Vancouver's Stanley Park. The location is particularly interesting because the park is a large (4 km²), largely natural habitat in the middle of Canada's third largest metropolitan area. Surveys in the past have identified new exotic species as well as two potentially cryptic species of moths.



ESBC volunteers Asim Renyard (left) and Dan Peach (right) hand out stickers so that children can match the pollinator with the correct flower.



This dragonfly (male *Plathemis lydia*?) was one of the many finds during the Stanley Park Bioblitz in Vancouver.



Entomological Society of Manitoba

Rare Manitoba butterflies on IUCN lists

Two rare Manitoba butterfly species, the Poweshiek skipperling and the Dakota skipper, have recently had their status evaluated by the International Union for Conservation of Nature.

Due to its dramatic recent and range-wide decline, the Poweshiek skipperling is now classified as globally Critically Endangered. It will join the Sumatran rhino, the Amur leopard, the Bali mynah, the vaquita, and the rusty-patched bumble bee as one of the most endangered species on the planet. The Poweshiek skipperling had not been previously evaluated under IUCN criteria.

The Dakota skipper fares only slightly better: it is now listed as globally Endangered, joining other iconic species like the tiger, Przewalski's horse, the green turtle, and the Indian pangolin. The Dakota skipper had previously been evaluated as IUCN "Vulnerable" but needed updating.

These two butterflies are also the only butterflies or moths in North America to have been evaluated, thanks to the hard work of the Minnesota Zoo's Emily Royer and the data contributions provided by many researchers in the region.

You can find the recently updated IUCN Red List of Threatened Species (Version 2019-2) on the IUCN website: <http://www.iucnredlist.org>



Poweshiek skipperling



Dakota skipper

S. Sommer

C. Rigney & R. Westwood



Acadian Entomological Society

Public awareness

The AES, in collaboration with the PEI Horticultural Association, received a public awareness grant from the ESC. The grant was used to help host an entomology workshop open to the general public on 23 August at PEI's Farm Centre. The goal of the workshop was to increase awareness among the general public on the role and impact that insects have on our everyday lives. To this end, the AES held a family-oriented half-day of public presentations from academics, researchers, and extension staff on entomological subjects. Families with young children and folks interested in insects in general were strongly encouraged to attend. Presentations were followed by an insect catch-and-release workshop at the community garden just behind the Farm Centre. Insect field guides, magnifier glasses, and aerial nets – acquired through the grant – were distributed during the event and collected at the end for future events.

2019 ESC Award Recipients / Récipiendaires des prix SEC



Peter Mason Gold Medal Award / Médaille d'or

Dr Peter G. Mason is the 2019 recipient of the Entomological Society of Canada's Gold Medal. This award, now in its 57th year, recognizes outstanding achievement in Canadian entomology.

Dr Mason is a world recognized biological control specialist and has been influential in a number of arenas. His research has contributed to developing new tools to improve biological control agent risk assessment, to better understand the dynamics of pest-natural enemy systems, and to identify new threats posed by non-native species. He established national collaborations to develop climate models to predict the potential establishment of pollen beetle and leek moth in Canada, and to assess the impact of cabbage seedpod weevil in Ontario and Quebec. These innovations provided tools to better quantify the risks posed by invasive alien species. He has also conducted studies to validate hypotheses on host-range in the field. These novel methods provide a significant advancement to improve science-based decisions by regulatory agencies in Canada, Mexico and the United States.

Dr Mason has been instrumental in updating national guidelines related to the containment and release of insect biological control agents. His research was the basis for revision of the 'Host-Specificity Testing' and 'Post-release Monitoring' sections of the North American Plant Protection Organization (NAPPO) Regional Standards for Phytosanitary Measures (RSPM) 12,

Dr Peter G. Mason est le récipiendaire de la Médaille d'or de la Société d'entomologie du Canada 2019. Ce prix, qui en est à sa 57^e année, reconnaît les accomplissements exceptionnels d'un de ces membres dans le monde de l'entomologie au Canada.

Dr Mason est un spécialiste de la lutte biologique reconnu mondialement et a eu une influence importante dans plusieurs domaines. Sa recherche a contribué au développement de nouveaux outils pour améliorer l'évaluation des risques d'agents de lutte biologique, pour mieux comprendre les dynamiques des systèmes de ravageurs et d'ennemis naturels et d'identifier les nouveaux dangers posés par des espèces non-indigènes. Il a établi des collaborations au niveau national pour développer des modèles climatiques pour prédire l'établissement potentiel des méligrâthes et de la teigne du poireau au Canada et pour évaluer l'impact du charançon de la graine du chou en Ontario et au Québec. Ces innovations ont fourni des outils pour mieux quantifier les risques posés par les espèces exotiques envahissantes. Il a aussi mené de nombreuses études afin de valider, sur le terrain, les hypothèses sur la gamme d'hôtes. Ces méthodes novatrices contribuent à des avancées significatives dans l'amélioration des décisions à base scientifique par les organismes de réglementation du Canada, du Mexique et des États-Unis.

Dr Mason a été déterminant dans la mise à jour les lignes directrices nationales en lien avec le confinement et les disséminations d'insectes comme agents de lutte biologique. Ses recherches ont été la base de la révision des sections sur les essais de spécificité des hôtes et de suivi post-dissémination des normes régionales pour les mesures phytosanitaires (RSPM) 12 de l'Organisation nord-américaine

Guidelines for Petition for First Release of Non-indigenous Entomophagous Biological Control Agents. His innovations have been central to formulating a science-based response to a changing regulatory environment for biological control agents worldwide. To protect and conserve biodiversity, biological control agents are being scrutinized more carefully, yet not to the point where requirements are impossible to meet. Through his leadership in NAPPO, RSPM have also been developed for the release of non-*Apis* pollinating insects, for the construction of containment facilities, for certification of commercial biocontrol agents for cross-border movement, and for international shipment of live arthropods used for biological control.

Dr Mason has also been instrumental in farmer-participatory implementation of biological control in Canada, recognizing that the front-line people must be involved for biological control to be successful. He brought together teams of provincial, federal and international experts to develop science-based methodology for engaging farmers so they can better understand the dynamics of some of the pest problems they are facing. By presenting to the growers information on the biology of these pests, and how the parasitoids contribute to mortality, capacity is built so that growers can make decisions about how their crop might be best managed using biological control.

As well as his research accomplishments, Dr Mason has had the opportunity to mentor students, and he was instrumental in establishing an internship program at CABI, which offers Canadian undergraduate students the opportunity to gain hands-on field research experience on classical biocontrol of insect pests/weeds. Between 1997 and 2018, 105 Canadian students from 21 universities gained places at CABI's research centre in Switzerland.

Since obtaining his PhD at the University of Saskatchewan in 1983, Dr Mason has been employed by Agriculture Canada / Agriculture and Agri-Food Canada at Saskatoon, Saskatchewan, and Ottawa, Ontario. He has

pour la protection des végétaux (NAPPO en anglais), *Guidelines for Petition for First Release of Non-indigenous Entomophagous Biological Control Agents.* Ces innovations ont été au centre de la formulation des réponses à base scientifique en lien avec un environnement réglementaire changeant concernant les agents de lutte biologique à travers le monde. Pour protéger et conserver la biodiversité, les agents de lutte biologique sont examinés de façon plus détaillée, mais pas encore au point où les conditions sont impossibles à atteindre. À travers son leadership à NAPPO, des RSPM ont aussi été développées pour la dissémination d'insectes pollinisateurs autre que les *Apis*, pour la construction d'installations de confinement, pour la certification d'agents de lutte biologique commerciaux traversant les frontières et pour l'envoi international d'arthropodes vivants utilisés pour la lutte biologique.

Dr Mason a aussi été important pour l'implantation de lutte biologique avec la participation des agriculteurs au Canada, reconnaissant que les personnes faisait face aux insectes ravageurs doivent être impliquées pour que la lutte biologique soit un succès. Il a réuni des équipes d'experts provinciaux, fédéraux et internationaux pour développer une méthodologie scientifique pour impliquer les agriculteurs et qu'ils puissent mieux comprendre les dynamiques de certains des problèmes liés aux ravageurs auxquels ils font face. En présentant cette information aux producteurs en lien à la biologie des ravageurs et à la contribution des parasitoïdes à la mortalité, la capacité des producteurs à prendre des décisions éclairées par rapport à la gestion de leurs produits avec l'aide de la lutte biologique est augmentée.

En plus de ses accomplissements dans le monde de la recherche, Dr Mason a aussi eu l'opportunité de jouer le rôle de mentor pour plusieurs étudiants et été important dans l'établissement d'un programme de stages à CABI, qui offre aux étudiants de premier cycle l'opportunité d'avoir une expérience de recherche tangible en lutte biologique classique contre les insectes ravageurs et les mauvaises herbes. De 1997 à 2018, 105 étudiants canadiens de 21

been a Principal Investigator or collaborator in grants totalling more than \$12 million and has published 95 scientific and review papers, 2 books, and 19 book chapters. He has been an ESC member since 1974, has served as President (2010-2011), and chaired the Achievement Awards, Science Policy and Education and Headquarters Committees. Dr Mason has also been actively involved in ESO (director 2001-2003) and ESS (President 1985-1986). He is an honorary member of the International Organization for Biological Control, awarded at the International Congress of Entomology in Orlando 2016. He was member-at-large (NRS 2000-2002) and is current Chair of the IOBC Commission on Biological Control and Access and Benefit-Sharing.

universités ont obtenu une place au centre de recherche de CABI en Suisse.

Depuis l'obtention de son doctorat à l'Université de Saskatchewan en 1983, Dr Mason a été employé par Agriculture et agroalimentaire Canada à Saskatoon, Saskatchewan, et à Ottawa, Ontario. Il a été un le principal investigator ou collaborateur sur des subventions totalisant plus de 12 millions de dollars et a publié 95 articles scientifiques et de révision, 2 livres et 19 chapitres de livres. Il est membre de la SEC depuis 1974, a servi comme président (2010-2011) et a été sur les comités des prix d'excellence, de politique scientifique et d'éducation et du quartier général. Dr Mason a aussi été impliqué dans la SEO (président 2001-2003) et dans la SES (président 1985-1986). Il est membre honoraire de l'Organisation internationale pour la lutte biologique depuis le Congrès international d'entomologie à Orlando en 2016. Il a été membre éloigné (NRS 2000-2002) et est le président actuel de la Commission sur la lutte biologique et le partage de l'accès et des bénéfices de l'OILB.



Dr Zoë Lindo is the 2019 recipient of the Entomological Society of Canada's C. Gordon Hewitt Award. This award is given annually to an individual judged to have made an outstanding contribution to entomology in Canada, and who received their PhD within the preceding 12 years.

Dr Lindo is a remarkable early career scholar with an amazing 56 publications, with 7 more

Zoë Lindo C. Gordon Hewitt Award / Prix C. Gordon Hewitt

Dre Zoë Lindo est la récipiendaire du prix C. Gordon Hewitt de la Société d'entomologie du Canada 2019. Ce prix est décerné annuellement à un individu ayant apporté des contributions exceptionnelles à l'entomologie au Canada et qui a terminé son doctorat dans les 12 dernières années.

Dre Lindo est une universitaire en début de carrière remarquable avec un total incroyable de 56 publications, et 7 de plus qui sont soumises, et un index h de 19. Elle est professeure agrégée au département de biologie de l'Université de Western Ontario. Elle est investigatrice

submitted, and an h-index of 19. She is an Associate Professor in the Biology Department at the University of Western Ontario. She is the PI or collaborator in grants worth \$2.6 million. She already has a top international reputation, is a major player in research in several ecosystems, and is breaking new ground continuously.

Dr Lindo works primarily on soil arthropods and their role in biodiversity and ecosystem function. Dr Lindo uses soil arthropods as models for understanding biodiversity and ecosystem function, as soils are a non-renewable resource that contain the majority of the world's biodiversity and perform important functions such as decomposition and nutrient cycling. She combines large-scale field observations, lab, greenhouse, and field-scale experimental manipulations, together with theoretical approaches, to understand how global environmental changes will impact soil biodiversity and function.

Dr Lindo's research has broken new ground in elucidating the processes which generate and maintain patterns of soil biodiversity and examining how changes in biodiversity and ecosystem processes feed back on one another. For instance, Dr Lindo's early research includes an innovative research program exploring arthropod biodiversity in the canopy of ancient coastal temperate rainforests that resulted in 14 peer-reviewed published works. This work highlighted the unique biodiversity of forest canopies and identified wind-dispersal as a key element in shaping these ecological communities. It was also more than usually challenging as it involved climbing into the 36 m ancient canopy and devising a series of vertical and horizontal litter and suspended soil experiments. She then moved into the boreal peatlands and introduced the concept of the Bryosphere, an essential component of the boreal ecosystem. She has explored the effects of climate change on decomposition, nutrient dynamics and community structure of this system. She is especially proud of her taxonomic work as facilitating the discovery and description of

principale ou collaboratrice sur des subventions dont le total s'élève à 2,6 millions de dollars. Elle a déjà une réputation internationale de haut calibre et est une joueuse majeure en recherche dans plusieurs écosystèmes et continue à ouvrir de nouvelles voies.

Dre Lindo travaille principalement sur les arthropodes du sol et sur leur rôle en lien avec la biodiversité et le fonctionnement des écosystèmes. Dre Lindo utilise les arthropodes du sol comme modèles pour comprendre la biodiversité et le fonctionnement écosystémique car les sols sont une ressource non-renouvelable qui contient la majorité de la biodiversité du monde et qui joue des rôles importants tels que la décomposition et le cycle des nutriments. Elle combine des observations de terrains à grande échelle, le laboratoire, les serres et des manipulations expérimentales sur le terrain avec des approches théoriques pour comprendre comment les changements environnementaux globaux auront un impact sur la biodiversité et la fonction du sol.

La recherche de Dre Lindo a ouvert de nouvelles voies en élucidant les processus qui génèrent et maintiennent les motifs de biodiversité et en examinant comment les changements de biodiversité et de processus écosystémiques s'influencent. Par exemple, les premières recherches effectuées par Dre Lindo incluaient un programme de recherche innovant explorant la biodiversité des arthropodes dans la canopée d'ancienne forêts pluviales tempérées près des côtes qui a abouti à 14 publications revues par les pairs. Ce travail a mis en lumière l'unique biodiversité des canopées forestières et a identifié la dispersion par le vent comme un élément clé dans le façonnement des communautés écologiques. C'était aussi un défi particulièrement important puisqu'il fallait grimper dans l'ancienne canopée à une hauteur de 36m et construire une série d'expériences de litière verticale et horizontale et de sol suspendu. Elle s'est ensuite dirigée vers les tourbières boréales et a introduit le concept de « bryosphère », une composante essentielle de l'écosystème boréal. Elle a exploré les effets des changements climatiques sur la

new species in the field of acarology. Dr Lindo is recognized as a world-leading expert in the acarine suborder Oribatida, and the expert on the oribatid family Peloppiidae; she co-teaches Oribatida at the Acarology Summer Program of the Ohio State University/University of Arkansas.

She has supervised 16 graduate students, 2 post-docs and 9 honours students, and is a Subject Editor of *The Canadian Entomologist*, and Editor-in-Chief for *Pedobiologia*. She runs a large and vibrant lab and publishes with her students regularly. She is involved in a broad range of national and international collaborations.

décomposition, les dynamiques de nutriments et les structures de communautés dans ce système. Elle est particulièrement fière de son travail en taxonomie où elle a facilité la découverte et la description de nouvelles espèces dans le domaine de l'acarologie. Dre Lindo est reconnue comme experte mondiale sur le sous-ordre des Oribatida et l'experte de la famille d'orbatide Peloppiidae. Elle enseigne en tandem la section Oribatida durant le programme d'été d'acarologie de l'Université de l'état de l'Ohio et de l'Université de l'Arkansas.

Elle a supervisé 16 étudiants aux cycles supérieurs, 2 chercheurs post-doctoraux et 9 étudiants dans le programme d'honneur et elle est éditrice thématique pour *The Canadian Entomologist* et éditrice en chef pour *Pedobiologia*. Elle dirige un laboratoire large et vibrant et publie régulièrement avec ses étudiants. Elle est aussi impliquée dans un grand nombre de collaborations nationales et internationales.



Entomological Society of Canada Fellowships are bestowed by the Entomological Society of Canada to recognize members of the Society for their major contributions to entomology via research, teaching, application, and (or) administration. Dr Gerhard Gries has been elected Fellow in 2019.

Gerhard Gries is an award-winning Professor in the Dept. of Biological Sciences at Simon Fraser University (SFU). He is the world's leading researcher in the study of multimodal

Gerhard Gries Fellow / Membre associé

Le statut de membre associé de la Société d'entomologie du Canada est accordé par la Société d'entomologie du Canada pour reconnaître les membres de la Société pour leurs contributions majeures à l'entomologie via leurs recherches, enseignements, applications et (ou) tâches administratives. Dr Gerhard Gries a été élu membre associé en 2019.

Gerhard Gries est professeur au département des sciences biologiques de l'Université Simon Fraser (SFU), et récipiendaire de nombreux prix. Il est un leader mondial dans le domaine de la recherche sur la communication multimodale chez les insectes. Il est particulièrement connu pour avoir combiné la technique de

communication in insects. He is particularly well known for combining GC-EAD, inferential analytical chemistry, chemical synthesis and behavioral bioassays to identify vanishingly small amounts of pheromones produced by geometrid moths and gall midges. These pheromones are typically present in quantities below the detection threshold of GCs and the analytical capability of spectroscopic instruments. His research team recently identified the bed bug aggregation pheromone, the first discovery of a message mediated by both volatile and non-volatile pheromone components.

During Dr Gries' extremely productive career, he and his lab have elucidated communication signals and foraging cues in a wide variety of arthropods. They have identified pheromones from 83 species of insects and 3 spiders. Other breakthroughs revealed the role of sound, light and magnetic fields in arthropod communication. For example, his lab has recently shown "how flies are flirting on the fly" in that some fly families use light flashes reflected off their wings in sexual communication, which was previously entirely unknown. In total, the Gries lab has published more than 273 articles in refereed journals, has been granted some 15 patents, and has received >11 million dollars in funding. Currently, the lab is studying the mediation of insect behaviour by microorganisms which either produce volatile semiochemicals or provide contact stimuli. Dr Gries has supervised 69 graduate students with 12 current students.

Dr Gries' research accomplishments have been recognized by the entomological community including the prestigious Entomological Society of America (ESA) Recognition Award in Insect Physiology, Biochemistry and Toxicology (2016), and the Entomological Society of Canada Gold Medal (2017). As well as being a superlative researcher, Dr Gries is also a passionate teacher and his teaching of entomology and ecology courses has been recognized with an SFU Excellence in Teaching Award. As well,

chromatographie en phase gazeuse couplée à l'électro-antennographie (CPG-EAD), la chimie analytique inférentielle, la synthèse chimique et les essais comportementaux pour identifier de minuscules quantités de phéromones produites par les papillons géométridés et les cécidomyies. Ces phéromones sont typiquement présentes en quantités inférieures au seuil de détection des CPG et de la capacité analytique des instruments spectroscopiques. Son équipe de recherche a récemment identifié la phéromone d'agrégation de la punaise de lit, la première découverte d'un message conduit par des composantes de phéromones autant volatiles que non-volatiles.

Durant la carrière extrêmement productive de Dr Gries, lui et son labo ont élucidé les signaux de communication et les indices utilisés dans l'approvisionnement d'une grande variété d'arthropodes. Ils ont identifié les phéromones de 83 espèces d'insectes et 3 araignées. D'autres percées ont révélé le rôle du son, de la lumière et des champs magnétiques dans la communication des arthropodes. Par exemple, son labo a récemment montré que certaines familles de mouches utilisent des éclairs de lumière réfléchie sur leurs ailes pour la communication sexuelle, ce qui était entièrement inconnu auparavant. Au total, le labo Gries a publié plus de 273 articles dans des revues évaluées par les pairs, a reçu plus de 15 brevets, et a reçu plus de 11 millions de dollars en financement. Présentement, le labo étudie la médiation du comportement des insectes par les microorganismes qui produisent soit des indices sémiotiques volatiles ou fournissent des stimuli de contact. Dr Gries a supervisé 69 étudiants des cycles supérieurs et supervise présentement 12 étudiants.

Les accomplissements en recherche du Dr Gries ont été reconnus par la communauté entomologique, notamment par le prix de reconnaissance prestigieux de la Société d'entomologie américaine (ESA) en physiologie, biochimie et toxicologie des insectes (2016) et la médaille d'or de la Société d'entomologie du Canada (2017). En plus d'être un excellent chercheur, Dr Gries

Dr Gries has mentored many undergraduate research assistants and has co-authored peer reviewed papers with >50 of them. This year, he has received the ESA (Pacific Branch) Distinction in Student Mentoring Award.

est également un enseignant passionné et son enseignement des cours d'entomologie et d'écologie a été reconnu par un prix d'excellence en enseignement de SFU. De plus, Dr Gries a supervisé de nombreux assistants de recherche de premier cycle et a co-écrit des articles scientifiques avec plus de 50 d'entre eux. Cette année, il a reçu une distinction de la ESA (branche du Pacifique) pour le mentorat d'étudiant.

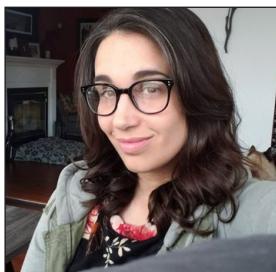
Bert and John Carr Awards / Prix Bert and John Carr

For 2019, Carr Awards have been presented to Sarah McKell, a MSc student at York University, for her project “Assessing the potential for competition between honeybees and native bees in urban landscapes” and Jonathan Charron, a graduate of the University of Montreal, for “Exploring the opilionological fauna of Quebec”.

Full details will be published in the June 2020 *Bulletin*.

En 2019, le prix Carr a été remis à Sarah McKell, une étudiante de maîtrise à l’Université York, pour son projet « Évaluer le potentiel de compétition entre l’abeille à miel et les abeilles indigènes dans le paysage urbain » et Jonathan Charron, un étudiant diplômé de l’Université de Montréal, pour son projet « Explorer la faune opilionologique du Québec ».

Plus de détails seront publiés dans le *Bulletin* de juin 2020.



Erica Burke is the Acadian Entomological Society nominee for the 2019 Criddle Award. Erica grew up in Corner Brook, Newfoundland, and is passionate about insects although things didn't start out that way. Initially, she was terrified of insects but when a young boy chased her with a spider on a stick, Erica decided she didn't want to spend the rest

Erica Burke Criddle Award / Prix Criddle

Erica Burke est la récipiendaire de la Société acadienne d'entomologie pour le prix Criddle 2019. Erica a grandi à Corner Brook, Terre-Neuve, et est passionnée des insectes même si les choses n'avaient pas commencé de la sorte. Au départ, elle était terrifiée par les insectes, mais quand un jeune garçon l'a poursuivi avec une araignée sur un bâton, Erica a décidé qu'elle ne voulait pas passer le reste de sa vie à avoir peur des insectes et arachnides, et elle a donc commencé à en apprendre

of her life afraid of insects and arachnids, and so started learning about them and, a little at a time, became more comfortable sharing their space. She started by collecting water beetles and observing their habits, and to this day has a soft spot for beetles.

Despite having no formal training in entomology, Erica is very knowledgeable about insects, her fascination having led her to read and study many entomological books; Gullan & Cranston's *The Insects: An Outline of Entomology* and Chapman's *The Insects: Structure and Function*, were particularly influential. Erica is involved in entomology outreach in schools on the west coast of Newfoundland, teaching young students about common insects they might encounter in their neighborhoods, showing them how to rear caterpillars, and creating posters illustrating metamorphosis. She also is interested in insect photography and recently had several photos published in a new field guide to Insects of Newfoundland and Labrador.

The main reason for Erica's Criddle Award nomination, however, is her involvement in, and commitment to, science communication with the general public using social media. This valuable contribution to citizen science has been important to the entomological community in Newfoundland and Labrador and beyond. In 2015 she was instrumental in creating the popular Facebook group "Insects of Newfoundland" which is directed at the general public and currently has over 2,400 members. The description of this group on Facebook states that "A lot of people are grossed out by insects but don't realize that they all play a vital role in our ecosystem. This group is to share and discuss insect observations and can be utilized by insect lovers and novices alike."

Members of this active group post photos, often looking for identifications. This invariably leads to posting of information about insect names, distributions, life history and biology as well as the characteristics needed for identification, at least for species whose identification is possible

plus à leur sujet, et, petit à petit, est devenue plus confortable à partager leur espace. Elle a commencé par collectionner les coléoptères aquatiques et observer leur comportement, et a maintenant un faible pour les coléoptères.

Même si elle n'a aucune formation formelle en entomologie, Erica en connaît beaucoup sur les insectes, sa fascination l'ayant amené à lire et étudier de nombreux livres entomologiques : *The Insects: An Outline of Entomology* de Gullan & Cranston et *The Insects: Structure and Function* de Chapman, ont été particulièrement importants. Erica est également impliquée dans la vulgarisation et la communication sur l'entomologie dans les écoles de la côte ouest de Terre-Neuve, en parlant aux jeunes étudiants des insectes communs qu'ils peuvent rencontrer dans leur quartier, leur montrant comme éléver des chenilles, et en créant des affiches illustrant la métamorphose. Elle est également intéressée par la photographie des insectes et plusieurs de ses photos ont récemment été publiées dans un nouveau guide de terrain des Insectes de Terre-Neuve et Labrador.

La principale raison pour la nomination d'Erica au prix Criddle est, cependant, son implication et son dévouement pour la communication des sciences au grand public par les médias sociaux. Cette contribution importante à la science citoyenne a été bénéfique pour la communauté entomologique à Terre-Neuve-et-Labrador et au-delà. En 2015, elle a contribué fortement dans la création d'un groupe Facebook populaire « Insects of Newfoundland » qui est dirigé par le grand public et a présentement plus de 2400 membres. La description de ce groupe sur Facebook mentionne que « Beaucoup de gens sont répugnés par les insectes, mais ne réalisent pas qu'ils jouent tous un rôle vital dans notre écosystème.¹ » Ce groupe partage et discute d'observations d'insectes et peut être utilisé autant par les amateurs des insectes que les amateurs.

Les membres de ce groupe actif publient des photos, cherchant fréquemment une identification. Cela mène invariablement à la

¹Traduction libre

using photos. Occasionally, a potential new record is discovered; for example, the brown marmorated stink bug in insular Newfoundland was found this way. The group also is used as a forum to coordinate citizen science projects such as the Newfoundland and Labrador Mosquito Project. Discussions about “hot topics” address invasive insects, bee health, habitat conservation and loss, and the recent “insect apocalypse”. Most members of the Insects of Newfoundland Facebook group are enthusiastic and positive about entomology. Curiously, insects appear to inspire dislike or fear in others. It is members of this group that Erica particularly hopes to influence. She feels that through education and with enough correction and direction, she just might reach a few of them. “If we can sway a few, that could do wonders.”

publication d’informations sur les noms des insectes, leur distribution, leur histoire de vie et biologie, ainsi que sur les caractères requis pour l’identification, au moins pour les espèces dont l’identification est possible à l’aide des photos. Il y a à l’occasion un nouveau signalé potentiel : par exemple, la punaise marbrée a été découverte de cette façon sur l’île de Terre-Neuve. Le groupe est également utilisé comme forum pour coordonner les projets de science citoyenne tels que le Projet moustique de Terre-Neuve et Labrador. Les discussions sur des « sujets chauds » concernent les insectes envahissants, la santé des abeilles, la conservation et la perte d’habitats, et le récent « apocalypse des insectes ». La plupart des membres du groupe Facebook sur les insectes de Terre-Neuve sont enthousiastes et positifs face à l’entomologie. Curieusement, les insectes semblent inspirer du dégoût ou de la peur chez les autres. Ce sont ces membres que Erica espère particulièrement influencer. Elle croit que par l’éducation, et avec suffisamment de direction, elle pourrait atteindre quelques-uns d’entre eux. « Si nous pouvons en influencer quelques-uns, cela fera des merveilles »².

² Traduction libre



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Wider aspects of a career in entomology. 7. Belize

Hugh V. Danks

This series of articles outlines some ancillary aspects of my entomological career, for the potential amusement of readers. It reports the sometimes unexpected challenges of working in new places and in the real world, an approach that serves also to expose some conclusions about research activities and some information about insects and their environments. This article stems from a field course rather than from research.



My stay in North Carolina (portrayed in *ESC Bulletin 51*: 89) ended in 1974. Fortunately, that year employment prospects in Canada began to improve along with the economy, and I joined Brock University in St. Catharines, Ontario¹. As a member of faculty there, in May 1976 I taught a module of the Ontario Universities Field Biology Course in the Central American country of Belize (Figure 1).

We flew to Belize City (see Figure 2) and drove via Belmopan to the Caves Branch site. One group of students, including the participants in my course, stayed there for a week to experience the inland rainforest. Afterwards, we followed the Hummingbird highway to Stann Creek Town (now Dangriga) in order to reach South Water Caye on the



Figure 1. The location of Belize and neighbouring countries, and major towns in Belize.

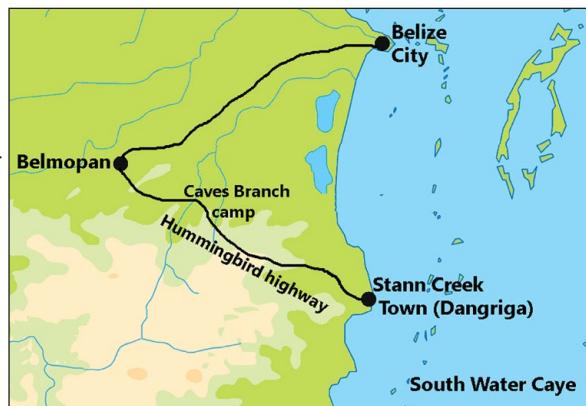


Figure 2. The route travelled in Belize, with places mentioned in the text.

¹An earlier flight north to seek a job was less successful: the airline replaced the promised non-stop jet with a small commuter plane, which landed at every intervening town in Virginia, Pennsylvania, and New York.

Although I arrived just in time for interviews and a seminar, my head still buzzed from the hours of noise in a seat next to the propeller.

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

barrier reef, where the course continued for another week. We retraced the route to Belize City to fly home. A second group of students stayed in the same locations, but in the opposite sequence.

My module on ecology and entomology covered the nature of these subtropical habitats, with a fauna that is so different in diversity and composition from temperate areas. The abundance of insects, especially ants, was outlined; non-entomologists are always surprised that the biomass of ants exceeds that of mammals in the tropics. The course was also designed to illustrate the complexity of ecological relationships. Insects in these places provide particularly visible examples of adaptation, including patterns of mimicry and other defences against the many natural enemies, ways to exploit available resources, and developmental patterns that respond to hot and seasonally dry environments.

Our stay in Belize had been set up not only to allow a small number of students to enroll for credit in one of several different modules of the field course, but also to accommodate many others who welcomed a chance to visit the same environments. The expedition was organized by a faculty member at Brock University, assisted by a small firm in Belize that specialized in such arrangements. Participants made appropriate preparations, including relevant immunizations.

The party of more than one hundred people flew down in a chartered aircraft. Before we landed, the organizer delivered a highly exaggerated account of the dangers, with particular emphasis on snakes. Rather than simply urging caution because there are venomous snakes in Belize, he made it sound as though deadly serpents were everywhere, dropping from the trees and slithering out of the undergrowth to poison unsuspecting visitors. These dramatic warnings deflated the excited chatter on the plane. However, not only are snakes sensitive to disturbance and tend to avoid contact, but also May is near the end of the dry season, when their activity is reduced. Indeed, we saw only one snake — a non-venomous python brought in for a show and tell by the local arrangers.

Belize is not densely populated; the resident population in 1976 was only about 130,000. In addition to residents, there was a modest garrison of British troops. That defence force served chiefly to protect the country from a potential invasion often threatened by Guatemala, which claims Belizean territory.

Large sections of the country are covered by rainforest (Figure 3), and a machete (Figure 4) was recommended for thick vegetation (though rarely used). The dry season typically lasts from about December to July, and rivers that would be swollen after the rains were instead broken up into pools (Figure 5).

At Caves Branch we occupied the site of a former logging camp². After we had settled in, the local cooks employed to look after us served our first meal. They were astonished (and appalled) at



Figure 3. Rainforest in Belize.

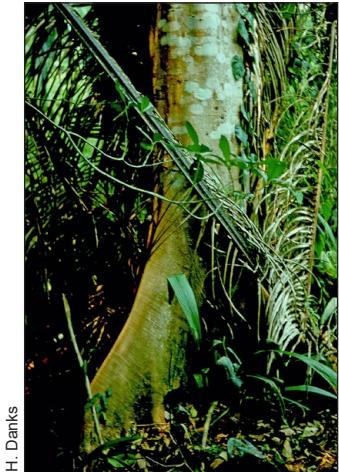


Figure 4. The machete used in Belize in 1976. Total length 85 cm.



Figure 5. A reach of the Caves Branch river in the dry season.

²The Caves Branch site is now occupied by a “jungle adventure” lodge.



H. Danks

Figure 6. A tree buttress and thick vegetation in the Belize rainforest.

the amount we ate. This capacity reflected the larger appetites of people used to cooler temperatures, as well as habits brought with us. It took some people several days to conform with the tropical pattern of lower consumption.

That first evening meal was chicken stew. The organizer had made sure that the staff knew who he was, and so the cooks reserved the greatest delicacies for him. However, he was distracted by conversation in the serving queue, and did not notice the generous way they had filled his plate. Eventually, our intrepid leader looked down—and recoiled as the claws of multiple chicken feet reached up towards him out of his meal!

His dire exposition on the plane about snakes and other perils had made people nervous, and so before breakfast on the following day, ahead of the midday heat, I took the participants in my module on a short foray into the nearby forest. By the time we returned, concerns with (absent) reptiles and deadly tropical diseases had been overcome by the interest of the rainforest environment, with tall trees supported by buttresses, and rampant vegetation with vines climbing up to the light (Figure 6). Therefore, the course itself could start normally after breakfast. Of course, the students were reminded that care is still required, including items not previously mentioned. Many cautions involved arthropods. For example, parasites such as mites and ticks that lurk on vegetation can be kept at bay by wearing appropriate clothing; proper boots defend against harmful creatures on the ground; those boots should be banged on their heels and inverted before putting them on in case scorpions (or other arthropods) in search of dark crevices have taken up residence; exploring crannies and other concealed sites is risky; many ants and wasps react aggressively to disturbance and have painful bites or stings. Outside the forest, the sun would rapidly burn unprotected skin that was still pallid after the Canadian winter!

In addition to course elements about the nature of the fauna and its ecological relationships, students completed a few joint projects. Each participant also submitted a collection containing a range of arthropods.

One project studied leafcutter ants (Figure 7). These are the most commonly noticed ants in the Neotropics, as columns carrying leaf sections extend along defined trails for up to several hundred metres. The leaves they harvest support fungus cultivated as food in underground nests.

Students were impressed too by some of the large and unusual insects. For example, the peanut bug (Figure 8) is a tropical planthopper much larger than any related species native to Canada. The head protuberance, shaped like a peanut, bears false eyes



Bandwagonman (CC BY-SA-3.0/2.5/2.0/1.0)
Figure 7. Leafcutter ants carrying leaf sections. Each worker is about 1 cm long.



Geoff Gallice (CC BY-2.0)
Pavel Kirillov (CC BY-SA-2.0)
Figure 8. "Peanut bugs" (*Fulgora laternaria*), showing the hindwing eyespots and the peanut-shaped head process. Wingspan up to 15 cm, body length up to 9 cm.

resembling those of a reptile, and eyespots on the hindwings appear to serve in flash colouration. These strategies for deterring predators would be most effective in a large species like this one.

Some students tried to include as much diversity as possible in their collections; some gathered only leafcutter ants, common beetles, and other insects that were easy to find; and a few acquired species inadvertently. For example, despite being warned to remain properly clothed, anyone who took off their garments in the heat but then brushed through vegetation as they went farther afield discovered that tiny larval harvest mites had attached to their exposed skin. Although the local cooks were adept at picking the parasites off, the process was time-consuming for individuals who were infested by up to two hundred mites. None of those students chose to include the specimens in their collections, perhaps recognizing that acquiring them stemmed chiefly from a lack of attention!

Another module of the field course studied vertebrates. Members of that section made observations about selected species in the field, and also collected and examined specimens. This behaviour greatly confused some of the local people, apparently because they could not understand why it was taking so long to prepare the animals for eating...

The approach of the large group not taking a course for credit was very different. Fortunately, that group was housed in a separate building on the other side of the highway. Every evening, when students in the field course would be sampling local arthropods for their collections, the non-credit group would be sampling local beverages for their psychoactive effects. Supplies of Belikin beer, brewed by the Belikin brewery in Belize City, were purchased by the case. People drinking too much of this product rationalized their subsequent distress by claiming that the cause was traveller's diarrhoea ("Montezuma's revenge").

Another local beverage, Caribbean rum produced by Cuello's distillery in the Orange Walk district, came in bottles with a label graced with the signature image of that distillery, the striking ocellated turkey. Some of the students who later felt awful attributed their suffering to a product with what they concluded was a "turkey vulture" on the label! Given these habits, as well as genuine cases of gastrointestinal adjustments to local foods and strains of *Escherichia coli*, all of the sanitary facilities at the site were soon overwhelmed. Some awkward situations arose as many desperate people sought relief.

Nearby, a cave network can be accessed at St. Herman's Cave (Figure 9). One of the local tour arrangers led an expedition into the cave. We saw few arthropods, and it was a long, hot, and humid journey surrounded by total darkness until we emerged at another opening a considerable distance away. I had brought a flask of water, which surprisingly was the only one, so after a while I passed it around to share. The first few students took a reasonable portion, but the next one rapidly threw back most of the remaining water. Although such selfish individuals are in the minority, their selfishness has wider consequences. People who take more than their fair share, appropriate information without acknowledgement, borrow books but never return them, and so on, influence others to be less generous with favours, ideas, and data. More broadly, they prompt unduly complex and restrictive policies, regulations, and legislation.

Consideration for others is more effective. The best student courses, research projects, and other joint endeavours draw their strength from

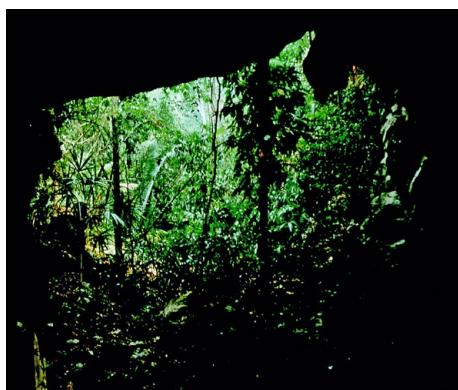


Figure 9. Entrance to St. Herman's Cave in 1976.

H. Danks

H. Danks



Figure 10. A less bumpy section of the Hummingbird highway during the bus journey in 1976.

prevent a plank from bouncing out of position, despite the weight of the many people it carried. Crowded together, the passengers found it difficult to replace the plank as the vehicle continued to bump along at high speed. Some passengers were so fearful of a comparable journey on the return to Belize City that they took a small plane instead, despite the great expense.

Eventually we reached Stann Creek Town. Figure 11 shows the arrivals outside our hotel, as well as the two “buses” used to transport them. Much of the baggage had to be kept outside overnight, so a group of local people was hired to protect it. Moreover, as advised by the firm making our arrangements, an unrelated group of local people was hired to watch those protectors. Indeed, because theft is so common, new arrivals to the British garrison were cautioned with a joke about a potential invasion from Guatemala. This popular joke held that no invasion was feasible, because almost immediately the invading forces would be left standing in their underwear when all of their weapons and other possessions had been stolen!

The following day we rode across the water to South Water Caye (Figure 12), one of many small islands on the Belize barrier reef³. Our “cruise ship” was an open boat towed by a small fishing vessel. Most of us slept outside on the beach, enjoying the scenery (e.g., Figure 13).

Although this part of the course included entomology (especially themes related to island

the cooperation and contributions of team players.

After our stay at Caves Branch, we continued down the Hummingbird highway (Figure 10) on board a “bus”. This optimistically named vehicle was an old army truck, with seating formed from planks across its width slotted into the sides. The road was very rough in places (the highway was not completely paved until 1994). Therefore, it was necessary to hang on to the “seat” to limit the height to which a passenger might be flung during travel. However, this strategy did not always



Figure 11. The visiting group, and its parked transportation, outside the hotel in Stann Creek Town (now Dangriga).

H. Danks



H. Danks

Figure 12. The landing at South Water Caye.

³The facility at South Water Caye is currently run by International Zoological Expeditions (IZE).

biogeography), it focussed on transects across the reef, from the shore into deeper water, to study marine diversity and zonation. It did not resemble my own field course in marine biology years earlier, when chilled students counted barnacles and other intertidal invertebrates on a rocky, windswept shore in Wales.

The reef transects were not located randomly. Sanitary facilities perched over the edge of the ocean allowed along-shore currents to sweep away undesirable substances...and take them through any transects that might have been set up in the wrong place.

In due course, the whole party assembled at the airport to leave Belize. As our plane waited, an unexpected “departure tax” was imposed. There was little option but to have each passenger pay the required sum of several US dollars. Students who had previously invested most of their cash in local beverages borrowed the necessary funds from their friends.

Our homeward journey passed through the United States. Baggage had to clear customs before continuing on, and it included preserved biological specimens. As one of the first packages emerged from the bowels of Miami airport on to the baggage carrousel, the smell of ethanol showed that a container had been broken. Our hopes fell as we envisaged the disaster about to be revealed, but fortunately nothing else was damaged. Nevertheless, the loss was a useful lesson: specimens and other breakable items must be packed for shipping with extraordinary diligence, mainly to protect them from the unexpectedly brutal treatment they receive from some shippers.

Back in Canada, we discovered that harvest mites were not the only arthropods that had interacted with the students in Belize. Several individuals developed what they thought must be infected mosquito bites...until they saw movement! Each wound contained a growing maggot of the human bot fly. The adult bot fly (the oestrid *Dermatobia hominis*) captures biting flies and attaches its eggs to them, and the larvae hatch as the carriers begin to feed on warm-blooded hosts, including many mammal species in addition to humans. In the departmental break room, information about the species was posted as well as a large sketch of one of the larvae, illustrating the backwardly pointing spines that hinder attempts to extract it from the wound. Apparently, some members of faculty did not appreciate seeing this representation, even though “Biological Sciences” was the name of the department...

I once recovered an enormous oestrid larva from a dead rabbit, and carefully fixed and preserved it. The taxonomist who examined the larva said that I should have tried instead for adult emergence, because flies of that family are much less frequently collected than larvae. Despite this admonition, I did not advise any student to allow their maggot from Belize to feed for a few more weeks in order to obtain an adult!



Figure 13. A mangrove off South Water Caye, soon after sunrise.

H. Danks

First International Advanced Course on Using Managed Pollinators for Dissemination of Biological Control Agents for Suppression of Insect, Fungal & Other Pests of Crops

Charlotte Coates, Susan Willis Chan, Peter Kevan, Ljubiša Stanisavljević, and Guy Smagghe

The First International Advanced Course on Using Managed Pollinators for Dissemination of Biological Control Agents for Suppression of Insect, Fungal & Other Pests of Crops, hosted at the University of Belgrade, Faculty of Biology, Serbia, from 6–10 May 2019 was a great success, attracting around 20 participants and instructors from 10 countries. The course was co-sponsored by the International Commission for Plant-Pollinator Relationships (ICPPR), International Organisation for Biological and Integrated Control – West Palaearctic Regional Section (IOBC-WPRS), International

Union of Biological Sciences (IUBS) and the Arthur Dobbs Institute based in Cambridge, Ontario.

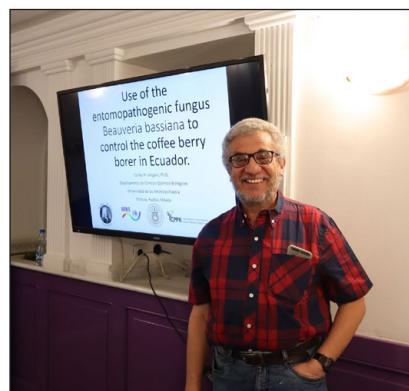
Special thanks go out to the main organizers, Dr Ljubiša Stanisavljević (University of Belgrade) and Dr Peter Kevan (University of Guelph) for all their work bringing the group together and organizing the curriculum.

Apivectoring/entomovectoring technology, which uses managed bees to disseminate biological control agents to flowering crops, can boost crop yields by providing non-chemical protection from pests and disease while enhancing pollination. The advanced course covered the basic principles of pollinator/flower relations, crop pests, the technological development of apivectoring from experimental tests to commercial



Course participants and instructors and raspberry farmers after setting up two bumble bee hives in a raspberry orchard in Majur, Serbia.

group photo from conference



C. Coates

Dr Carlos H. Vergara from the Universidad de las Américas Puebla presenting work on coffee berry borer in Ecuador.

Charlotte Coates (coatesc@uoguelph.ca) is a research associate in the School of Environmental Sciences at the University of Guelph contributing to an apivectoring project on greenhouse strawberry crops in Ontario. Susan Chan is a PhD candidate at the University of Guelph studying squash bees. Peter Kevan is a professor emeritus at the University of Guelph and the current President of the International Commission for Plant-Pollinator Relationships. He has played a key role in the research and development of apivectoring technology. Ljubiša Stanisavljević is a professor at the University of Belgrade. In addition to his role as an organizer for the course in Belgrade, he presented results using bumblebees as bioagent vectors to control *Sclerotinia* head rot on sunflowers in Serbia. Guy Smagghe is a professor at the University of Ghent in the Faculty of Bioscience Engineering and has contributed greatly to the development of apivectoring technology.

application, advantages and disadvantages of biological control agents, dosing the vector and crop, dispersal of biocontrol agents through pollinator foraging ranges, monitoring methodology, analysis of the cost-benefits associated with apivectoring, registration of biological control agents considering vector safety, environmental issues, human exposure safety, and formulation and labelling.

International examples of apivectoring research trials were presented by participants from Canada, Mexico, Colombia, Brazil, Belgium, Serbia, Kenya and Senegal. Researchers, industry partners, and students shared their respective experiences and showcased their success controlling crop pests on strawberries, raspberries, orchard crops, sunflower and canola oilseed crops, coffee and other crops around the world. Highlights of the course included a field excursion to NS-Seme Institute of Field and Vegetable Crops Novi Sad (IFVCNS), Serbia, where successful trials using bumble bees to vector biocontrol agents against head rot in sunflower were completed. The IFVCNS team has now turned its attention to using *Osmia* spp. as vectors in canola. During a trip to the Jevremovac Botanical Garden, course participants were able to see the collection of micro and macro fungal specimens isolated from the garden in the University of Belgrade mycology lab. The group also visited the Institute for Crop Protection to examine the collection of crop pathogens and entomopathogens. During a field trip, course participants set up several *Bombus terrestris* BioBest Flying Doctor® hives with a *Clonostachys rosea* formulation to control grey mold (*Botrytis cinerea*) on raspberries. These educational, hands-on, experiences were complemented by a visit to the Museum of Beekeeping and Wine Cellar Zivanoci where the group learned about traditional Balkan beekeeping and tasted a variety of Serbian honeys and wines.

In addition to the excellent discussions and presentations throughout the week, participants in the Course will continue to work together to write a white paper detailing the next steps for apivectoring implementation research worldwide. For the three participants from Ontario, the course offered the opportunity to network and exchange ideas with other researchers from around the world. To read more please go to: <https://www.icppr.com/>



Saira Espinosa presenting her work on apivectoring in Colombia.

C. Coates



Dr Christina Mogren from the University of Hawaii helping to set up a Flying Doctor® hive at a raspberry orchard in Majur, Serbia.

C. Coates



The apivectoring group enjoying their visit to the Jevremovac Botanical Garden.

group photo from conference

In memory / En souvenir de

Malcolm MacLeod (Mac) was born in Saskatoon, Saskatchewan, on 21 March 1923. He is fondly remembered and respected for his many contributions to field crop entomology during his lifelong research career.

As an infantryman in WWII, Mac served his country in Belgium and The Netherlands with the Queens Own Cameron Highlanders of Canada. Wounded in battle in 1945, he returned to Canada for medical treatment, and soon joined the Dominion Entomological Laboratory in Saskatoon in 1946 to work with Dr A.P. Arnason. His research assignment as an entomology technician was focused on the crop pest complex known as wireworms. This included quantifying crop and vegetable damage, as well as assessing insect pest management options such as cultural and chemical control.

His role as an entomology research technician was soon expanded to include major field trials of newly-synthesized hydrocarbon insecticides. The prerequisite background studies required for the extensive scope of these field trials included biology and ecology of the insect pests, field sampling techniques, and methods of insecticide application (sprays and seed dressings).

Over the length of his career, his dedicated research contributed significantly to the successful registration of insecticidal seed dressings, a major wireworm population management tool for decades. In addition to his investigative field expertise, Mac was also a major contributor to the overall research program by preserving records and conducting statistical data analyses required for insecticide registration approvals by industry. His expertise was sought by a number of scientists over his career, including Drs H. McDonald, W.B. Fox, R.H. Burrage and J.F. Doane. Mac retired in 1983.

During his career, Mac contributed significantly to the Entomological Society of Saskatchewan. He served as the Society's first Secretary-Treasurer in 1952, and remained an active member until his retirement.

Malcolm Norman MacLeod passed away 19 May 2019 at his home in Saskatoon.

Owen Olfert
AAFC, Saskatoon Research and Development Centre



R. Underwood, AAFC

Malcolm Norman MacLeod (Mac)
(1923–2019)



The Entomological Society of Canada lost a long-time member with the death of William Lloyd Sippell at the age of 97 on 22 February 2019 at the FJ Davey Home in his home town of Sault Ste. Marie, Ontario. He lived a full and long happy life, disabled from Parkinson's Disease in the last few years but maintaining his loving, cheerful and friendly demeanour. His smile melted our hearts even when he was near the end.

Lloyd was born in Pembroke, Ontario, on 10 October 1921 to Rev Maurice and Anna Sippell and was the youngest of three siblings. After graduating from Hanover High School where he participated on the hockey team, he attended a "Teachers course" in 1941 at Stratford Normal School. Following this, he taught public school in one-room schools in Arkwright and Durkeld, Bruce County, Ontario, for a few years. Then, having volunteered to join the Royal Canadian Artillery, he served in Nova Scotia for 3 years, training recruits and patrolling for enemy U-boats off the coast. On return from his active military service, he was supported to attend the University of Western Ontario where he earned his BSc.

Upon graduation, he hitchhiked through Ontario, Michigan, Illinois, Georgia, Alabama, the Carolinas, Washington, New York and Quebec, spending the grand sum of \$65.

He met the love of his life, Doris M. Eickmier, while skating with his sister and was married by his father in St Paul's Evangelical United Brethren Church in Mildmay, Ontario, in 1950. That same fall he enrolled at University of Western Ontario and earned his Masters in Zoology (cum laude) in 1951. The couple then moved to Ann Arbor where Lloyd studied entomology at the University of Michigan while his wife worked in private duty nursing. In 1953 Lloyd earned his PhD with a thesis entitled "*A study of the forest tent caterpillar Malacosoma disstria Hbn. and its parasite complex in Ontario*", with Professor SA Graham as the External Examiner.

Having worked several summers in forestry field stations for the Department of Agriculture during his undergraduate years, Lloyd joined the Forest Insect Laboratory, in Sault Ste. Marie as a research scientist in 1951. In 1953 he became the Officer-in-Charge of the Forest Insect Survey of Ontario, a position he held until becoming Program Manager for the Spruce Budworm Control Research Project and Forest Insect and Disease Survey in 1977. Control of the spruce budworm was the main focus of his professional life, and he encouraged prevention of widespread infestations by controlling spread at the onset of small outbreaks. In 1980 Lloyd was honoured by his election as a Fellow of the Entomological Society of Canada at the Joint Annual Meeting of the Society and the Société d'entomologie du Québec in Quebec City. In 1982 he returned to his research position to complete manuscripts specific to spruce budworm and to insects of man-made forests. He retired from the Canadian Forestry Service after 33 years of dedicated service, having published over 60 scientific papers. In his early retirement, Lloyd took on a part time consultant position as a Technical Advisor with Sumitomo Chemical America Inc. and travelled quite extensively.

The United Church was a huge part of Lloyd's life and he served as an Elder in his local church for many years. He placed his family at the forefront of his life, including them in everything that interested him. He loved skiing, both alpine and x-country, and also his Sand Bay cottage on Lake Superior. He maintained a childlike curiosity and spent many hours putting happily at the



**William Lloyd Sippell
(1921–2019)**

cottage and in his garden, readily sharing his knowledge of the natural world with his family and community. Indeed, people often commented on his easy-going and friendly personality; either he was a born teacher or he used his early teacher training to explain the wonders of the forest and nature to all who approached him with a question.

Lloyd was a dedicated husband and celebrated a 65-year anniversary with his wife Doris. He was greatly admired, loved, and respected by his three children David (wife Anne and sons Drew and Kenn), Wendy (husband Nicholas Payne and children Jennifer and George) and Jane. He shared his love of nature, travel and being active outdoors with them. A true gentleman, he rarely had anything negative to say about anyone or anything. He is greatly missed.

Wendelyn Payne
Sault Ste. Marie

Hugh F. Clifford passed away at the age of 87 in Calgary, Alberta (Canada) on Easter Sunday, April 21, 2019. Hugh worked as a Fisheries Biologist in Columbia, Missouri from 1960 to 1962 after graduating with an MSc from Michigan State University in 1960. He earned a PhD from Indiana University in 1965, then began his career at the University of Alberta (Edmonton, Canada). Hugh taught Invertebrate Zoology and other courses from 1965 to 1995, retiring from the Department of Biological Sciences to become Professor Emeritus. Hugh is survived by his wife Joan, daughter Marie Clifford and her husband Rick Laughlin, son John Clifford, granddaughter Jacqueline Clifford and her partner Jamie Huff, sister Josie Fraser and her husband Don, two nieces and two nephews.

Hugh had a particular interest in stream ecology, and made many significant contributions to the life histories and basic biology of stream invertebrates in addition to his role as a mentor to scores of students. An article written following his nomination for the Rutherford Teaching Award at the University of Alberta noted:

His years of familiarity and fondness for the subject rub off on his students. “He illustrated almost every group of invertebrates with anecdotes of personal encounters with the creatures, and spoke of their lives with evident enthusiasm and affection,” one student remembers. “It was this enthusiasm that fired my own interest in invertebrates.”

Much of Hugh’s research focussed on the Bigoray River, a brown-water stream in the boreal natural region of the Athabasca River basin in north-central Alberta, although he and his students also published on many other aquatic habitats in the region. Their studies ranged from examining the life histories, drift, and colonization of benthic macroinvertebrates on natural and artificial



V. Gómez

**Hugh F. Clifford
(1931–2019)**

substrata, as well as habitat features and limnology of Alberta aquatic habitats, to studies on zoobenthos sampling methods. His academic publications included key papers on the ecology of an aquatic isopod and amphipod in an intermittent stream in Indiana (based on his PhD), papers focused on the Bigoray River and other habitats, and papers on the life history and ecology of Ephemeroptera and other aquatic species. Several of his papers have been cited over 70 times in scientific publications; of note, *Life cycles of mayflies (Ephemeroptera), with special reference to voltinism*, has been cited almost 200 times (Google Scholar). He was also an author on numerous papers by his graduate students on the life history, behaviour and ecology of a wide diversity of aquatic invertebrates in streams, ponds and lakes. His former students went on to successful careers as university professors (across Canada and in the USA), college instructors, and scientists in government and the private sector.

In addition to his publications, Hugh's pioneering work on the diversity of invertebrates in Alberta's sloughs, lakes and streams has left two enduring legacies. One is his 1991 book "*Aquatic Invertebrates of Alberta*", published by the University of Alberta Press and much beloved for its user-friendly flowchart keys. Hugh's book is still used to teach Zoology 351, "Freshwater Invertebrate Diversity", a course that he ran for many years and that continues to act as a training ground for young freshwater ecologists. The second is the University of Alberta Freshwater Invertebrate Collection. The collection houses more than 4500 accessioned specimens ranging from rotifers to crayfish, mostly from Alberta and adjacent provinces and territories. Among its most important components are the Alberta Oil Sands Environmental Research (AOSERP) specimens. These were collected in the late 1970s, and serve as testament to the biodiversity in northern Alberta prior to the major oilsands developments in this region.

Aside from his academic research, Hugh was deeply committed to the teaching of undergraduate courses. In particular, he was renowned and praised by students for his approach to teaching, not using lecture notes, and his ability to remember the names of all students in very large classes.

Hugh received the Science Award for Excellence in Undergraduate Teaching in Science (1980), the Rutherford Award for Excellence in Undergraduate Teaching (1993), and the Dr E.E. Ballantyne Award for Excellence in Environmental Research (1992).

Richard Casey (Edmonton), Heather Proctor (Edmonton), Jan Ciborowski (Calgary) and Donna Giberson (Sechelt)

(This tribute was first published in *The Mayfly Newsletter*, 22[1], Summer 2019.)



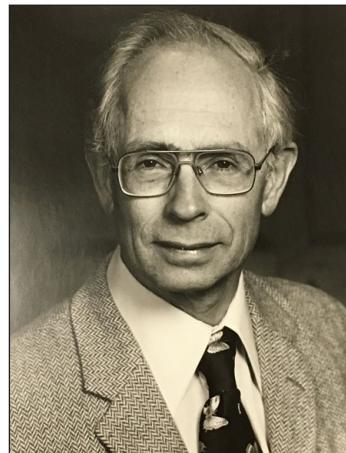
A larval alderfly (Megaloptera: Sialidae), prepared by Hugh Clifford as part of his work constructing keys and guides to Alberta aquatic invertebrates.

Dr Gerard (Jerry) Wyatt is an honoured and respected entomologist, molecular biologist, biochemist, naturalist, community campaigner, family advisor and my collaborator and friend. He died peacefully on 28 March 2019, aged 93, in Kingston, Ontario.

Jerry was born in Palo Alto, California, and moved as a child to Victoria, British Columbia, where he attended Victoria College and subsequently transferred to the University of British Columbia to earn his BA in Zoology in 1945. He was particularly motivated by a gifted teacher, Dr George Spencer. Spencer had helped establish a large insect collection at the university and, in turn, inspired Jerry's love of "bugs", ultimately leading Jerry to take up a job monitoring a massive hemlock looper outbreak on Vancouver Island with the Forest Insect Investigation Unit. It was a powerful example of population collapse due to exhaustion of the food supply when the trees were stripped bare, and this experience pressed him to investigate insect control using viral diseases to help save vulnerable forests.

Thus, after graduation he went to the University of California, Berkeley, laboratory of Dr Edward Steinhaus, noted for his work on insect-transmitted pathogens. After a year, he returned to Canada to take up a post at the newly constructed Laboratory of Insect Pathology in Sault Ste. Marie, Ontario.

Once in Sault Ste. Marie, Jerry was promptly sent to England in 1947 to ostensibly collect European insect viruses to control Canadian pests, but he also enrolled as a PhD student at the University of Cambridge to study insect viruses. His advisor was Dr Kenneth Smith, a plant pathologist with an interest in virology who was Director of the Plant Virus Station associated with the School of Agriculture. Jerry's arrival was timed just after Smith and his PhD student, Dr Roy Markham, had published a paper showing that the insect-transmitted turnip virus was composed of ribonucleoprotein. Markham, who eventually became Director of the John Innes Institute, was a pioneer in nucleic acid biochemistry and molecular biology and undoubtedly had an important influence on Jerry's science. Markham had developed a paper chromatography technique that could quantitatively analyze purine and pyrimidine bases in RNA viruses and Jerry applied this technique to insect DNA viruses, starting in Cambridge, but continuing in Sault Ste. Marie upon his return to Canada in 1950. It was while doing these experiments that Jerry discovered a new base, 5-methyl cytosine (5-MeC). Although it is Erwin Chargaff that is honoured for "Chargaff's Rules" or the 1:1 ratio of pyrimidine and purine bases in DNA, we know that it was Jerry's discovery that was key to explain why stoichiometric amounts of A + T and C + G were found in DNA as long as you could add the 5-MeC to the C. Indeed, Jerry and Dr Seymour Cohen, who sent Jerry some bacteriophages to analyze, submitted a manuscript that included their observations on the "regular structural association" of the DNA molecule that these experiments had suggested. However, this was eclipsed by the seminal 1953 Nature paper by Drs James Watson and Frances Crick on DNA's double-helix structure, which cited Jerry's 1952 paper on nucleic acids in 11 insect viruses, including precise measurements of 5-MeC. This contribution explains why Jerry Wyatt's discovery is mentioned in Watson's book, "*The Double Helix*" and also why Jerry's notebooks from this period have a place of honour in the Wellcome Library ("*The Gerard Wyatt papers*").



Biology, Queens' University

**Gerard Robert Wyatt
(1925-2019)**

While still a student in Cambridge, Jerry sent samples of a virus originating from Sweden that was effective against pine sawfly back to Canada, and this was put to good use by the Sault Ste. Marie laboratory to reduce forest damage. Jerry, however, was not involved in those practical applications of this work. Indeed, shortly after his return to Sault Ste. Marie in 1950, Jerry married Sarah Silver Morton (d. 1981) and his newly honed biochemical expertise proved useful in assisting her to devise a medium for the culturing of insect tissues, as well as author an important series of papers on the chemistry of insect hemolymph. This knowledge ultimately contributed to the breakthrough by Dr Thomas Grace in Canberra, Australia, to modify the Wyatts' tissue culture formulation to obtain a novel insect-virus-cell culture system. Grace's medium continues to be important today for the *in vitro* production of commercialized products for agriculture and human health.

Jerry was recruited by Yale University in 1954 where his experience with the analysis of insect serum, combined with his expertise in paper chromatography, directly furthered the discovery of trehalose in the hemolymph of a variety of insect orders. Previously, this disaccharide had been found in some plants, but the discovery in Jerry's Yale laboratory showed that it made up the majority of the blood sugar in Lepidoptera, for example. Subsequently, trehalose has proved to be crucially important for providing energy for insect flight, in cryoprotection, for regulating feeding, and the stabilization of proteins as part of the stress response. It is made by the fat body, and work on carbohydrate metabolism and protein synthesis in that tissue, as well as Jerry's introduction to locusts during his PhD study in Cambridge, influenced his decision to construct an African migratory locust facility at Queen's University in Kingston after his move from Yale in 1973. African locusts were not allowed in the USA due to quarantine concerns but Canada's cold climate at the time mitigated this worry and Jerry had the distinction of receiving relatively generous USA National Institutes of Health funding as well as Canadian funding. Here, he conducted biochemical and molecular biology experiments on locust reproduction, which is regulated by the fat body through juvenile hormone action. His Queen's lab was among those that pioneered the cloning of genes from insects, apart from *Bombyx mori* and *Drosophila melanogaster*. It should be noted that the locust genome is more than an order of magnitude bigger than those of both those species and this was a daunting undertaking, initiated only shortly after the lifting of the Asilomar molecular biology moratorium.

In 1988 as a Professor at Queen's, he and colleagues, primarily from Queen's but also at other Canadian universities, submitted a proposal to the Government of Canada's Networks of Centres of Excellence program. This was awarded in 1990 with Jerry named as Scientific Director of Insect Biotech Canada, with 25 scientists working together as a team with the goal of developing better means for control of injurious insect species. The 4-year initiative was a success with ties forged between like-minded colleagues in Canada, the USA and Japan. These collaborations allowed Jerry to further his lab's experimental work on juvenile hormone, known for its importance in nymphal molting but also an enigmatic transcriptional regulator of egg production.

Upon retirement, Jerry was able to devote more time for the betterment of the community and he campaigned for environmental causes. He was an expert marmalade maker and woodworker, and was always ready to fix or make specialized lab glassware for others as well as offering sage advice on experiments. He is missed by his wife Mary Ev, his children Eve, Graham and Diana, as well as Mary Ev's children Jonathan and David, in addition to 8 grand and great-grandchildren. He is fondly remembered by his colleagues and saluted by all of us who benefited from his wisdom, his contributions to science, his friendship, and to the rich legacy of discovery he leaves to Canadian entomology.

Virginia K. Walker
Professor and Queen's University Research Chair

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 (Deepa Pureswaran, deepa.pureswaran@canada.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 (Deepa Pureswaran, deepa.pureswaran@canada.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

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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

- Curtain, C.G. & T.F.H. Allen [Eds.]. 2018. Complex Ecology: Foundational Perspectives on Dynamic Approaches to Ecology and Conservation. Cambridge University Press. ISBN: 9781108235754 [paperback].
- Dale, M.R.T. 2017. Applying Graph Theory in Ecological Research. Cambridge University Press. ISBN: 9781316105450 [paperback].
- Danks, H.V. 2017. The Biological Survey of Canada: A Personal History. Biological Survey of Canada. ISBN: 978-0-9689321-9-3 [e-book].
- Eiseman, C. 2019. Leafminers of North America. [e-book].
- Forman, R.T.T. 2019. Towns, Ecology and the Land. Cambridge University Press. ISBN 978-1-316-64860-5 [paperback].
- Gibson, D.J. and J.A. Newman [Eds.]. 2019. Grasslands and Climate Change. Ecological Reviews. Cambridge University Press. ISBN 978-1-316-64677-9 [paperback].
- Kaufman, A.B., M.J. Bashaw and T.L. Maple [Eds.]. 2019. Scientific Foundations of Zoos and Aquariums: Their Role in Conservation and Research. Cambridge University Press. ISBN 978-1-316-64865-0 [paperback].
- Leidner, A.K. and G.M. Buchanan [Eds.]. 2018. Satellite Remote Sensing for Conservation Action: Case Studies from Aquatic and Terrestrial Ecosystems. Cambridge University Press. ISBN 978-1-10845670-8 [paperback].
- Pettorelli, N., S.M. Durant and J.T. du Toit [Eds.]. Rewilding. Cambridge University Press. ISBN 978-1-108-46012-5 [paperback].
- Pohl, G.R. et al. 2018. Annotated Checklist of the Moths and Butterflies (Lepidoptera) of Canada and Alaska. Pensoft Series Faunistica No 118. ISBN 978-954-642-909-4 [e-book].
- 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].
- Skevington, J., M.M. Locke, A.D. Young, K. Moran, W.J. Crins and S.A. Marshall. Field Guide to the Flower Flies of Northeastern North America. Princeton University Press. ISBN 978-0-691-18940-6 [paperback].
- Volis, S. 2019. Plant Conservation: The Role of Habitat Restoration. Cambridge University Press. ISBN 978-1-108-72733-4 [paperback].

Announcement of Change in the ESC Standing Rules

At its meeting of 21 June 2019, the Board of Directors of ESC approved an amendment to Standing Rule VII h iii), which deals with the Treasurer's duties, and gives the Treasurer limited powers to make timely payments of unforeseen expenses. The amendment does not represent an increase in powers of the Treasurer or the Executive Council, but simply replaces obsolete wording with wording that is applicable to the way in which the Society currently operates.

Previous wording

“without reference to the Board in years when there is no Interim Board Meeting, authorize payment of the costs of unforeseen items which have not been included in the Corporation’s budget, provided that these items (i) have been approved by the Executive Council; and (ii) are consistent with the objects of the Corporation. The total costs of these items shall not exceed one percent (1%) of the projected total revenue for the year as stated in the Corporation’s budget,”

Approved amended wording

“without reference to the Board, at times when there is no imminent Board Meeting, authorize payment of the costs of unforeseen items which have not been included in the Corporation’s budget, provided that these items (i) have been approved by the Executive Council; and (ii) are consistent with the objects of the Corporation. The total costs of these items shall not exceed one percent (1%) of the projected total revenue for the year as stated in the Corporation’s budget,”

Annonce de modification aux règles permanentes de la SEC

À sa réunion du 21 juin 2019, le conseil d’administration de la SEC a approuvé un amendement à la règle permanente VII h iii) qui concerne les tâches du trésorier et donne au trésorier des pouvoirs limités de faire des paiements en temps opportun pour des dépenses imprévues. L’amendement ne représente pas une augmentation des pouvoirs du trésorier ou du conseil exécutif, mais remplace simplement la formulation obsolète applicable à la façon dont la Société opère présentement.

Ancienne formulation

« sans en demander l’autorisation au CA durant les années où il n’y a pas de réunion intermédiaire du CA, autoriser le paiement des coûts d’éléments imprévus qui n’ont pas été inclus dans le budget de l’Organisation, si ces éléments (i) ont été approuvés par le conseil exécutif; et (ii) sont compatibles avec la mission de l’Organisation. Les coûts totaux de ces éléments ne doivent pas excéder un pourcent (1%) du revenu total projeté pour l’année comme indiqué dans le budget de l’Organisation, »

Formulation amendée approuvée

« sans en demander l’autorisation au CA durant les années où il n’y a pas de réunion imminente du CA, autoriser le paiement des coûts d’éléments imprévus qui n’ont pas été inclus dans le budget de l’Organisation, si ces éléments (i) ont été approuvés par le conseil exécutif; et (ii) sont compatibles avec la mission de l’Organisation. Les coûts totaux de ces éléments ne doivent pas excéder un pourcent (1%) du revenu total projeté pour l’année comme indiqué dans le budget de l’Organisation, »

Notice of a Special Meeting of Members for Consideration of ESC's Financial Statements

The financial year of the Entomological Society of Canada runs from 1 July to 30 June. Following year-end, financial data must be collated by our accountant and sent to the auditors for examination. Following that examination, the resulting financial statements must be posted for members to view for no less than 21 days and not more than 60 days before a members' meeting at which they are considered for approval. In 2019, the Annual Meeting of Members is scheduled for Tuesday 20 August; this is not sufficient time since the end of the financial year for all the legally-required steps to occur.

Accordingly, there will be a Special Meeting of Members to consider the Society's financial statements for 2018–2019. This meeting will take the form of a moderated teleconference and is scheduled for **12:00 noon CDT on Tuesday 22 October 2019**. Financial statements will be posted in the members' area of the ESC website within the legally required interval before the meeting. At the time of posting of the financial statement, all ESC members will be advised by E-mail of the posting and of the details of how to participate in the Special Meeting of Members.

Avis d'assemblée spéciale des membres pour considérer les états financiers de la SEC

L'année financière de la Société d'entomologie du Canada est du 1 juillet au 30 juin. Après la fin de l'année, les données financières doivent être colligées par notre comptable et envoyées aux auditeurs pour examen. Après cet examen, les états financiers qui en résultent doivent être affichés pour consultation par les membres pendant au moins 21 jours et au plus 60 jours avant l'assemblée annuelle des membres durant laquelle ils sont considérés pour approbation. En 2019, l'assemblée annuelle des membres est prévue le mardi 20 août : cela n'est pas assez loin de la fin de l'année financière pour que toutes les étapes légales puissent avoir lieu.

Par conséquent, il y aura une assemblée spéciale des membres dans le but de considérer les états financiers de la Société pour 2018-2019. Cette réunion prendra la forme d'une téléconférence modérée et est prévue pour le **mardi 22 octobre 2019 à 12h (heure avancée du centre)**. Les états financiers seront affichés dans la section des membres du site web de la SEC à l'intérieur des délais requis légalement avant l'assemblée. Au moment de l'affichage des états financiers, tous les membres de la SEC seront avisés par courriel de l'affichage et des détails sur la façon de participer à l'assemblée spéciale des membres.

Members' Discounts

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

Remise pour les membres

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

Highlights of the Recent Board of Directors Meeting

The Board of Directors met by teleconference on 21 June 2019. The Board received a report from the Editor-in-Chief of *The Canadian Entomologist* indicating that agreement has been reached with the publisher, Cambridge University Press, to include a plagiarism check within the manuscript submission stream. No cost to ESC will be incurred for this addition. The implementation of plagiarism checking should not be interpreted as indicating that the journal is inundated with plagiarized material; it merely constitutes a process of due diligence. The Board received a preliminary report from Étienne Normandin on the first annual National Insect Appreciation Day (NAIAD). NAIAD received good coverage in Quebec, and some coverage in other provinces; plans are underway to ensure press releases for next year's NAIAD are sent to a Canada-wide list of journalist contacts. President Kevin Floate thanked Étienne for his efforts and complimented him on the success of this first NAIAD.

President Floate reported that formal agreement has been reached with the Entomological Societies of America (ESA) and British Columbia (ESBC) to co-host a Joint Annual Meeting (JAM) in Vancouver in 2022. Also, that the Entomological Society of Saskatchewan will co-host the 2023 JAM and the Entomological Society of Quebec will co-host the 2024 JAM. In light of the large surplus generated by the 2018 JAM with ESA and ESBC and the limited number of affiliated regional societies that could co-host a meeting with ESA, the Board is planning to develop a profit-sharing formula that allows affiliated regional societies other than the co-host society to share in large meeting surpluses, when they occur.

The Board approved a new memorandum of understanding with the Biological Survey of Canada with respect to publication of the *Canadian Journal of Arthropod Identification*. The Board approved the Society's budget for the 2019–2020 fiscal year, including provisions for promotion of ESC membership at the 2019 JAM in Fredericton and new income from memberships in the Entomology Enthusiasts category. After considerable debate, the Board also approved a donation to the international conference, Aphidophaga, which will take place in Montreal in September 2019. Because a number of requests for donations have recently been received, it was decided that the Society should develop a policy on how to respond to such requests. The Board approved a change to the wording of the standing rule that permits the ESC Treasurer to make payments that were not included in the approved budget; details of this change appear in a separate item in this issue.

Executive Meeting - Call for Agenda Items

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

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

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

Call for Nominees: ESC Achievement Awards

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, Bill Riel (bill.riel@canada.ca), if you have any questions about eligibility or the nomination process.

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 chapters, patents; editorial activities; teaching history; numbers of graduate students, teaching

Appel à candidature: Prix d'excellence de la SEC

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, Bill Riel (bill.riel@canada.ca) si vous avez des questions sur l'éligibilité ou le processus de nomination.

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 contributions majeures; le nombre d'articles dans des revues avec évaluation par les pairs,

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, Bill Riel (bill.riel@canada.ca), no later than **28 February 2020**.

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, Bill Riel (bill.riel@canada.ca), au plus tard le **28 février 2020**.

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, Bill Riel (bill.riel@canada.ca) no later than **28 February 2020**.

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

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, Bill Riel (bill.riel@canada.ca), au plus tard le **28 février 2020**.

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

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, Bill Riel (bill.riel@canada.ca), no later than **28 February 2020**.

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 \$1000; and 3. A current curriculum vitae. Applications are to be sent by e-mail to the Chair of the Achievement Awards Committee, Bill Riel (bill.riel@canada.ca) no later than **28 February 2020**.

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, Bill Riel (bill.riel@canada.ca), au plus tard le **28 février 2020**.

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 1000\$; et 3. Un curriculum vitae à jour. Les candidatures doivent être envoyées par courriel au président du comité des prix d'excellence, Bill Riel (bill.riel@canada.ca), au plus tard le **28 février 2020**.



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

Contents of regional society journals

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

Contenu des revues des sociétés régionales

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



Journal of the Entomological Society of Ontario (JESO)

(JESO may be viewed at <https://journal.lib.uoguelph.ca/index.php/eso/index>)

Volume 150 (published on various dates)

First record of *Harmostes fraterculus* (Say) (Hemiptera: Rhopalidae) in Canada.

C. G. Ratzlaff, 27-29

First Canadian record of the zoophilic fruit fly *Phortica variegata* (Fallén) (Diptera: Drosophilidae).

Meredith Miller, Stephanie Hill, Bradley Sinclair, 31-36



Journal of the Acadian Entomological Society (JAES)

(JAES may be viewed at <https://www.acadianes.ca/journal.php>)

Vol. 15 (published on various dates)

Inclusion of physiological responses in insect pest risk analysis: evaluating species potential to achieve pest status.

Olga Bykova and Suzanne Blatt, 1-13 | [Full Text](#) | [Abstract](#)

New and overlooked records of ladybird beetles (Coleoptera: Coccinellidae) from Newfoundland and Labrador, Canada.

David W. Langor, 14-17 | [Full Text](#)

New provincial records of Tabanidae (Diptera) from Atlantic Canada, with a first regional record of *Chrysops macquarti* from New Brunswick.

Jake H. Lewis, John Klymko, and Katie Marshall, 18-20 | [Full Text](#) |

First records of the Lilypad Forktail (*Ischnura kellicotti*) (Odonata: Coenagrionidae) for the Canadian Maritimes and the Southern Pygmy Snaketail (*Lanthus vernalis*) (Odonata: Gomphidae) for Nova Scotia.

John Klymko, Miranda Weigensberg, and C. Sean Blaney, 21-23 | [Full Text](#)

Contents of Newsletters / Contenu des bulletins



THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

LA SOCIÉTÉ CANADIENNE DE PHYTOPATHOLOGIE

CPS-SCP News

VOL. 63, NO. 2 /June 2019

<https://phytopath.ca/wp-content/uploads/2019/06/CPS-SCP-News-63-2-June2019.pdf>

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Canadian Weed Science Society

Société canadienne de malherbologie

CWSS-SCM Newsletter

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

<https://weedscience.ca/wp-content/uploads/2019/02/CWSS-SCM-Newsletter-January-31-2019.pdf>





<https://biologicalsurvey.ca/newsletter/bsc-summer-2019.pdf>

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Meeting announcements / Réunions futures

46th Apimondia International Apicultural Congress

Montreal, 8–12 September 2019

<https://www.apimondia2019.com/>

7th International Entomopathogens and Microbial Control Congress

Kayseri (Turkey), 11–13 September 2019

<http://emc2019.erciyes.edu.tr/>

14th International Symposium: Ecology of Aphidophaga (IOBC-Global Working Group meeting)

Montreal, 16–20 September 2019

<http://www.aphidophaga14.uqam.ca>

6th Joint Meeting of the Entomological Societies of Alberta and Saskatchewan

Elkwater Lodge, Cypress Hills Interprovincial Park, 3–5 October 2019

<https://entsocalberta.ca/news-and-events/annual-general-meeting/>

Entomological Society of British Columbia Annual General Meeting

Victoria BC, 4–5 October 2019

<http://entsocbc.ca/meetings/>

Entomological Society of Ontario Annual General Meeting and Conference (By observation and experiment: teaching and learning about insect biodiversity)

Bark Lake Conference Centre near Irondale (Haliburton County), 1–3 November 2019

Congrès de la Société d'entomologie du Québec : Les entotechnologies émergentes : les insectes au service de l'humain.

Drummondville, Québec, 28–29 novembre 2019

<https://seqc.ca/reunion-annuelles/reunion-annuelle-2019/>

Entomological Society of America Annual Meeting (Advocate Entomology)

St Louis, 17–20 November 2019

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

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

Helsinki, Finland, 19–24 July 2020

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

Joint Annual Meeting of the Entomological Society of Canada and the Entomological Society of Alberta

Calgary, 18–21 October 2020

10th International IPM Symposium: Implementing IPM across Borders and Disciplines

Denver, 15–18 March 2021

<https://ipmsymposium.org/2021/index.html>

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.

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

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Bulletin de la Société d'entomologie du Canada

Rédacteur: Cedric Gillott

Rédactrice adjointe: Donna Giberson

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

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Envoyer vos soumissions à:
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Droits d'auteur 2019 Société d'entomologie du Canada

**Date de tombée pour le prochain numéro:
31 octobre 2019**

Officers of affiliated Societies, 2018-2019

Dirigeants des Sociétés associées, 2018-2019

Entomological Society of British Columbia

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

Entomological Society of Alberta

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

The last word / Le dernier mot

Cedric Gillott, Editor / Rédacteur



Entomology Enthusiast Members

The ESC has recently created a new membership category ‘Entomology Enthusiast’, to welcome and engage with non-professional entomologists. This is a decision that I support, but in some ways seems to me to be a sad one, reflecting as it does the directions taken and interests pursued by most ESC members — signaling that the study of insects has become for most of us our regular day job.

Our Society was created by, and formed for, enthusiastic amateur entomologists some 156 years ago. The founders were a minister of the Church (Rev. C.J.S. Bethune) and a pharmacist (William Saunders) who were strongly encouraged in their endeavor by a chemistry professor (Henry Croft).

According to the list presented by A.W. Baker (1939) (*The Canadian Entomologist*, 71: 14–20), there were some 36 entomologists in Canada in 1862, none of whom were professionals. As well as the positions noted above, their occupations ranged from bankers, to surgeons, land agents, army officers, railway men, and landed gentry of both sexes. This does not mean, of course, that these individuals did not know a great deal about the creatures they collected. On the contrary, they were recognized as the country’s experts when it came questions about insects — especially how to get rid of them! The Society’s first grant, made by the Ontario Government in 1870, for preparation of a report on injurious

Membres enthousiastes de l’entomologie

La SEC a récemment créé une nouvelle catégorie de membres appelée « Enthousiastes de l’entomologie » afin d’accueillir et d’impliquer les entomologues non-professionnels. C’est une décision que je supporte, mais qui est en quelque sorte triste à mon avis, reflétant la direction prise et les intérêts de la majorité des membres de la SEC — signalant que l’étude des insectes est devenue pour la plupart d’entre nous notre emploi régulier de jour.

Notre Société a été créée par, et formée pour, les entomologues amateurs enthousiastes il y a quelques 156 ans. Les fondateurs étaient un ministre de l’Église (Rév. C.J.S. Bethune) et un pharmacien (William Saunders) qui ont été fortement encouragés par un professeur de chimie (Henry Croft).

Selon la liste présentée par A.W. Baker (1939) (*The Canadian Entomologist*, 71: 14–20), Il y avait 36 entomologues au Canada en 1862, et aucun n’était un professionnel. En plus des professions mentionnées ci-dessus, leurs emplois variaient de banquiers à chirurgiens, en passant par agents des terres, officiers de l’armée, travailleurs du chemin de fer, et riches propriétaires terriens, des deux sexes. Cela ne veut pas dire, évidemment, que ces individus n’en connaissaient pas énormément sur les créatures qu’ils collectionnaient. Au contraire, ils étaient reconnus comme les experts du pays concernant les insectes — particulièrement pour s’en débarrasser! La première subvention de la Société, faite par le gouvernement de l’Ontario en 1870, pour la préparation d’un rapport sur les insectes dommageables, est venue à la condition que la Société change son nom pour la Société d’entomologie de l’Ontario.

insects, came with the proviso that the Society change its name to the Entomological Society of Ontario.

Further evidence of the expertise of the Society's earliest members came with the appointment in 1906 of Charles Bethune as the Chair of Entomology and Zoology at the University of Guelph — not bad for someone with degrees in classics, mathematics and common law! His fellow founding member, William Saunders, published many papers in *The Canadian Entomologist* and, in 1883, the first of two editions of a book '*Insects Injurious to Fruits*'. He was appointed Director of the Dominion Experimental Farms (a branch of the federal Department of Agriculture) in 1886, a position he held until his retirement in 1911.

So, the creation of a distinct membership category (with reduced membership dues) for non-professional entomologists is welcome, but should be considered as just the first step, as this alone will not entice them to become society members. Positive steps to attract them to annual meetings need to be taken — what kinds of talks and posters, what kind of displays, and what form of social events will interest *them*? Food for thought for future JAM organisers.

Des preuves additionnelles de l'expertise des premiers membres de la Société sont venues avec la nomination en 1906 de Charles Bethune comme titulaire de la chaire en entomologie et zoologie à l'Université de Guelph — pas mal pour quelqu'un avec des diplômes en études classiques, mathématique et common law! Son collègue membre fondateur, William Saunders, a publié plusieurs articles dans *The Canadian Entomologist* et, en 1883, la première de deux éditions du livre *Insects Injurious To Fruits*. Il a été nommé directeur des fermes expérimentales du dominion (une branche du ministère fédéral de l'agriculture) en 1886, un poste qu'il a occupé jusqu'à sa retraite en 1911.

La création d'une catégorie de membres distincte (avec des frais d'adhésion réduits) pour les entomologistes non-professionnels est donc bienvenue, mais devrait être considérée comme étant le premier pas, puisque cela ne les attirera pas à devenir membres de la société. Des étapes doivent être franchies afin de les attirer aux réunions annuelles — quels genres de présentations orales ou par affiche, quel genre de kiosques et quel type d'événements sociaux *les* intéressent? Quelques éléments de réflexion pour les futurs organisateurs de réunions annuelles conjointes.



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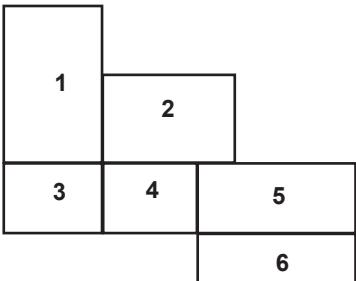
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Front cover/Plate supérieur:

1. Female ambush bug (Hemiptera: Reduviidae: Phymata) (Centreville, Ontario, Canada).
Punaise femelle (Hemiptera : Reduviidae : Phymata) (Centre ville, Ontario, Canada).
[Photo: Andrea Brauner]
2. *Philanthes multamaculatus* (Hymenoptera: Crabronidae) resting on a *Solidago* inflorescence in the fall (Kelowna, British Columbia, Canada).
Philanthes multamaculatus (Hymenoptera : Crabronidae) se prélassant sur une inflorescence de *Solidago* à l'automne (Kelowna, Colombie-Britannique, Canada).
[Photo: Robert LaLonde]
3. *Buprestis aurulenta* (Coleoptera: Buprestidae) relaxing on an aged deck on Hornby Island (British Columbia, Canada).
Buprestis aurulenta (Coleoptera : Buprestidea) se prélassant sur un patio vieillissant sur l'île Hornby (Colombie-Britannique, Canada).
[Photo: Debra Wertman]
4. Tabanidae (Diptera) collecting device: no alpine entomological survey is complete without it (Lillooet, British Columbia, Canada).
Un outil de récolte de tabanidés (Diptera) : aucun inventaire entomologique alpin n'est complet sans lui (Lillooet, Colombie-Britannique, Canada).
[Photo: Ward Strong]
5. Portrait of a tiger beetle, *Cicindela campestris* (Coleoptera: Carabidae) (Delémont, Switzerland).
Portrait d'une cicindèle champêtre, *Cicindela campestris* (Coleoptera : Carabidae) (Delémont, Suisse).
[Photo: Tim Haye]

6. The western bean cutworm, *Striacosta albicosta* (Lepidoptera: Noctuidae), is becoming a major concern for producers in Ontario and Québec. Colourful egg masses on corn leaf collected in Saint-Anicet (Québec, Canada).
Le ver-gris occidental des haricots, *Striacosta albicosta* (Lepidoptera : Noctuidae), devient une préoccupation importante pour les producteurs de l'Ontario et du Québec. Des masses d'oeufs colorés sur une feuille de maïs récoltée à Saint-Anicet (Québec, Canada).
Cambridge Core [Photo: Julien Saguez]

Back cover/Plate inférieur:

- Stiretrus anchorago* (Hemiptera: Pentatomidae) from Okaloacoochee Slough State Forest (Hardy County, Florida, United States of America).
Stiretrus anchorago (Hemiptera : Pentatomidae) de la forêt d'état d'Okaloacoochee Slough (Hardy County, Floride, États-Unis).
[Photo: Matthias Buck]

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