



Bulletin

Entomological Society of Canada
Société d'entomologie du Canada

Volume 42
Number / numéro 3



September / septembre 2010



Published quarterly by the
Entomological Society of Canada

Publication trimestrielle par la
Société d'entomologie du Canada



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Sur le dos: *Cyphocleonus achates* (Fahraeus) (Coleoptera: Curculionidae) est un charançon des racines introduit au Canada pour le contrôle biologique d'espèces exotiques de centaurées. Photo: B. Van Hezewijk

Sous le titre: *Alucita adriendenisi* (Landry & Landry) (Lepidoptera: Alucitidae), retrouvé dans presque tout le Canada, a été nommé en l'honneur d'Adrien Denis qui a assisté Carl Atwood, le père de Margaret Atwood, dans ses travaux entomologiques et a laissé une impression importante à la famille Atwood. Photo: J. Dombroskie

1 Chenille du sphinx de l'euphorbe, *Hyles euphorbiae* (L.) (Lepidoptera: Sphingidae), sur l'euphorbe esule (*Euphorbia esula* L.), parc provincial de Spruce Woods au Manitoba. Photo: A. Leroux

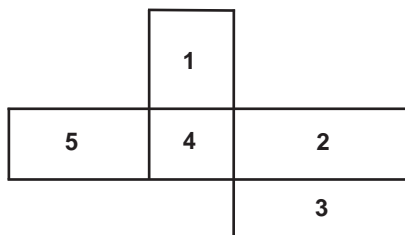
2 Accouplement de mouches de la viande (Diptera: Sarcophagidae) dans le parc de la Gatineau, Québec. Photo: M. Larrivée

3 *Piagetiella peralis* (Leidy) (Phthiraptera: Menoponidae), un parasite trouvé dans la poche du pélican d'Amérique (*Pelecanus erythrorhynchus*). Photo: T. Galloway

4 Récolte de parasitoïdes du charançon de la graine du chou, *Ceutorhynchus obstrictus* (Marsham) (Coleoptera: Curculionidae), dans des champs de canola (*Brassica* sp.). Photo: T. Haye

5 Un acarien du sol abondamment ornémenté provenant des prairies en Alberta (Prostigmata: Stigmaeidae). Photo: H. Proctor

Couverture arrière: Une saperde du pommier, *Saperda candida* (Fabricius) (Coleoptera: Cerambycidae) près de Peterborough en Ontario. Les individus de cette espèce varient sur la prédominance de bandes claires (comme ce spécimen) ou foncées. Photo: J. Fitzsimmons





Serving the ESC is good for the soul; you should try it!

Whose job description includes attempting to answer questions about viral infections of pet store crickets, insect infestations of the human body(!), North American invasions of the giant peacock moth, and the twitch response of beheaded wasps? If you guessed the Entomological Society of Canada (ESC) President....you're right! Wow, what a fun and crazy year it has been serving as ESC President! Although my term as ESC President does not end until November, this will be my last Up front article. I'd like to take advantage of my last opportunity to update you on the Society's affairs prior to the Joint Annual Meeting (JAM) in Vancouver, 31 October - 3 November 2010.

Although the ESC President does get to "interact" with the general public on a number of interesting topics, the real work of the Society is conducted by the Office Manager, Trustees, Governing Board, and various committees. This year we have been hard at work on a number of important initiatives. You may have noticed that the Agriculture and Agri-Food Canada Entomological Monographs series is now on-line (<http://www.esc-sec.ca/aafcmono>).

Servir la SEC est bon pour l'esprit; vous devriez essayer!

Quelle description d'emploi inclut de tenter de répondre aux questions sur les infections virales des sauterelles d'animaleries, sur les infestations du corps humain par les insectes (!), sur les invasions nord-américaines du grand paon de nuit et sur les tressautements des guêpes décapitées? Si vous croyez qu'il s'agit du président de la Société d'entomologie du Canada.... vous avez raison! Wow, ce fut une année amusante et folle à servir en tant que présidente de la SEC! Bien que mon mandat de présidente de la SEC ne se termine pas avant novembre, ceci est mon dernier Avant-propos. J'aimerais profiter de cette dernière chance pour vous tenir au courant sur les affaires de la société avant la réunion conjointe annuelle à Vancouver, du 31 octobre au 3 novembre 2010.

Bien que le président de la SEC doive « interagir » avec le grand public sur de nombreux sujets intéressants, le vrai travail de la société est mené par la directrice de bureau, les fiduciaires, le conseil d'administration et les divers comités. Cette année, nous avons travaillé fort sur un nombre de différentes initiatives. Vous avez peut-être remarqué que la série des Monographies Entomologiques d'Agriculture et Agroalimentaire Canada est maintenant en ligne (<http://www.esc-sec.ca/aafcmono.html>). Ce projet a été initié et en grande partie exécuté par notre trésorier, Pat Bouchard, avec l'aide du comité des publications dirigé par Peter de Groot, puis publié sur notre site Internet par notre webmestre, Rick West. Cette excellente ressource permet à tous ceux qui sont intéressés par l'entomologie de télécharger gratuitement la série à partir de notre page d'accueil. Nous avons déjà des preuves irréfutables du succès de ce projet: (1) 96% de notre bande passante a été associée au téléchargement des monographies; et (2) les entomologistes de partout dans le monde ont commenté cette ressource sur un nombre de

[html](#)). This project was initiated and in large part executed by our Treasurer, Pat Bouchard, with help from the Publications Committee chaired by Peter de Groot, and posted to our web page by Webmaster, Rick West. This excellent resource is available to anyone interested in entomology to download free of charge from our main page. We already have tenable evidence of the success of this project: (1) 96% of our recent bandwidth usage was associated with downloads of the monographs; and (2) entomologists from around the world have commented on the resource on a number of Entomology Listservs. This worthwhile project will definitely increase traffic on our website and increase the exposure of the Society. Other success stories associated with the digital presence of the Society include: (1) >\$10 000 revenue to the Society for “pay per view” articles of *The Canadian Entomologist* and the *Memoirs* downloaded through BioOne and National Research Council databases this year; and (2) recovery of all our initial costs (\$55 000) associated with the digitization of the back issues of *The Canadian Entomologist* and the *Memoirs* through institutional purchases of the package and initiation of a profit from this project. These success stories are the result of the foresight and work of the ESC Governing Board and especially Paul Fields who took the lead on both of these initiatives. The current digital initiatives led by Second Vice-president Michel Cusson include the development of web pages for online membership application and payment of fees, an interactive Insect Common Names database, and JAM registration, payment and abstract submission pages. These initiatives are up and ready for member participation! Please contact me or Michel with comments on the new pages.

For many of us, the all mighty “impact factor” of journal publications plays a large role in our professional lives and influences our decisions on publication venues for our work. I am very happy to report a healthy increase in the impact factor for *The Canadian Entomologist* in 2009 to 0.992 from 0.903 in

listes de diffusion en entomologie. Ce projet va définitivement augmenter le trafic sur notre site Internet et augmenter la visibilité de la société. D’autres histoires à succès associées avec la présence numérique de la société incluent: (1) >10 000\$ de revenus à la Société pour les articles payables au téléchargement dans *The Canadian Entomologist* et les *Mémoires* téléchargés via les bases de données BioOne et le Conseil National de la Recherche cette année, et (2) la récupération de tous nos frais initiaux (55 000\$) associés avec la numérisation des anciens numéros de *The Canadian Entomologist* et des *Mémoires* par les achat institutionnels et l’initiation d’un profit pour ce projet. Ces succès sont le résultat des visions et du travail du conseil d’administration de la SEC, et particulièrement de Paul Fields qui a pris l’initiative et a mené ces deux projets. Les initiatives numériques actuellement menées par le second vice-président Michel Cusson inclut le développement de sites Internet pour les adhésions en ligne et le paiement des frais, une base de données interactive des noms communs d’insectes et des sites pour l’inscription, le paiement et la soumission de résumés pour la réunion conjointe annuelle. Ces initiatives sont maintenant prêtes et en fonction pour la participation des membres! Veuillez me contacter, ou contacter Michel pour des commentaires sur les nouvelles pages.

Pour beaucoup d’entre nous, le tout puissant « facteur d’impact » des revues joue un grand rôle dans nos vies professionnelles et influence nos décisions de publication. Je suis très heureuse de vous annoncer une hausse importante du facteur d’impact de *The Canadian Entomologist*: il est passé de 0.903 en 2008 à 0.992 en 2009. Notre revue est classé 35 sur 74 en entomologie selon le *Journal of Citation Reports 2009*. Le facteur d’impact annuel se base sur le taux de citations des articles de revues publiées dans les deux années précédentes. Nous pouvons remercier le rédacteur en chef, Robb Bennett, et son comité éditorial pour leur investissement dans la publication d’articles de qualité couvrant tous les domaines de l’entomologie pour cette

2008. Our journal is ranked 35 of 74 in Entomology according to *Journal Citation Reports 2009*. The yearly impact factor is based on the citation rate of journal articles published in the preceding 2 years. We can thank the Editor-in-Chief (E-i-C), Robb Bennett, and his editorial board for their continued commitment to the timely publication of quality articles spanning all areas of entomology for this healthy increase. Publication of review articles in the C.P. Alexander Review series (two published in 2009) will continue to push the impact factor of *The Canadian Entomologist* upwards. Now is a great time to submit your quality, entomologically-oriented research to our journal!

I have some other exciting news about *The Canadian Entomologist* to share with the membership at this time: we have been approached by the British publishing house Taylor & Francis with a preliminary proposal to publish our journal. In response to the invitation, we have struck an ad hoc committee chaired by Kevin Floate to study the proposal. Kevin and his committee will report their findings and provide recommendations to the Governing Board on how best to proceed with the proposal at our board meeting in Vancouver in October. Consideration of such a major proposal will take time as it has the potential to drastically change not only how our journal is produced but how our Society is run. After the committee has had the chance to provide its initial assessment of the situation, I am sure that Kevin will welcome your thoughts and suggestions on the matter. Stay tuned for continuing developments! During this stimulating time in the evolution of our journal, we continue to search for a new E-i-C. As I have mentioned in my two previous Up front columns, Robb Bennett will be resigning from this position in October 2011. The new E-i-C will have the opportunity to have a major impact on the future direction of the journal. In my conversations with people about this position, it has struck me that there are an awful lot of dedicated individuals with a real interest in the publication and promotion of *The Canadian Entomologist*. Despite this interest, the job

hausse importante. La publication d'articles de revue de la série C.P. Alexander (deux articles publiés en 2009) va continuer à pousser le facteur d'impact de *The Canadian Entomologist* vers le haut. Il est maintenant grand temps de soumettre vos recherches de qualité liées à l'entomologie à notre revue!

J'ai quelques autres nouvelles excitantes concernant *The Canadian Entomologist* à partager avec les membres : nous avons été approchés par la maison d'édition anglaise Taylor & Francis avec une proposition préliminaire de publier notre revue. En réponse à l'invitation, nous avons monté un comité ad hoc présidé par Kevin Floate afin d'étudier la proposition. Kevin et son comité vont rapporter leurs trouvailles et fournir des recommandations au conseil d'administration sur la meilleure façon de procéder avec cette proposition lors de la réunion du conseil d'administration à Vancouver en octobre. La considération d'une telle proposition majeure prendra du temps puisqu'elle peut potentiellement changer drastiquement non seulement la façon dont notre revue est produite, mais également la façon dont notre Société roule. Quand le comité aura eu la chance de fournir son évaluation initiale de la situation, je suis certaine que Kevin accueillera vos commentaires et suggestions sur le sujet. Restez alertes pour les futurs développements! Durant cette stimulante période d'évolution de notre revue, nous continuons de chercher un nouveau rédacteur en chef. Tel que je l'ai mentionné lors de mes deux précédents Avant-propos, Robb Bennett se retirera de son poste en octobre 2011. Le nouveau rédacteur en chef aura la chance d'avoir un impact majeur sur la future direction de la revue. Lors de discussions avec différentes personnes à propos de ce poste, j'ai été frappé par le nombre impressionnant de personnes ayant un intérêt réel dans la publication et la promotion de *The Canadian Entomologist*. En dépit de cet intérêt, la position demeure ouverte et je vous encourage à m'envoyer vos suggestions de candidats potentiels. Je voudrais également remercier les nombreuses personnes (trop nombreuses pour les nommer) qui ont discuté

remains open and I encourage you to send me your suggestions for potential candidates. I would also like to thank the many individuals (too many to list) who have eagerly discussed this issue with me over the last year.

The JAM is one of the year's highlights for Canadian entomologists. This meeting provides a venue for graduate students to present their research, researchers to network, collaborations to be formed, and most of all to reconnect with friends and colleagues. The upcoming JAM, hosted by the Entomological Society of British Columbia, promises to be all these things and more! The organizing committee chaired by Bill Riel has created a stimulating program with traditional symposia highlighting the research of graduate students and the Biological Survey of Canada. Other meeting symposia present topical research such as mountain pine beetle system genomics, insect community ecology, arachnology, and the extremes of applied entomological studies on invasive insects and invertebrate conservation. To round off the program, the research of two well known British Columbia entomologists will be showcased in symposia honouring Mark Wilson and the late Terry Shore. Another exciting aspect of JAMs of our Society is the awards ceremony. Two very deserving Canadian entomologists have been selected to receive the Society's two professional awards this year. I would like to take this opportunity to congratulate Dezene Huber and Charles Vincent as this year's winners of the C. Gordon Hewitt Award and Entomological Society of Canada's Gold Medal, respectively. Biographies detailing their contributions to entomology in Canada are found elsewhere in this *Bulletin* issue (see pp. 157 and 161). The JAM meeting theme in Vancouver 2010 is "communication", and I look forward to interacting with you all at the meeting. While I am on the topic of JAM, did you know that the 150th anniversary of the Entomological Societies of Canada/Ontario is fast approaching? To celebrate, the Entomological Society of Ontario will host the anniversary JAM in 2013 in Guelph, Ontario (See June 2010 *Bul-*

avec enthousiasme de cette question avec moi dans la dernière année.

La réunion annuelle est l'un des événements importants de l'année pour les entomologistes canadiens. Cette réunion permet aux étudiants de présenter leur recherche, aux chercheurs de développer leur réseau de contacts, à de nouvelles collaborations de se former et, plus que tout, à reprendre contact avec des amis et collègues. La prochaine réunion annuelle, hébergée par la Société d'entomologie de Colombie-Britannique, promet de permettre toutes ces activités, et bien plus encore! Le comité organisateur présidé par Bill Riel a créé un programme stimulant avec les symposiums traditionnels permettant aux étudiants gradués de présenter leurs recherches et celui de la Commission biologique du Canada. D'autres symposiums présenteront les recherches sur des sujets particuliers, tels que la génomique du dendroctone du pin de montagne, l'écologie des communautés d'insectes, l'arachnologie et les études appliquées en entomologie sur les insectes envahissants et la conservation des invertébrés. Afin d'arrondir le programme, les recherches de deux entomologistes bien connus de Colombie-Britannique seront mises à l'honneur dans des symposiums en l'honneur de Mark Wilson et feu Terry Shore. Un autre aspect excitant des réunions conjointes annuelles de notre Société est la cérémonie de remise de prix. Deux entomologistes canadiens qui le méritent ont été sélectionnés afin de recevoir les deux prix professionnels de la société cette année. J'aimerais saisir cette opportunité pour féliciter Dezene Huber et Charles Vincent, les deux gagnants respectifs du prix C. Gordon Hewitt et de la Médaille d'or de la Société d'entomologie du Canada cette année. Les biographies détaillant leurs contributions à l'entomologie au Canada se trouvent dans ce numéro du *Bulletin* (voir pages 157 et 161). Le thème de la réunion conjointe annuelle à Vancouver 2010 est « Communication », et j'ai hâte d'interagir avec vous tous durant cette réunion. En parlant de la réunion conjointe annuelle, saviez vous que le 150^e anniversaire des Sociétés d'entomologie du Canada et d'Ontario approche à grand pas ?

letin, page 77, for Laura Timms' analysis of the close-linked histories of the ESC and ESO). Put the meeting on your calendar as it promises to be a great commemoration of our history and celebration of our future. We are planning to submit a proposal to Canada Post for commemorative stamps to mark this occasion! If you have suggestions or ideas for some great Canadian insect stamps, please feel free to contact me or Gary Umphrey (Entomological Society of Ontario).

The best part of serving on the ESC Executive Council is that you get to meet and interact with many entomologists across the country and internationally. Serving the Society also informs you about the hard work that goes on behind the scenes to keep our Society vibrant. I would like to mention a few people in particular who have helped me this year and who contribute their valuable time to the running of our Society. Derna Lisi, our Office Manager, keeps the engines running at our headquarters in Ottawa. The trustees for the Society, Pat Bouchard (Treasurer), Annabelle Firlej (Secretary), Rick West (Webmaster), Robb Bennett (E-i-C for *The Canadian Entomologist*) and the Division Editors (Gilles Boiteau, Chris Buddle, Yvan Pelletier, Bradley Sinclair and Jon Sweeney), and the Editor and Assistant Editor of the *Bulletin* (Cedric Gillott and Fred Beaulieu) put in countless hours to maintain and promote our Society and to produce our quality publications. The Governing Board and committees have provided me with valuable and timely input on many pertinent issues this year. In particular, Paul Fields (Past President) introduced me to the intricacies of being President of the Entomological Society of Canada. Now that my term as President is coming to an end, I would encourage you all to consider serving our great Society. It's good for the soul, ... really!

Afin de célébrer, la Société d'entomologie d'Ontario organisera la réunion conjointe annuelle anniversaire en 2013 à Guelph (Voir le *Bulletin* de juin 2010, p. 77, pour l'analyse de Laura Timms sur les histoires intimement liées de la SEC et de la SEO). Inscrivez la réunion à votre agenda puisque cela promet d'être une grande commémoration de notre histoire et une célébration de notre futur. Nous planifions de soumettre une proposition de timbre commémoratif à Postes Canada pour marquer l'occasion! Si vous avez des suggestions ou des idées pour de magnifiques timbres d'insectes au Canada, veuillez me contacter, ou contacter Gary Umphrey (Société d'entomologie d'Ontario).

La meilleure partie de servir sur le conseil exécutif de la SEC est de rencontrer et d'interagir avec de nombreux entomologistes à travers le pays et de par le monde. Servir la Société vous informe également sur le travail qui se fait derrière la scène afin de garder la Société vibrante. Je voudrais mentionner quelques personnes en particulier qui m'ont aidé cette année et qui ont contribué de leur précieux temps à faire tourner la Société. Derna Lisi, notre directrice de bureau, maintient la machine en marche dans nos bureaux à Ottawa. Les fiduciaires de la Société, Pat Bouchard (trésorier), Annabelle Firlej (secrétaire), Rick West (webmestre), Robb Bennett (rédacteur en chef pour *The Canadian Entomologist*) et les directeurs scientifiques des secteurs (Gilles Boiteau, Chris Buddle, Yvan Pelletier, Bradley Sinclair et Jon Sweeney), ainsi que le rédacteur et le rédacteur adjoint du *Bulletin* (Cedric Gillott et Fred Beaulieu) ont mis un nombre incalculable d'heures afin de maintenir et de promouvoir notre Société et de produire nos publications de qualité. Le conseil d'administration et les comités m'ont fourni des apports inestimables sur différentes questions pertinentes cette année. En particulier Paul Fields (président sortant) m'a introduit à la complexité d'être président de la Société d'entomologie du Canada. Maintenant que mon mandat de présidente se termine, je voudrais tous vous encourager à servir notre magnifique société. C'est bon pour l'esprit... vraiment!



Entomo-fiction: The Undiscovered Realm

My review of *Moth Balls* in the previous issue revealed to me that the past few articles have been far too serious. For example, the three topics prior to last expounded the wonders of: 1) writing insect keys; 2) shipping insects and 3) reviewing manuscripts. How I expect to achieve world domination writing about such stultifyingly dull topics, I'm not really sure. So, without further ado, I have extracted something from my "slightly more ridiculous ideas" file, and hereby present a frank discussion on the shockingly unexploited field of Entomo-fiction.

What is Entomo-fiction? I define it as any fictional writing that includes insects and their relatives as major characters. For the purpose of

this article, I'm not going to include comics in this definition. Not that I have anything against comics. On the contrary, the lack of good entomologically-inspired comic book characters could easily fill another *Moth Balls* article (and I suppose my killing off Ento-Man has not helped this situation entirely)... But for the time being, I'm concentrating on novels or short stories with major characters that are insects. And whereas there have been a few notable insect-related stories (Kafka's *The Metamorphosis* comes to mind), these are few and far between and are typical in portraying insects as villains, or at least tragic protagonists-turned-slightly-putrescent villains hiding under sofas and eventually succumbing to festering wounds and dehydration. But surely there are more stories to tell about insects? I now present excerpts from a few, yet-to-be-written entomocentric stories in some of the more popular genres currently enjoyed by humans.

Mystery/Detective: *Apis P.I.*

It started like any other population decline. A working girl's body washed up on the lakeshore down by the docks. Then another. And another. The deaths seemed accidental enough – perhaps they had ventured too far from shore – run out of nectar. But I knew better.

Of course, people tried to pin it on the gangs. "Blame the Acari", they said. And who could argue? They'd been involved in the past; with their tracheal infiltrations and the *Varroa* cartel. But this was different. This was – I dunno – bigger.

And that's when I got the call. Orders from the Queen herself. And me – just a lazy, good-for-nothin' drone. "I need answers", she said. "Go out and make yourself useful."

My buddies laughed. "Normally you get a whole season", they said. But I didn't care. This was too big. Somebody had to figure it out – and fast – before the whole colony collapsed...

Science Fiction: *Space Invasives*

He never stood a chance. The "whoosh – click" sound of the airlock closing signalled his death.

Andrew Bennett is a research scientist with Agriculture and Agri-Food Canada in Ottawa working on the taxonomy of Ichneumonidae. He received his PhD at the University of Toronto. Contact details: e-mail: andrew.bennett@agr.gc.ca, tel.: (613) 759-1900.

So we clung to the wall outside, staring at him through the airlock's glass, vibrissae quivering in the blue-white artificial glare. We all knew the risks. Life on the Hub, as the humans liked to call it, was harsh for all species, especially the Uninvited. And that's what we were. Uninvited voyagers on the ultimate migration – looking for any chance of hitching the next ride on a freighter destined for a far-off mining asteroid or moon colony. But not all air locks lead to waiting spacecraft...

Horror: *A Stab in the Dark*

The ovipositor, glistening with venom, hovered above. Nothing could save her now, inert and helpless beneath the killer's sharpened sting. But death would not be quick for her. Oh no. She would live! Live to feel the writhing larvae inside her. Live to feed and fill her fat stores for the killer's young – quiescent in her unsuspecting haemolymph. Until one day, at the onset of her pupation, when they would rip her open and begin to feed, consuming her, while she remained, so very much alive! She turned her ocelli away as the ovipositor, raised above her, began its fatal downward arc toward her lingering demise...

Fantasy: *The Orthoptillion*

In the year 3772 of the Seventh Age, Prince *Gregaria* and his army of 20,000 *Schistocerca* warriors descended to the valley, consuming the enemy's farms and fields, and ultimately laying siege to the Formicine army on the slopes of Mt. Hym. For 40 days the battle raged, until *Gregaria*, in single combat with Queen *Formica*, threw down his mortal enemy and smote her ruin upon the ant hill!

Children's Literature: *Missy the Miasis Maggot Takes a Breath*

Down past the Elbow, in the Land of Tingly-Tanglies, just up from the Wibbly Wobbly Wrist, Missy the Miasis Maggot lived by herself in her little Snuggly Burrow. (Sorry, I said last issue, I wouldn't include this as a *Moth Balls* topic, so you will just have to use your imagination to finish the excerpt).

Other titles coming soon...

Western/Historical: *Ixodidae!*

The epic tale of 20 generations of a close-knit family of ticks suffering and triumphing in the face of cattle rustlers, drought, monthly ivermectin injections and a 1000 mile migration across the Great Divide.

Romance: *Lady Nit-terley's Lover*

Two star-crossed lovers: a female head louse and a male pubic louse, try desperately to satisfy their illicit love despite societal condemnation, species-specific mating barriers and post-Edwardian improvements in human hygiene.

Taxonomy: *A New Species of Genus X*

The hapless story of Author Y desperately trying to describe a new species of Genus X, despite a seemingly complete lack of knowledge of related species, not to mention the absence of a fundamental background in English grammar and diction.

Now having unquestionably demonstrated the untapped potential of entomo-fiction, I suppose it behoves me to try to determine WHY entomo-thrillers etc., are not crowding the shelves of local bookstores throughout the world. Obviously, the problem is NOT that nobody wants to read this kind of literature (as demonstrated by the fact that you are reading this article). The problem clearly lies with a lack of venues in which to publish such works. Therefore, I propose the following:

- 1) Establish a new section within *The Canadian Entomologist* dedicated to entomology-related short stories, poems, knock-knock jokes and other short, fictional entomo-communications.

2) Resurrect the *Memoirs of the Entomological Society of Canada* re-naming it *Novels of the Entomological Society of Canada* as a venue for larger works of entomo-fiction.

And I have SO much faith that these suggestions will be unanimously accepted and instituted by the Society that I hereby volunteer to act as Associate Editor/ Editor for either or both of them.

Join *Moth Balls* next issue as I do my best to make up more completely ridiculous stories about insects.

People in the news / Gens qui font les manchettes

Andrew (Sandy) Liebhold

Dr Andrew M. "Sandy" Liebhold, an Associate Editor with *The Canadian Entomologist*, has been selected as a recipient of the International Union of Forest Research Organizations (IUFRO) Scientific Achievement Award 2010. The award consists of a medallion, a certificate, and travel to the IUFRO XXIII World Congress to be held in Seoul, South Korea, in August 2010, where the award will be presented. IUFRO is a non-profit, non-governmental international network of forest scientists, which promotes global cooperation in forest-related research and enhances the understanding of the ecological, economic and social aspects of



forests and trees. It unites more than 15 000 scientists in almost 700 member organizations in over 110 countries, and recognizes up to 10 scientists with this prestigious award at each of its world congresses held every 5 years. The purpose of the award is to recognize distinguished scientists who have excelled in the following areas: outstanding research publications that advance regional or world forestry or forest research; dissemination of research results; implementation of knowledge, methods, or techniques in forestry; and involvement in IUFRO activities.

Dr Liebhold was recognized for his research work in the areas of forest entomology, integrated pest management, spatial and temporal dynamics of forest insects, and in particular, invasion biology of non-native insects and diseases including application of landscape ecology principles to the invasion processes, modelling of invasion integrating population dynamics and spread, bioeconomics of invasion, and development of management programs for slowing the spread. The USDA Forest Service gypsy moth slow-the-spread management program is based partly on Dr Liebhold's research work.

Dr Liebhold received a PhD in Entomology from University of California, Berkeley, in 1984 and a BS in Biology from Allegheny College in 1978. He has been a Research Entomologist with USDA Forest Service, Northern Research Station, Research Work Unit NRS-03 *Ecology and Management of Invasive Species and Forest Ecosystems* in Morgantown, West Virginia, since March 1988. From May 1984 to March 1988, he was a Postdoctoral Research Associate in the Department of Entomology, University of Massachusetts. He has authored or co-authored over 195 research papers and book chapters over his career.

Views of Entomological Evolution

Neil Holliday

The first thing I have to say is “thank you!” Thank you to the Entomological Society of Canada and its Awards Committee for bestowing the Gold Medal upon me, but most particularly thank you to the four people who took the trouble to nominate me. I never knew you were so devious. I expect some deviousness from colleagues Bob Lamb and Pat Mackay, but the deviousness of my two graduate students, the prime movers of my nomination, is a shock to me. It means a great deal to me that my own students should have thought to take this initiative.

Periodically, the Department of Entomology at the University of Manitoba indulges itself in an event called “Last Friday of the Month”. It was at such an event that Paul Fields expected to inform me that I was to receive the Gold Medal. I expect that he was hoping that I would stand everybody a round of drinks. His scheme was thwarted as I was not at the pub; I was staying with my daughter in Philadelphia and so I first heard about the award by e-mail. My first response was shock: I had no expectation of receiving this award. This is the second major award for me in 2009. I note that diagnosis of terminal illness often precipitates a flurry of award-giving to the afflicted one before it is too late. I want to assure you that I am unaware of having a terminal disease, and to proclaim that I feel I am too young to die. My irreverent son-in-law expressed the same idea more memorably with his comment, “You are not even into adult diapers yet!” I am not sure how he knows!



Lynda Holliday

Neil Holliday, pondering research questions in the *walled garden* of *Applecross House*

For a while following the news of the award, I basked in the glow of peer recognition. This rapidly gave way to feelings of anxiety because everyone told me how much they were looking forward to my Gold Medal address. That anticipation worried me considerably, and to make matters worse, the anticipation was accompanied by instructions. It was colleague Terry Galloway who said, “You’re not going to whine about the state of entomology are you? We get too many people who whine”. I misinterpreted him, and refrained from wine, which made me even more miserable. My wife, Lynda, did not help when she said, “You will make it funny, won’t you? It has to be funny.”

So, I settled into a mood of contemplative black despond reminiscent of Rodin’s *Thinker* beset by pigeons. What topic should I address? I came to the decision that I could not accept this medal just on my own behalf. The reasons I am receiving it are largely because of the many lessons that I have learned over my career. Thus, I must tell you about some of those lessons and some of my teachers. Secondly, I shall address a philosophical topic, which I will explain later, but which I will call, “How wide should be the gate?”

I will not bore you with my ancient history. I learned many lessons before I arrived at University College London in 1968, but I will start with my undergraduate career and the lessons that I learned there about science and I will focus on two individuals who were instrumental in leading me towards a path in research. The first of these individuals was Brian O’Connor, who, in 1971, was riding the wave of ecological energetics — a hot topic and the focus of IBP, the International Biological Program. Brian supervised my undergraduate thesis project, which was the first time I worked with insects. I was to characterize the energy flow through populations of two species of stored products beetles. Brian set me up with an electrolytic respirometer, which periodically gave me electric shocks, and a bomb calorimeter, which sounds very exciting, but was in a sorry state of repair. He then announced that he would be out of contact in Denmark for the next 4 months, and that my research report would be due on the day he got back. I spent hours sitting in suppliers’ waiting rooms while people searched for O-rings for the bomb calorimeter, and even more time sitting in a cold room watching my insects perform, most of the time, apparently, without breathing. As with much research, it was very frustrating; in 4 months I got two good 24-hour records of oxygen consumption for my beetles, and many days when nothing worked at all. But the euphoria when I extracted modest success from the mandibles of failure was alluring, and I was hooked. I also really liked Brian’s style of non-supervision.

When I graduated from University College London, it was not immediately evident that I would work in entomology. Brian O’Connor proposed that I do graduate studies on energy flow through a population of enchytraeid worms in a woodland in eastern England, but the project hinged on me getting a highly competitive scholarship, which I did not. Consequently, I spent a year as a biology technician in a community college, where I learned what it is like to be a teacher of mostly unwilling students. During this time, my second exemplar of a teacher at University College London was working on my behalf. This was Roderick Fisher, who worked on parasitoids of *Ephestia*, and, as my undergraduate tutor, must have come to the conclusion I had some aptitude for research. Without my knowledge, he politicked and probed on my behalf, and after a while was successful in finding me a place for a PhD at the University of Bristol.

At Bristol, I was located in the Zoology Section at Long Ashton Research Station, which had a dual personality as a government research station and a department of the University of Bristol. There, I was under the direct supervision of David Glen, who was newly arrived and busily setting up his own research program on the population dynamics of codling moth. David taught me many practical lessons about how to do population dynamics research in apple orchards, which I applied to my study organism, the winter moth (*Operophtera brumata*). He was — and is — a very innovative researcher.

A perfect complement to David's development of my practical skills was the influence of Maurice Solomon, who oversaw my activities. Maurice is probably best known for his publication (Solomon 1949), *The natural control of animal populations*, which was a response to the decades of bickering between the density dependent school of population dynamics and the density independent school. The debate was partly semantic and partly scientific, and Maurice was well equipped to settle it with his keenly analytical mind and a fine-honed appreciation for the use of language. He disentangled the responses of predators to prey density by inventing the terms numerical response and functional response, so providing the basis for Canadian Buzz Holling to characterise functional responses in the 1960s. I think population dynamics owes Maurice a bigger debt than it realises. Maurice is a very unassuming man, not given to self-advertising. I am glad to say that he is still alive and 97 and we remain occasionally in touch. He taught me many valuable lessons, often inadvertently. These included some self-discipline and focus, and the need to balance other aspects of life with the insatiable demands of a scientific career. Among the most valuable lessons that Maurice taught me was that there are no stupid questions. I witnessed him at many seminars and presentations, and virtually without exception at the end he would be ready with several questions. Some of the juniors of the section would inwardly — sometimes not so inwardly — groan when he began questioning. Many of Maurice's questions did seem a little off track, but about one in three of these seemingly dumb questions generated a remarkable result: the speaker would suddenly look at their information from a different point of view and have what is now sometimes called an "aha" moment. I began to realise that Maurice through his questioning was a very creative person indeed, and that he aided the creativity of others. Also, that it does not really matter if a question seems dumb if it generates a new understanding. Maurice's talent is one I have tried to emulate, but with not nearly the same success.

Another influence at this early stage in my career was Michael Singer, who had done a PhD with Paul Ehrlich at what Mike liked to call Leland Stanford Junior University, with the emphasis on **Junior**. He had returned to Britain with the hope of getting a faculty position, but the salary structure in British universities at that time was based on age at hiring. Mike was probably 2 years older than the typical British PhD graduate, so he was unable to get a faculty position and was a sort of research associate. Mike was employed to work on a number of very applied projects but his passion is butterfly ecology. It is entertaining to imagine the likely response of a station administrator at Agriculture and Agri-Food Canada to finding that a research station greenhouse compartment had been set up with tropical butterflies flitting through a passion vine jungle. Mike achieved that at Long Ashton, and it was not secret: several times a year, the BBC natural history film unit would stop in for footage of this tropical microcosm. There were very few students at Long Ashton, and Mike was the closest there was to a peer group for me. Unlike any scientist I had encountered until then, Mike views ecological phenomena through the window of evolutionary biology. His enthusiasm was infectious, and we had numerous discussions about co-evolution, group selection, and other hot topics of the day. Mike was not rich, but was enormously generous. My first professional writing was courtesy of Mike: he handed me a commission he had received to write articles for a USA children's science encyclopaedia. The fee was sufficient to finance my first trip to Canada, but the experience was much more valuable. Working with the publishing house editor under the exacting rules geared to ensure that 12 year-old American children would understand the articles taught me much about writing. Mike used his experience in the USA to prepare me for the sort of intellectual milieu I would find on the western side of the Atlantic. This was a milieu in which I needed to function effectively, as, towards the end of my PhD, I found myself married to Lynda, and Canada-bound.

The geographic scale and sparse population of Canada, relative to Britain, shape the ento-

Michael Solomon



Maurice Solomon

mological community in many ways. The large number of entomologists then in the small area of the Britain meant that one was seldom far from an expert on a particular insect group or topic. A farmer with an unusual pest problem, or a reporter seeking an interview, could be directed to the specialist who, if necessary, could make a personal visit. In contrast, in many regions of Canada, there is no local expert, but media and public enquiries abound and entomologists need to respond. Consequently, many Canadian entomologists are called upon to be much more flexible than their British counterparts and to give interviews and respond to public enquiries in areas well outside their speciality. However, I think the biggest effect of Canada's geography on the entomological community is that it is much more open and friendly than the community I left in the U.K. During my PhD in Bristol, I could easily board an early train, spend the day at a meeting of the Royal Entomological Society of London, and be home for a late supper. A day trip to a national scientific society meeting in London was possible from most parts of England and Wales, and many societies had monthly meetings in London. As a result, British scientific societies tended to be centrally focused, and dominated by regular attendees. It was quite difficult for a shy provincial graduate student to break into this clique, and there was certainly no proactive process to involve students. Our Canadian national meetings are 3-day affairs, and their varied location means that different people attend each year; this turnover promotes openness. Canadian scientific societies cannot afford to ignore students, their future full members. Entomologists in Canada are sufficiently sparse that, in many regions, one cannot afford to be unfriendly to entomological colleagues, or one would soon find one has no one with whom to talk about insects. When I first visited Canada, I was astounded by the willingness of professional entomologists to take great trouble for a graduate student who, in Britain, without influence of a pushy supervisor, would have been virtually ignored.

The first entomologist I met in Canada exemplified very clearly that friendliness and willingness to take time out for a student. That entomologist was Doug Embree. I wanted to meet Doug because my PhD organism was the winter moth, and in the mid-1960s Doug had produced major publications on the successful biological control program of the winter moth. I wrote to Doug and he agreed to meet me at Kentville Research Station and give me a tour of his study sites. It was not until I arrived for the rendezvous that I realized that my request entailed his leaving his home in Fredericton somewhat before 5:00 AM to embark on the 5-hour drive to Kentville. We had a fine day in the field, with Doug explaining in detail all of the things that he had tried with winter moths before the biological control program rendered them too rare to study. At the end of the day, he took Lynda and me out to dinner, and then proceeded to drive back to Fredericton. Such kindness by a senior scientist to an unknown foreign graduate student was something I had not encountered before.

Another entomologist who had a profound influence on me, as on many entomologists in Canada, is George Ball. I first met George during my post-doc at Vineland Station, Ontario. I was attending my very first ESC meeting, which was in Toronto in 1976. I gave a paper on enzyme polymorphism in carabid beetles which was a little side project that Lynda and I had undertaken. The paper I gave was atrocious: I read it, I had a few fuzzy slides, and the whole affair including questions was over in 8 minutes, leaving 7 minutes unused. The chairman was diplomatic and suggested that everybody take a stretch break. I knew that I had made a poor first



Neil Holliday and Mike Singer, circa 1975

impression on the entomological community of Canada and wondered if I would ever reverse that impression. To my surprise, a couple of weeks later I received a personal letter from George saying how much he had enjoyed my presentation and suggesting that if the opportunity arose I should visit him in Edmonton and we could talk more about carabid beetles. A few years later when I had moved to the University of Manitoba, I was able to take him up on that offer, and it was of great value to me. He guided me through the intricacies of identifying *Bembidion* spp. I spent many hours in the stimulating company of George and the other carabidologists at the University of Alberta, gave a seminar, and participated in the very active discussion groups and social activities of what was then a vigorous Department of Entomology. I was astounded after my return to Manitoba to receive an honorarium for giving the seminar, even though George had accommodated me in his home, and the net benefits of the trip were definitely in my favour. George, as many of you will know, has cultivated the talents of larval entomologists throughout his long and brilliant career; I am one of the many who have benefited from his interest.

I showed up at the Department of Entomology, University of Manitoba, in April of 1977. At that time, Grant Robinson was department head, and the other two senior members of the Department were Cam Jay and Reinhart Brust. I was the first of a new cohort of faculty, and was soon followed by Terry Galloway and Pat Mackay. To Grant Robinson fell the task of moulding a useful faculty member from this limey who had no teaching experience and was unfamiliar with most aspects of Canadian academic life. Grant provided me with notes for my first course, told me what to ignore in my course evaluations, and presented me with my first graduate student and two funded research projects. He nurtured my early career in a very firm and kindly way. He was a great gentleman who viewed being department head as a necessary evil, but he did a great job. He was accessible, considerate, the host for numerous departmental social events, and a leader by example. He was prepared to be tough and to make the difficult decisions without fuss, fear or favour. His is an example that I aspire to follow.

When I arrived, the prevalent plan in the Department was that each of us in turn would take a 5-year term as department head, would screw ourselves up to do it and would rejoice at the end of it. On the desk pad in the head's office is a cartoon that captures that sentiment: "35 years, 210 days, 6 hours, 18 minutes, 14 seconds...and I'm outta here!!" It was given by Grant Rob-

inson to Cam Jay, who presented it to Reinhart Brust, who, in 1994, passed it on to me. I shall pass it on to my successor with some relief, but I think I have enjoyed being department head considerably more than some of my predecessors. That is largely because of the great group of people with whom I have worked. Being department head would not be much fun without their support and our shared vision of a department that strives for excellence but where individual ambition is not paramount over collegiality, collaboration and support of individuals. I am not referring here just to faculty members, but to all members of the unit, including students, support staff and honorary members such as our janitors. I will not single out any specific individuals but would like to pay tribute to them as a group; they have taught me much.

Another group who taught me much are the 30 or so graduate students that I have supervised since 1977. Each of them taught me something, even if, for some, the lesson was mostly about patience. Most of them brought a strong work ethic and all of them have contributed to my understanding of people and of science. It gives me great satisfaction to see that most have found a niche in entomology or a related branch of biology. When I became department head, I made a solemn undertaking to my wife that I would reduce the number my graduate students to no more than four. Since that day I am afraid to say the number has seldom been less than six. I try to spend some time with each of those six every week: they are the active researchers in my laboratory and they keep me in touch with what research is.

How wide should be the gate?

It is now time to turn to the second and philosophical part of this talk. The title came to me by accident. The photograph that was used in the citation for the Gold Medal was selected by my technician and depicts me in the walled garden of Applecross House, in the western Highlands of Scotland. Walled gardens are havens in which tender organisms are shielded from the rigours of the surrounding environment. Inside the Applecross walled garden vines, fruits and annual and perennial flowers thrive, outside much of the vegetation is the cotton grass and *Sphagnum* blanket bog characteristic of the wind- and rain-swept western Highlands. The wall of the garden delimits an area in which gardeners can practise their art; the wall provides protection from the wind and its stone mass is a thermal buffer offering protection from cold nights. The protection is greatest if there is no gate, but the value of the garden is then not known. However, if the gate is too wide, the garden loses its protection and becomes part of the surrounding impoverished moorland. The walled garden is an apt metaphor for entomology, which, I believe, requires active cultivation and protection if it is to avoid succumbing to entropy. The appropriate width of the gate represents a dilemma faced by all individuals and institutions that are active in entomology: how shielded from other scientific pursuits should entomological activities be?

Individual scientists have to make a decision about whether they will be narrow focused specialists in their chosen field or holistic generalists, and there are tensions that draw individuals in both directions. A highly-focused scientist can achieve a depth of knowledge that is unattainable by the generalist, and with depth of knowledge can come a reputation as the world's authority on the chosen area. That reputation can lead to success in the competitive business of gaining research funds and career advancement, and brings professional kudos within the chosen field. In contrast, the generalist has breadth of knowledge, and frequently exhibits willingness to interact with other disciplines; these interactions can lead to multi-disciplinary team work and major funding opportunities well beyond the scope of the specialist. Participation in multi-disciplinary collaborations is viewed very favourably by administrators at many institutions, and those recognized as generalist team players who are willing to seize new opportunities can advance their careers rapidly. Thus, both strategies have benefits, but they also both have drawbacks. Those who are narrowly focused specialists may be viewed as isolated, out of touch, and irrelevant by

those in different disciplines, and particularly by those administrative and political types who hold purse strings. Many in this room would recognize the value of developing a system of larval chaetotaxy for, say, a family of staphylinids. I hope that many would also recognize that it is a challenge to sell this activity as a pursuit worthy of financial investment to an animal nutritionist dean of agriculture, to a computer scientist university president, or to your next door neighbour whose taxes support the work. However, from within the discipline generalists may be regarded by their peers as superficial and ignorant. Generalists may find themselves tagged with the label "JOATMON", which when read as an acronym sounds vaguely Scottish, but actually represents one of my mother's favourite put-downs "Jack of all trades, master of none".

So, as one sets out on one's scientific career, be it in entomology or another field, one has the choice to focus narrowly, which may lead to operating funds and allow one to build unsurpassed depth of knowledge of a field, or be a generalist who may find it difficult to get operating funds but who may be well placed to garner project funds as these become available. I must admit I have tended to be something of a generalist, and this has brought me funding for graduate students and many collaborative opportunities. One of the major reasons that I am a generalist is the environmental expectations of my position. As I am located within a faculty devoted to agriculture but I also want to be able to study fundamental ecological issues, I am obliged to provide research that serves the needs of the agricultural industry while at the same time seeking to understand the ecology of insects in all sorts of ecosystems.

The same sort of dilemma faces academic units that teach entomology. They can be narrowly-focused specialised entomology departments that cultivate in their students a depth of knowledge that is not generally attainable in departments where entomology is one of many endeavours. More widely-focused departments can produce students with a breadth of knowledge that prepares them for many different possible career paths. Clearly there are virtues to both types of unit and in an ideal world we would find entomology taught both in narrowly focused departments of entomology and in broadly focused departments of biological sciences, thus meeting the needs for the two sorts of entomologists. However the world is not ideal and the narrowly focused unit is becoming endangered.

Antenna, the Bulletin of the Royal Entomological Society of London, has been a forum in which Simon Leather has bemoaned, I hesitate to say whined, about the demise of British entomology. Leather (2007, p.192) wrote "Consider a species whose major habitats have all been destroyed, whose ageing and largely non-reproductive adults are largely scattered, eking out a living in sub-optimal habitats, and whose very rare juveniles are confined to one highly endangered site. I think we would all agree that such a species is ... on the verge of extinction." The species to which Leather is referring is the entomologist in Britain, a country in



Grant Robinson, Christmas 1976, with a very young Terry Galloway in the background

Cathy Salki

which there is no undergraduate program and only one MSc program that focuses on entomology. Leather asserts that the university discipline of entomology thrives in the USA and Canada, but my involvement in North America's Council of Entomology Department Administrators suggests otherwise: entomology departments across North America have been amalgamated with other like, or unlike, units. For most, this means that the gate has been flung wide, and the nurturing of entomological scholarship and education has been compromised.

The pressure favouring large generalist departments, with entomology as one among many components, is generally a product of the environment in which departments operate. Many university administrators believe small units with small programs to be inefficient, or to be havens of comfortable mediocrity, and encourage or coerce units to amalgamate. There is little evidence to support these beliefs, but, rather than simply whining about change, I think it is more useful to examine the consequences of such changes and whether they matter. In my view they do: I would like to argue that focused entomology units have important roles to play and that much will be lost if all such focused units disappear.

The evidence I present is from my own undergraduate experience in a Department of Zoology, at that time a department of about 20 faculty members of whom 2 were entomologists. The degree I took was a 3-year honours degree, with most required courses in the first 2 years. The required exposure to entomology that all zoology students received was embedded in a second year course in invertebrate zoology for which the textbook was Barnes' (1968) *Invertebrate Zoology*. There was reasonable correspondence between the course content and the textbook, and 3.5% of the text were devoted to insects; to be fair, the text does note that the "...account of insects is not intended to be equivalent to...[that]... of other invertebrate groups" (Barnes 1968 p. 524). For most of my peers in the zoology program, that was all the entomology that they received. There was one course available that was devoted to insects, although it was cryptically titled *Faunistic Studies*. It was given by a faculty member in poor health whose teaching style consisted of having his class of three abstract or reproduce portions of several chapters per week from A.D. Imms' *A General Textbook of Entomology* (Richards and Davies 1970). I still have those notes, but I never internalised anything about insects from the course: there were no demonstration materials, no insect specimens, and no enthusiasm for imparting knowledge about insects. So my experience of what was considered a very good general zoology program is that, despite my opting to learn about insects, I was thwarted by a lack of commitment to entomological education, a lack that I have observed to be a common phenomenon in similar general departments. Relative to six of my colleagues who came through focussed and comprehensive entomological undergraduate programs, I struggle in many of the basic aspects of knowledge of insects. I have acquired much by osmosis, but would undoubtedly be a better entomologist if I had been fortunate enough to be in a department that considered education about insects to be a priority.

So, I believe it does matter. Certainly there are places in the world for entomologists with broad backgrounds, who have knowledge of other taxa as well, and for those whose education has had a systems focus, such as physiology, ecology, or genetics. However, without focused programs of entomological education we will not have the systematists, the crop protection entomologists, the forest entomologists, etc. with the depth of entomological knowledge that society and our discipline need.

I would like to use my Department as it was when I became head to illustrate that academic units with a narrow focus do not necessarily lack vigour or coherent endeavour but can promote these qualities. The Department in 1994 had six individuals, each of whom could be identified on the basis of an entomological area rooted in basic science: systematist, physiologist, pollination biologist, biting fly biologist, parasitologist, and ecologist. However, these labels do not

represent exclusive areas with impervious boundaries. For example, although Rob Roughley was our systematist, two other individuals have publications in the area of systematics and taxonomy. Pat Mackay was our physiologist but four individuals have published in the area of insect physiology. Indeed, for whatever entomological discipline one chooses from among the six represented, one can demonstrate overlapping interests that contributed to a rich intellectual environment. A small unit such as this provides complementarity of fields of expertise but the common shared interest in insects allows for much positive synergy. Another virtue of small focussed units that I should not neglect to mention is that they tend to be, of necessity, harmonious. Large academic units, in my experience, frequently break into warring factions.

Another contributor in *Antenna*, Thomas Döring (2009), has written that the strength of entomology is its integration of disciplines. I find the idea of the insect as an integrator of disciplines an attractive one: a group of disciplinary scientists focussing on a specific group of organisms can exhibit synergies that will not occur if they each pursue their taxon of choice, or no taxon in particular. Döring identifies several threats to the “insect as integrator” concept, among which is the pull of insect biologists away from entomology and towards individual disciplines. That pull is strongly felt because of the bigger arena for reputation building that is offered by a discipline such as physiology or ecology than is available to a physiologist or ecologist who identifies primarily with entomology. Thus, the pressure to be broad and large as a unit is not all from outside.

Sadly, since 1994, my Department has lost two positions and replacing those positions requires a different view from that outlined above. I cannot sell my Department's staffing needs to administrators on the basis of the entomological disciplines that need to be integrated within it. Rather, because the Department, like most in North America, is within a faculty of agriculture I must market staffing needs on the basis of their utility. The systematist becomes a pest insect identification specialist, the pollination biologist it is an apiculturist, the physiologists and ecologists become crop protection entomologists, and so on. A consequence of this reality is that the Department can become narrowly focussed in ways which does not necessarily foster scientific or educational balance. The Department head is faced with the challenge of constructing an intellectually effective unit using aliases.

I believe our unit has survived and will continue to survive because, on the one hand, it has the wall to protect its tender focused organisms within, but at the same time it has cast open its gates wide enough to maintain a high level of connectedness and to demonstrate its relevance to its surroundings. The insect as integrator theme has to be carried beyond the boundaries of the unit. In our case, we maintain connections through our 14 adjunct professors scattered across 4 provinces and 3 countries, through our research collaborators on 4 continents, and through our extension activities which, with the advent of the Internet, have become worldwide. We have done an excellent job in connecting with other entomologists, and we plan to develop our network further. However, I think we have done less well, and need to do better, in our connections to applied scientists in other disciplines. Although to entomologists, the usefulness of our expertise to plant, animal and health science is obvious, it is by no means obvious viewed from the perspective of applied scientists and policy makers centred in those fields. The view of entomologists held by many such scientists or policymakers reminds me of the attitude towards the exterminator van parked outside a restaurant: we are a necessary evil when circumstances dictate, but could we please not advertise our presence and the rest of the time could we please disappear. I think that both my department and entomologists in general need to make their value better known to those who use us only when they must, and to communicate to them that we could serve their needs better if we were involved at all times, rather than just at times of their crisis.

I think we also need to do a better job in our fundamental scientific connections. Insects are widely used as tools in physiology and biochemistry and as model organisms in ecology, genetics and evolutionary biology. I think we have failed miserably in reaching out beyond the biological sciences. Occasionally biophysicists, materials scientists, robotics experts and climatologists take an interest in insects, but it is usually on their terms and to address their issues. I think entomologists have not been aggressive in reaching out to these other scientists to engage them in our agenda, so building bridges that demonstrate how much value there are in interactions between entomologists and those in apparently distant scientific fields. Thinking outside the Schmidt box is something entomologists should do more, in my opinion.

I think that the question of the width of the gate is of concern to entomological societies and I would like to promote the “insect as integrator” as a concept that we might use more profitably than we currently do. I now realise that in the programming of this meeting I have been guilty of one of the sins that I am about to criticise. We have constructed sessions in which systematists will talk to each other, sessions in which crop protection entomologists will talk to each other, and sessions in which pollination biologists and apiculturists will talk to each other. I regret now that we did not try to put together some symposia focussing on a taxon, for example a session on bark beetles could have presentations on scolytid systematics, the physiology of interactions of the beetles with fungi, beetle population ecology, interactions with host trees, biochemistry of their pheromones and synthesis, etc. Integration around the insect would provide a refreshing and illuminating view for those who regularly talk within their disciplinary groups. Döring (2009) criticised the Royal Entomological Society of London for formalising the separation of entomological disciplines through their scheme of multiple journals, which now number seven, and partition readership into systematists, ecologists, physiologists, medical entomologists, etc. Although the Entomological Society of Canada has not fallen into that specific trap it nevertheless cannot truly claim that *The Canadian Entomologist* embraces all aspects of entomology. *The Canadian Entomologist* is considered strong in areas such as insect systematics and some areas of applied entomology but it is seldom that an aquatic entomology paper finds its way into the journal. Indeed, it is seldom that an aquatic entomologist finds their



Lisa Babey

Department of Entomology, University of Manitoba, Christmas 2003

way to this meeting: physiologists and aquatic ecologists are two of the groups of entomologists that are underrepresented in our Society's activities and we should do something about that. I think that the Society needs to have the walls that being an entomological society implies, but it also needs to broaden its appeal to include all who work on insects, and needs to build the linkages that bring improved understanding of entomology by those in other branches of science. We could use incentives such as invited review papers in *The Canadian Entomologist*, we can reach out to other societies with shared interests, and collaborate periodically with such societies through joint meetings or common endeavours. At times we have done this, for example with the Canadian Phytopathological Society in a joint publication project, but I sense that we are now turned away from such endeavours and focused inwards. An inward focus is often a response to an external threat, but I think it is seldom an inspired response. We will flourish as a society by demonstrating how relevant we are in the community of scientific societies and of scientists, not by closing the gate and hiding our treasures. However as some others who have been in the society for a long time will remember, throwing open the gates and demolishing the wall is also unlikely to further our interests as entomologists.

So, I think there is a challenge for leaders of entomological institutions whether they be departments or societies. They must think seriously about how wide to open their institutional gate. It is their duty to preserve the entomological garden within, to invigorate it and to encourage coherent activities within the walls. But there must be a gate and that gate must be open. We must reach out to convince others of the good things that await them inside. I think a judicious balance between protection and accessibility is essential if we are to thrive as a society in the future and if academic units where entomology is taught are to remain vibrant and functional repositories of knowledge about insects.

The Applecross walled garden is an allegory for the sort of process I envisage. It started out in the 19th century as the supplier of fruits, vegetables and flowers to its landed gentry owners. When the era of landed gentry came to an end, the garden fell into disrepair; it was invaded by weeds and the walls began to crumble. A few years ago a group of individuals saw virtue in what it still contained and sought a way to conserve and revitalise it. They opened a restaurant in the potting shed which was one of the buildings within the wall. They established such a reputation for outstanding food that people would drive for 2 or 3 hours and negotiate one of Scotland's most notorious mountain passes, to have lunch in the potting shed restaurant. Profits from the restaurant are being used to re-invigorate the garden. Similar innovative thinking is what we need to conserve and invigorate entomology in the 21st century. We should be protecting what we have with some version of a wall, but we need to make it attractive to enter through the gate; the spin-off of the resulting interactions will enrich us all.

Thank you again for the honour of this award.

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Dear Buggy / Cher Bibitte

Chris MacQuarrie



Dear Buggy,

I just received my first-ever set of reviews back from the journal. They said my paper was great but my figures were awful. I'm on a deadline to resubmit and I don't know where to start. Can you help me?

Signed 'Artless in Attawapiskat'

The old adage about a picture being worth a 1000 words is true. A figure helps you tell the story of your data, a good figure helps make that story easier to tell, and a great figure tells the story for you. Let's see if we can't make your story easier to tell.

Advice about the craft of visualizing data fills whole books by authors more knowledgeable than me, and I don't have the space to cover all the information that's available out there. But what I can do is give some of the pointers I've picked up along the way which might help you to improve your own figures. Hopefully, the topic interests you and you'll want to read more, so I've also assembled some of my favourite online and dead-tree (i.e., book) resources for you at the end of the column.

Buggy's tips for improving your figures:

Plan.

Think about how you read a paper. Many of us don't have time to read every paper from end to end, so we often read the abstract then skip straight to the figures. If the author has been conscientious, you should be able to understand the main points of the paper by looking at the figures. Perhaps I've never progressed beyond the story-book stage of reading, but if I can't see what the author sees in the data, I am much less likely to believe the conclusions. Your first step, then, is to decide what information is to be presented in your figures and tables (as an aside, I'm going to talk mostly about figures in this column, but the advice applies just as well to the design of tables).

Here's what I do. I like to use the outline of my paper (you do write an outline don't you?) to help me determine which of my major points need figures. From there, I'll sketch out on paper the figures and what I want them to show. Here is where I'll decide if I need a map of my research sites, a flow chart of my methodology, or images of my results. In my research my figures are often a 'by-product' or a necessary component of analyzing the data – for instance, I often have many regression plots – thus, I will often produce many of my figures in the course of my analyses. However, these raw outputs are just that, raw, and not appropriate for publication. This brings us to the next tip.

Chris MacQuarrie is a research scientist with the Canadian Forest Service in Sault Ste. Marie where he studies the management of native and invasive insects. Currently, he struggles with being the only Saskatchewan Roughriders fan in Northern Ontario.

Dear Buggy is always looking for suggestions or guest contributors. Have an idea? Send it to cjkmacquarrie@gmail.com or post in the Facebook student group.

underlying data. A pair of fresh eyes can often spot things we've missed (or that just don't make sense!). Since the typical life-cycle of a publication includes presenting the data at conferences, use these venues to improve your figures. Should you find yourself explaining too much, or see that your audience is perplexed when you flash up your favourite figure, perhaps its time to go back and re-think your design.

Publish.

The final step. Here's where you have to make some administrative decisions about your figures. Depending on your target journal, you may have to choose between color and gray-scale images (although some journals – including *The Canadian Entomologist* – allow the same figure to be color in the electronic version and gray-scale on paper). If you do have to reformat a picture, it's important to ensure that the information is retained in a way that's still easy to read. In recent years many journals have begun to make use of online appendices to allow authors more space to present additional supporting material. So, you now have the option of deciding which figures appear in the main paper and which appear online. With some of the more popular journals now limiting the length of submissions, judicious use of online-space can allow you to include only the highest-impact figures in your submission, while retaining your supporting figures in an online appendix.

There you go AIA, I hope that helps some. Producing good figures takes some practice and a lot of refinement. However, a little effort when putting your data together can make all the difference when it comes time to present your work. Good luck!

Further reading:

FlowingData.com. a blog that highlights the best in data presentation and graphics on the web. [<http://flowingdata.com/>]

manyeyes. An interesting experiment in social media and data visualization. Use pre-existing datasets or submit your own and construct figures, and the community at manyeyes then gives feedback. Not bad if you want to practice your skills on someone else's data. [<http://maneyeyes.alphaworks.ibm.com/maneyeyes>]

The top ten worst graphs. What NOT to do. [http://www.biostat.wisc.edu/~kbroman/top10_worstgraphs/]

colorbrewer2. A web-based tool for selecting color schemes for figures. Ideal when designing illustrations for oral presentations and posters. While primarily intended for mapping applications, colorbrewer is very good at suggesting high-contrast colors that maximize visibility on screen or on paper. It also has options to suggest color-blind friendly schemes. The site also provides a very interesting tutorial on how the colors are suggested and why certain colors work better together than others. [<http://colorbrewer2.org/>]

edwardtufte.com. The website of Edward Tufte, one of the pioneers in the field of data visualization [<http://www.edwardtufte.com>]. I also recommend Tufte's books *The Visual Display of Quantitative Information* (Graphics Press 1992, 197pp.) and *Beautiful Evidence* (Graphics Press 2006, 213pp.).

I use R for most of my figure building tasks. One of the best packages for building figures in R is Hadley Wickham's `ggplot2`. Based on Leland Wilkinson's *The Grammar of Graphics* (2nd edition, Springer 2005, 694p), `ggplot2` uses a very simple syntax to build elegant figures (Deepayan Sarkar's `lattice` package is also very good). [<http://had.co.nz/ggplot2/> and <http://cran.r-project.org/web/packages/lattice/index.html>]

R graph gallery. A database of example figures built using R. Good for suggestions if you're stuck on how to get started [<http://addictedtor.free.fr/graphiques/>].

The student wing / L'aile étudiante

Aynsley Thielman



Hello! If you were doing fieldwork this summer, I hope the weather cooperated and you got all the data you needed. If you were stuck in the lab or office analyzing data or writing up your thesis or manuscripts, well... there's always next summer. I hope you are all checking the ESC website for updates and job postings and the ESC Student Facebook page for more informal discussions. Sometimes job announcements that don't make it onto the ESC website are posted on the ESC Student Facebook page, so be sure to check both regularly if you are looking for employment (don't forget to clear your web browser on your computer to make sure you're getting the most recent update).

ESBC/ESC 2010

The Joint Annual Meeting of the Entomological Societies of British Columbia and Canada is just around the corner and I am looking forward to seeing you all again this year. The meeting is taking place at the Coast Plaza Hotel in Vancouver, British Columbia, from 30 October to 3 November 2010 and is sure to be a great one, including many events that should be of particular interest to students.

General Mixer and Halloween Costume Party

This year, the General Mixer will take place on 31 October so we are inviting you to bring your favorite costume, bug-related or other-

Bonjour! Si vous avez effectué du travail de terrain cet été, j'espère que le temps aura coopéré et que vous avez toutes les données dont vous avez besoin. Si vous étiez coincés au labo, faisiez des analyses de données au bureau ou écriviez votre thèse ou des manuscrits, et bien... il y aura toujours l'été prochain! J'espère que vous consultez tous le site Internet de la SEC pour les mises à jour et les annonces d'emploi et la page Facebook des étudiants de la SEC pour des discussions plus informelles. Il y a parfois des offres d'emploi qui ne se rendent pas sur le site Internet de la SEC ou sur la page Facebook des étudiants de la SEC, alors assurez-vous de consulter les deux régulièrement si vous cherchez un emploi (n'oubliez pas de vider le cache sur votre ordinateur afin de vous assurer d'obtenir la mise à jour la plus récente).

SECB/SEC 2010

La réunion conjointe annuelle des Sociétés d'entomologie de Colombie-Britannique et du Canada est à notre porte et j'ai hâte de vous y retrouver encore cette année. La réunion se tiendra à l'Hôtel Coast Plaza à Vancouver, en Colombie-Britannique, du 30 octobre au 3 novembre 2010, et elle sera fort intéressante, incluant divers événements qui devraient être intéressants pour les étudiants.

Cocktail général et soirée costumée pour l'Halloween

Cette année, le cocktail se tiendra le 31 octobre, alors vous êtes invités à apporter avec vous votre costume préféré, que ce soit un insecte ou autre, et de vous joindre à la soirée. Il s'agit d'une période de l'année assez occupée pour les étudiants, entre les analyses de données et la préparation de la présentation pour la réunion, alors préparez votre costume en avance!

Cocktail étudiant et quiz entomologique

De retour à la demande générale! Le comité des affaires étudiantes organisera le cocktail étudiant et le quiz entomologique. Le cocktail

wise, with you to the meeting and join in the fun. This is always a busy time of year for students, between analyzing data and preparing that great talk for the meeting, so get that costume ready early!

Student Mixer and Insect Trivia Contest

Back by popular demand! The Student Affairs Committee will be hosting the Student Mixer and Insect Trivia Contest. The Mixer will take place on Monday, 1 November, from 6:00-10:00 pm in the Denman Room at The Coast Plaza Hotel. The Student Mixer is always a great opportunity to come out and meet your fellow students without the pressure of making a big impression on that potential future supervisor. The Insect Trivia Contest will be held from 7:30-8:30 pm and students will compete in teams of up to four people. A sign-up sheet will be posted at the meeting and entry will be open until the start of the contest to allow students that might not be part of a big lab to team up with other students from across the country to compete for the prestigious title of "Biggest Bug Nerds 2010" (and maybe some insect-related prizes, too!).

Graduate Student Symposium

The Graduate Student Symposium Committee (Chandra Moffat, Leah Flaherty, and Tamara Richardson) is happy to announce that the Graduate Student Symposium (GSS) will again take place during JAM 2010. Last year, the Symposium was enjoyed by everyone who participated as the extra time allotted to presenters allows a unique perspective on their thesis research as a whole, instead of a condensed version of one aspect of the study. The GSS Committee would like to thank everyone who submitted abstracts this year. After careful deliberation, the GSS Committee has selected the following students and talks for the Symposium:

Christopher J. Borkent (McGill University).

Supervisor: Terry A. Wheeler. Systematics of *Leptomorphus* and the phylogeny of the tribe Sciophilini (Diptera: Mycetophilidae).

aura lieu le lundi 1^{er} novembre, de 18:00 à 22:00 dans la salle Denman de l'Hôtel Coast Plaza. Le cocktail étudiant est toujours une bonne opportunité de sortir et de rencontrer vos collègues étudiants sans la pression de faire grande impression sur un futur potentiel directeur. Le quiz entomologique se tiendra de 19:30 à 20:30 et les étudiants s'affronteront en équipe d'au plus quatre personnes. Une feuille d'inscription sera affichée à la réunion et les inscriptions seront ouvertes jusqu'au début du quiz afin de permettre aux étudiants ne faisant pas partie d'un gros labo de s'associer à d'autres étudiants d'ailleurs dans le pays pour concourir pour le prestigieux prix du « Plus grand Nerd des bibittes 2010 » (et peut-être pour d'autres prix entomologiques!).

Symposium des étudiants gradués

Le comité du symposium des étudiants gradués (Chandra Moffat, Leah Flaherty et Tamara Richardson) est heureux d'annoncer que le symposium des étudiants gradués (SÉG) aura lieu encore une fois cette année durant la réunion annuelle. L'an dernier, le symposium a été apprécié de tous les participants puisque le temps supplémentaire alloué aux conférenciers permet une perspective unique sur leurs recherches en tant que tout, plutôt qu'une version condensée d'un aspect de l'étude. Le comité SÉG aimerait remercier tous ceux qui ont soumis un résumé cette année. Après délibérations, le comité SÉG a sélectionné les étudiants suivants pour le symposium:

Christopher J. Borkent (Université McGill).

Directeur: Terry A. Wheeler. Systematics of *Leptomorphus* and the phylogeny of the tribe Sciophilini (Diptera: Mycetophilidae).

Joel F. Gibson (Université Carleton). Direc-

teur: Jeffrey H. Skevington. When genes and genitalia come together: The utilization of both molecular and morphological data in a systematic revision of Conopidae (Diptera).

David Jack (Université de Colombie-Britannique).

Directeur: John A. McLean. It is not easy being green. Why fertilizer & climate at the mountain pine beetle range limit did not stop the epidemic.

Joel F. Gibson (Carleton University). Supervisor: Jeffrey H. Skevington. When genes and genitalia come together: The utilization of both molecular and morphological data in a systematic revision of Conopidae (Diptera).

David Jack (University of British Columbia). Supervisor: John A. McLean. It is not easy being green. Why fertilizer and climate at the mountain pine beetle range limit did not stop the epidemic.

Kathleen Ryan (University of Toronto). Supervisor: Sandy M. Smith. Interactions between the introduced wood wasp, *Sirex noctilio*, competing phloem- and wood-boring beetles, and their fungal associates.

Aynsley Thielman (Brock University). Supervisor: Fiona F. Hunter. Investigation of the cryptic species status of *Anopheles* (Diptera: Culicidae) mosquitoes in Canada using a multidisciplinary approach.

Michael J. Wogin (Simon Fraser University). Supervisor: Bernard D. Roitberg. Intra- and interspecific competition between parasitoids of the cabbage seedpod weevil: Effects on sex ratios and consequences for biological control.

You are strongly encouraged to attend this session and show your support for your fellow students!

Silent Auction Donations Needed!

Once again, the Student Affairs Committee will be organizing the annual Silent Auction to help raise money for student scholarships and awards. We are always looking for donations of books and other items (such as bug T-shirts, jewelry and other novelties), so if you or anyone you know is looking to clear out some space, please bring the items along with you to the meeting. Silent Auction donations can be dropped off at the registration desk when you arrive for the conference. For larger items or donations, or if you would like to send your donations in advance, please contact Melanie Hart (mhart@sfu.ca) at: BISC Office, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6.

Kathleen Ryan (Université de Toronto). Directeur: Sandy M. Smith. Interactions between the introduced wood wasp, *Sirex noctilio*, competing phloem- and wood-boring beetles, and their fungal associates.

Aynsley Thielman (Université Brock). Directrice: Fiona F. Hunter. Investigation of the cryptic species status of *Anopheles* (Diptera: Culicidae) mosquitoes in Canada using a multidisciplinary approach.

Michael J. Wogin (Université Simon Fraser). Directeur: Bernard D. Roitberg. Intra- and interspecific competition between parasitoids of the cabbage seedpod weevil: Effects on sex ratios and consequences for biological control.

Vous êtes encouragés à assister à cette session et à montrer votre support à vos collègues étudiants!

À la recherche de dons pour les enchères silencieuses!

Encore une fois cette année, le comité des affaires étudiantes organise les enchères silencieuses annuelles afin d'amasser des fonds pour les bourses et prix étudiants. Nous recherchons toujours des dons de livres et autres objets (tels que des t-shirts d'insectes, bijoux et autres nouveautés), alors si vous, ou quelqu'un que vous connaissez tente de gagner de l'espace, merci d'apporter les objets avec vous à la réunion. Les dons pour les enchères silencieuses peuvent être déposés à la table des inscriptions quand vous arriverez à la réunion. Pour de plus gros objets ou des dons en argent, ou si vous préférez envoyer vos dons en avance, merci de contacter Melanie Hart (mhart@sfu.ca) à: BISC Office, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6.

Il s'agit d'une bonne opportunité de trouver des livres et des objets intéressants à d'excellents prix. Alors n'oubliez pas de vous arrêter aux enchères silencieuses durant la réunion et de regarder les objets aux enchères – vous ne savez pas ce que vous pourriez trouver.

It's a great opportunity to find some really great books and things at excellent prices. So, be sure to stop by the Silent Auction during the meeting and check out the items up for auction – you never know what you might find.

Thesis Roundup

Crosthwaite, Jill. MSc, 2010. *The overwintering physiology of the emerald ash borer, Agrilus planipennis Fairmaire (Coleoptera: Buprestidae).* (jcrosth@uwo.ca). Supervisor: Brent Sinclair, University of Western Ontario.

de la Giroday, Honey-Marie. MSc, 2010. *Spatial associations between infestations of mountain pine beetle and landscape features in the Peace River region of British Columbia.* (honeydelagiroday@gmail.com). Supervisor: Brian Aukema, University of Northern British Columbia.

Higgins, R.J. PhD (NRES), 2010. *The ant (Hymenoptera: Formicidae) communities of the central interior of British Columbia: Adaptations to a temperature-constrained environment.* Supervisor: B. Staffan Lindgren, University of Northern British Columbia.

Lumley, Lisa. PhD, 2010. *Species delimitation of the Choristoneura fumiferana species complex (Lepidoptera: Tortricidae).* (lisa.lumley@nrca-nrcan.gc.ca). Supervisor: Felix Sperling, University of Alberta.

McCull, D.A. MSc (NRES), May 2010. *Factors affecting the carabid (Coleoptera: Carabidae) assemblage in successional sub-boreal spruce forests, with special reference to their interaction with ants (Hymenoptera: Formicidae).* Supervisor: B. Staffan Lindgren, University of Northern British Columbia.

McKee, Fraser. MSc, 2010. *Interactions of mountain pine beetle with typical and atypical host material, lodgepole pine and interior hybrid spruce, in the central interior of British Columbia.* (fraser_mckee@hotmail.com). Supervisor: Brian Aukema, University of Northern British Columbia.

Foisonnement de thèses

Crosthwaite, Jill. MSc, 2010. *The overwintering physiology of the emerald ash borer, Agrilus planipennis Fairmaire (Coleoptera: Buprestidae).* (jcrosth@uwo.ca). Directeur: Brent Sinclair, Université de l'Ouest de l'Ontario.

de la Giroday, Honey-Marie. MSc, 2010. *Spatial associations between infestations of mountain pine beetle and landscape features in the Peace River region of British Columbia.* (honeydelagiroday@gmail.com). Directeur: Brian Aukema, Université du Nord de la Colombie-Britannique.

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McKee, Fraser. MSc, 2010. *Interactions of mountain pine beetle with typical and atypical host material, lodgepole pine and interior hybrid spruce, in the central interior of British Columbia.* (fraser_mckee@hotmail.com). Directeur: Brian Aukema, Université du Nord de la Colombie-Britannique.

Ott, Daniel S. MSc, 2010. *Genetic variation of lodgepole pine (Pinus contorta var. latifolia [Engelm.]) chemical and physical defenses that affect mountain pine beetle Dendroctonus ponderosae attack and tree mortality.* Directeurs: Dezene Huber, Uni-

- Ott, Daniel S.** MSc, 2010. *Genetic variation of lodgepole pine (Pinus contorta var. latifolia [Engelm.] chemical and physical defenses that affect mountain pine beetle Dendroctonus ponderosae attack and tree mortality*. Supervisors: Dezene Huber, University of Northern British Columbia, Kimberly Wallin, University of Vermont, and Alvin Yanchuk, British Columbia Ministry of Forests and Range.
- Parsons, Carolyn K.** PhD, 2010. *Managing the cabbage maggot, Delia radicum (L.), by means of agroecosystem diversification*. (Carolyn.Parsons@agr.gc.ca). Supervisors: Peggy Dixon, Agriculture and Agri-Food Canada, St. John's, and Murray Colbo, Memorial University of Newfoundland.
- Pitt, Caitlin.** MSc, 2010. *Functional expression of Ips paraconfusus cytochromes P450 exhibiting conspicuous up-regulation with feeding on host phloem*. Directeurs: Dezene Huber, Hugues Massicotte et Daniel Erasmus, Université du Nord de la Colombie-Britannique.
- Squires, Susan.** PhD, 2010. *Insect pests and pathogens compromise the persistence of two endemic and rare Braya (Brassicaceae)*. (susansquires@gov.nl.ca). Directrices: Peggy Dixon, Agriculture et Agroalimentaire Canada, St. John's, et Louise Hermanutz, Université Memorial de Terre-Neuve.
- Vickruck, Jess.** MSc, 2010. *The nesting biology of Ceratina (Hymenoptera: Apidae) in the Niagara Region: New species, nest site selection and parasitism*. (jvickruck@gmail.com). Directeur: Miriam Richards, Brock University.
- versité du Nord de la Colombie-Britannique, Kimberly Wallin, University of Vermont, et Alvin Yanchuk, Ministère des Forêts et Étendues de Colombie-Britannique.**
- Parsons, Carolyn K.** PhD, 2010. *Managing the cabbage maggot, Delia radicum (L.), by means of agroecosystem diversification*. (Carolyn.Parsons@agr.gc.ca). Directeurs: Peggy Dixon, Agriculture et Agroalimentaire Canada, St. John's, et Murray Colbo, Université Memorial de Terre-Neuve.
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- Vickruck, Jess.** MSc, 2010. *The nesting biology of Ceratina (Hymenoptera: Apidae) in the Niagara Region: New species, nest site selection and parasitism*. (jvickruck@gmail.com). Directeur: Miriam Richards, Université Brock.



Steve Marshall

The Goldsmith Beetle (*Cotalpa lanigera*)

Thesis Roundup Submission Form

Name: _____

Email address: _____

Degree: _____

Date: _____

Title: _____

Supervisor(s): _____

Institution: _____

**Please note: students and/or supervisors may be contacted to verify the information if sent from second parties.

Formulaire de soumission – Foisonnement de thèses

Nom: _____

Courriel: _____

Diplôme: _____

Date: _____

Titre: _____

Directeur(s): _____

Institution: _____

**Veuillez noter que les étudiants et/ou les directeurs pourront être contactés pour vérifier les informations si envoyées par une tierce personne.

Please send to/Envoyer à: Aynsley Thielman
Department of Biological Sciences
Brock University
500 Glenridge Avenue
St. Catharines, ON
L2S 3A1

PLEASE PLACE STAMP HERE


From: _____

Email: _____

Notes/Comments/Ideas:






Plant Health Surveillance Unit
 Canadian Food Inspection Agency
 3851 Fallowfield Road
 Ottawa, ON K2H 8P9

Email: surveillance@inspection.gc.ca



Canadian Food Inspection Agency
 Agence canadienne d'inspection des aliments

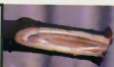




We need your help!








The CFIA is always interested in hearing about new reports of invasive alien plant pests either in Canada or in other countries.

If you know of a invasive alien plant pest that could be a problem to Canadian agriculture, forestry or the environment, please let us know by filling in the reverse of this postcard.

Thank you!
CFIA Plant Health Surveillance Unit

Canada 

Aware of a new invasive alien plant pest species in the country? Please notify the CFIA Plant Health Surveillance Unit at surveillance@inspection.gc.ca.

Joint Annual Meeting / Réunion annuelle conjointe

THE JOINT ANNUAL MEETING OF THE ENTOMOLOGICAL SOCIETY OF CANADA AND THE ENTOMOLOGICAL SOCIETY OF BRITISH COLUMBIA

Coast Plaza Hotel, Vancouver, British Columbia
Sunday 31 October – Wednesday 3 November 2010

The Entomological Society of British Columbia invites you to the 2010 Joint Annual Meeting of the Entomological Societies of Canada and British Columbia to be held at the Coast Plaza Hotel and Suites in Vancouver, British Columbia from 31 October to 3 November 2010.

The room rates are \$149 per night plus taxes; each additional adult is \$25.

The Coast Plaza Hotel and Suites
1763 Comox Street, Vancouver BC V6G1P6
604-688-7711

http://www.coasthotels.com/hotels/canada/bc/vancouver/coast_plaza/overview

Program Highlights

Our meeting theme is **Communication** – in the widest sense: at the level of insect to insect, insect to entomologist, and entomologist to society.

Plenary symposium theme: Science Communication: What We Can Learn from Arthropods.

Proposed Symposia:*

Mountain pine beetle system genomics
Invasive insects
Insect community ecology
Mark Winston research retrospective
Invertebrate conservation
Application of molecular techniques to entomology
Chemical communication in insects
Arachnology
Terry Shore Memorial Symposium
Graduate Student Symposium

Heritage Lecture

Student paper and poster competitions

Regular poster and presented paper sessions

* Check ESBC webpage for updated information, on-line registration and important dates.

Committee Representatives & Contact Information

Meeting Chair/Treasurer:	Bill Riel	bill.riel@nrcan-rncan.gc.ca
Science Program:	Ward Strong	ward.strong@gov.bc.ca
Local Arrangements:	Sheila Fitzpatrick	sheila.fitzpatrick@agr.gc.ca
Registration:	Markus Clodius	markus.clodius@agr.gc.ca

P.S. Wear your favorite bug costume to our Opening Reception on Halloween Night!

For more information, see: http://www.sfu.ca/biology/esbc/JAM/jam_announce.html

LA RÉUNION CONJOINTE DE LA SOCIÉTÉ D'ENTOMOLOGIE DU CANADA ET DE LA SOCIÉTÉ D'ENTOMOLOGIE DE LA COLOMBIE-BRITANNIQUE

Hôtel Coast Plaza, Vancouver, Colombie-Britannique
Dimanche 31 octobre – mercredi 3 novembre 2010

La Société d'entomologie de la Colombie-Britannique vous invite à la réunion conjointe annuelle de 2010 des sociétés d'entomologie du Canada et de la Colombie-Britannique qui se tiendra à l'hôtel Coast Plaza Hotel and Suites à Vancouver, Colombie-Britannique, du 31 octobre au 3 novembre 2010.

Le tarif des chambres est de 149\$ plus taxes par nuit; 25\$ pour chaque adulte additionnel.

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Aperçu du programme

Le thème de la réunion est **Communication** – au sens large: au niveau insecte – insecte, insecte – entomologiste, et entomologiste – société.

Thème de la session plénière: Communication en science: Que pouvons-nous apprendre des arthropodes.

Symposiums proposés:*

Génomique du dendroctone du pin
Les insectes envahissants
Écologie des communautés d'insectes
Rétrospective de Mark Winston
Conservation des invertébrés
Application des techniques moléculaire
en entomologie
Communication chimique chez les insectes
Arachnologie
Symposium à la mémoire de Terry Shore
Symposium des étudiants gradués

Allocution du patrimoine

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* Consultez le site Internet de la SECB pour les dernières informations sur les symposiums et les dates importantes.

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P.S. Portez votre costume d'insecte favori pour la réception d'ouverture le soir de l'Halloween!

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Sticking like ants to glass – a question of biological adhesion

B. Staffan Lindgren

Recently, Thomas Endlein, Research Assistant, University of Glasgow, but then a research associate in Walter Federle's lab at Cambridge University, was awarded the top prize in the inaugural Biotechnology and Biological Sciences Research Council science photo competition (http://www.gla.ac.uk/faculties/fbls/newsandevents/headline_142776_en.html). His prize-winning photo (Figure 1) depicts a weaver ant, *Oecophylla smaragdina* (Fabricius) (Hymenoptera: Formicidae), hanging upside down from a glass pane while holding in its mandibles a 500 mg weight (this, incidentally, is >100 times the ant's body weight!). We use many expressions derived from entomology to emphasize various aspects of our daily lives, and I am happy that this photo, and the research associated with it, means that I no longer have to reference feces and wool blankets when talking about something sticking – “sticking like an ant to glass” seems like a nice, clean and descriptive alternative befitting an entomologist! Thank you Dr Endlein!

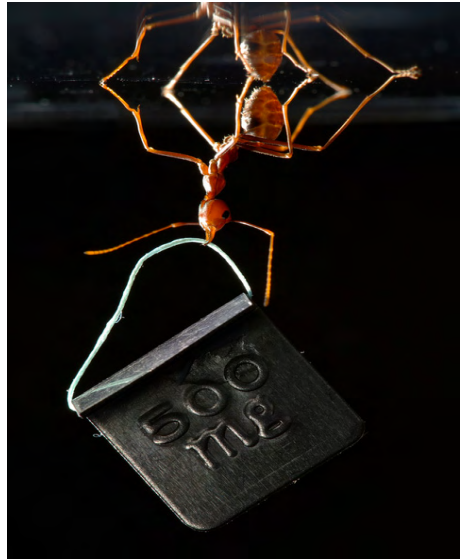


Figure 1. *Oecophylla smaragdina* worker supporting a 500mg weight while hanging upside down from a glass pane. Photo courtesy of Thomas Endlein.

Humans have puzzled for thousands of years over how some animals can run over smooth surfaces, and recently significant strides (no pun intended!) have been made (Autumn et al. 2002). Given the vastness and complexity of the Animal Kingdom, it is obvious that there is no single solution, but there may be some unifying principles, at least among terrestrial organisms. I am by no means an expert in this field, but when asked if I could write a short feature article around this amazing photograph, it seemed like a good idea to give it a shot (which raises the question why good ideas always become bad ideas given sufficient time!).

It has long been known that the pads of a gecko foot consist of millions of thin hairs, each of which is tipped by hundreds of spatula-shaped projections (Autumn et al. 2000, and references therein). The adhesion of these hairs results from the orientation of the setae to the substrate and is primarily a function of van der Waals forces (Autumn et al. 2000, 2002), possibly with some minor contribution from capillary forces (Huber et al. 2005). Van der Waals forces are molecular forces unaffected by valens or polarity. The combined adhesion force of the four feet of a 40 g

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tokay gecko (*Gekko gecko* L.) is 1 kg (Irschick et al 1996, cited in Persson 2003), allowing it to rely on this ingenious design even when only a small portion of its feet are in contact with the substrate! (When a gecko runs over a smooth surface, it will characteristically uncurl and peel its toes, resulting in a seamless attachment and detachment as it moves.) Detachment is, of course, as important as attachment, or the gecko would be seriously impeded. Detachment results from ‘crack propagation’ starting at the edge of the attached surface (Persson 2003), which explains the need for the hairs.

Insects have also been studied extensively as many can readily scale smooth surfaces, as anyone who has tried to contain them in an open container knows. Weaver ants are arboreal ants that spend much of their time on smooth leaves, and they need to be able to adhere to these firmly in the process of constructing their nests (Figure 2). Their habit of using their own larvae as glue sticks to build their arboreal nests by ‘weaving’ leaves together could be the subject of another feature article, I guess. (Incidentally, the larvae in question would be sisters, so I feel obliged to insert the caveat that treating your siblings in this manner is a definite no-no in the human context, in case you get the urge!). But I digress. In a series of elegant experiments, Federle, Endlein and their co-workers have studied various insects, though primarily weaver ants, to understand how these insects solve the issue of attachment-detachment while moving over substrates with different textures.

Weaver ants utilize several mechanisms for gaining purchase on the substrate, depending on its texture (Federle et al. 2001). The tarsomeres are covered with fine hairs which are distally pointed, and serve to prevent slippage of the foot (Endlein 2008). The pre-tarsus of the weaver ant is armed with two sharp claws (Figure 3). Between these is an arolium, a cuticular “sac”, which is the secret to attachment to smooth surfaces. The sub-surface (procuticle) of the aro-



Figure 2. *O. smaragdina* workers pulling leaf edges together. The edges are “glued” in place using silk from the ants’ larvae. Photo courtesy of Robert W. Taylor.

lium has a fibrillar texture, which may mean that van der Waals forces are at work here as well, although there appears to be some glandular activity as a thin liquid film between the arolium and the substrate has been noted (Federle et al. 2001). How the claws function is rather obvious, as they grip rough elements on the substrate when flexed (Endlein and Federle 2008). What is really curious, however, is that both the claws and the arolium are controlled by the flexor muscle, that is, there is no separate muscular control of the arolium. Hence, the arolium cannot be operated separately! The arolium extends only if the claws fail to gain immediate purchase as the foot moves toward the body (Federle and Endlein 2004) as, for example, on a smooth surface. This reaction persists even in a severed leg, demonstrating that it is largely mechanical, resulting from hemolymph pressure in response to the continued flexing of the claw flexor. As in the gecko, there appears to be plenty of capacity, as under normal circumstances only a small portion (<15%) of the available surface area of the arolium (determined by anesthetizing the ants using CO₂ which causes a full contraction) will be in contact with the substrate, and even when loaded with 30 mg weights, the contact area remained <65%. And this is while walking upside down! Cirque du Soleil artists – pay attention! Detachment occurs by uncurling the arolium concentrically from the edge (Endlein and Federle 2007). The speed of attachment-detachment depends on the speed of movement. In response to sudden forces (rain, wind, etc.) the arolium can increase in area almost instantaneously, doubling in less than a millisecond of a perturbation (Endlein and Federle 2009). This observation supports the lack of neural control as the response happens much too fast.

Not all insects have arolia, and consequently are unable to walk on smooth surfaces. This means that some can be easily contained, for example, a ground beetle in a plastic pitfall trap (which is lucky for those of us relying on this mode of sampling), and even some ants. Arboreal *Crematogaster* spp. ants associated with *Macaranga* species, which have waxy stems making adhesion very difficult, use their claws to dig into the waxy surface and adopt a posture not unlike that of a human mountain climber (Federle et al. 2007).

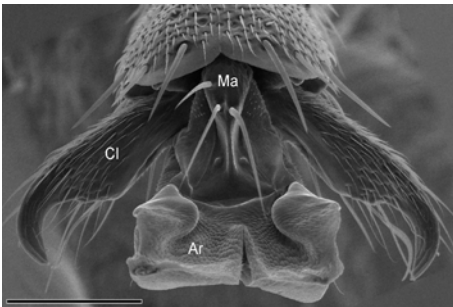


Figure 3. Front view of *O. smaragdina* arolium in extended position. Ar, arolium; Cl, claw; Ma, manubrium. Scale bar = 100µm. Photo courtesy of Walter Federle.

We are all familiar with velcro, which we use on a daily basis. While velcro was perhaps the result of serendipity and a eureka moment, rather than careful, scientific investigation, the results of the methodical research into the adhesion mechanisms of the weaver ant, illustrated so vividly in Thomas Endlein’s photograph, is yet another example of how much humans have to learn from nature. Bioengineering is increasingly taking advantage of these types of findings, providing entomologists with examples of how insects are largely beneficial to us. Now if we could just convince the funding agencies and politicians of this.....

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Jeff Skvington

Thevenemyia harrisi (Bombyliidae)

Glowing sperm illuminate post-copulatory sexual selection in *Drosophila*

Maydianne CB Andrade & Jeffrey A Stoltz

The spectacular diversity of ornaments and armaments of males in a wide range of taxa can be explained by sexual selection, defined as intra-specific variation in mating success among individuals of the same sex (Andersson 1994). A huge body of literature now shows how phenotypic traits that influence the outcome of male-male competition and female choice can be elaborated even if they are costly to survival (Cronin 1993). In addition to the critical importance of sexual selection for understanding processes such as speciation, insights from these studies can have important implications for pest management, captive breeding programs, and conservation of species at risk (e.g., Legendre et al. 1999; Møller & Legendre 2001). It is now clear, however, that influences of sexual selection on pre-mating dynamics are only the tip of the iceberg. Females of many (if not most) species mate with multiple males and mating success is not equivalent to fertilization success in many taxa (Keller & Reeve 1995). This is important because fertilization, rather than mating, determines reproductive success and thus the potential for evolutionary change (Birkhead & Møller 1998). Thus, post-copulatory sexual selection, or the processes affecting relative fertilization success, is of critical importance to our understanding of the evolution of male and female traits, and their interplay during mating.

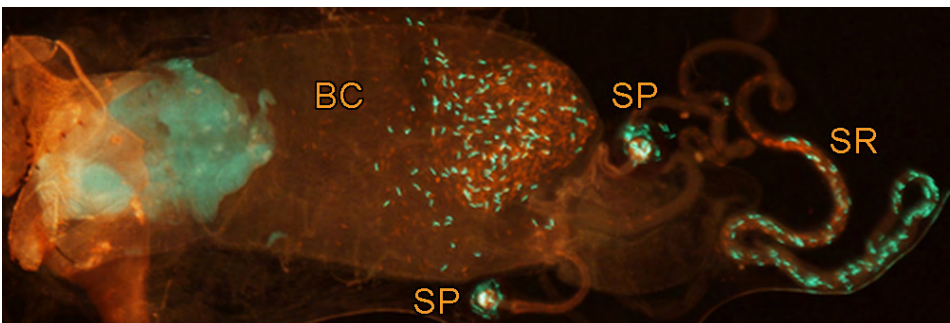
About 40 years ago, Geoff Parker realized fertilization patterns might depend on the outcome of competition among males that extended after insemination (Parker 1970). While studying the mating behaviour of yellow dung flies (*Scatophaga stercoraria*), he suggested that the sperm of rival males could compete in the reproductive tract of females after mating ('sperm competition', Parker 1970). In an elegant set of studies, Parker showed that understanding sperm competition could produce stunningly accurate predictions about mating dynamics (such as how long males would copulate with a given female, or male movement patterns as a function of female behaviour on resource patches, Parker 1970). Parker's work (1970) led to an explosion of research on mechanisms and outcomes of sperm competition (see reviews in Birkhead & Møller 1998; Simmons 2001). These studies revealed an astounding range of traits that increase success during sperm competition, traits that rival the more well-known ornaments and armaments of males in their elaborate complexity (reviewed in Wigby & Chapman 2004). These include increases in spermatozoa numbers in the ejaculate (Parker 1990), increased sperm velocity (Gage et al. 2004), chemical inactivation of rival sperm via proteins in the ejaculate (Harshman & Prout 1994), structures on the penis that allow its use as a 'scoop' to remove the sperm of rivals from the female's tract (Waage 1979), the production of giant sperm (with tails several times the length of the male's body) that can physically exclude ejaculates of rivals (Pitnick & Markow 1994), and even co-operation among related spermatozoa which form groups that swim faster than individual sperm cells (Fisher & Hoekstra 2010). Studies on insects have led the way in this work, and the pattern seen over and over again is that theoretical insights derived from research on insects are found to be widely applicable across taxa (see reviews in Birkhead & Møller 1988; Simmons 2001). For example, studies in crickets (Gage & Barnard 1996) showed

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that males facultatively adjust the number of sperm in their ejaculates as a function of the perceived risk of sperm competition. The same conclusions have been supported in tests in other taxa (including humans, Baker & Bellis, 1989; Kilgallon & Simmons 2005).

Females do more than act as the passive battleground in which sperm compete. In 1996, Bill Eberhard argued that females actively ‘set the rules’ that determine paternity, and thus extended female choice to the post-copulatory arena. Eberhard (1996) documented a wide range of morphological, behavioural, and physiological traits of females that could function as mechanisms of post-copulatory choice by biasing fertilization success towards favoured males (‘cryptic choice’). The potential for a strong female influence is clear from a number of studies. For example, work on beetles (*Tribolium castaneum*) showed that female muscle contractions are essential for the movement of sperm into storage (Qazi et al. 1998) and female control has even been implicated in Parker’s yellow dung flies (Ward 1993, 2000). Perhaps the best demonstration of cryptic choice involves females selectively ejecting the sperm of socially inferior males in jungle fowl (Pizzari & Birkhead 2000).

Eberhard’s delineation of the possibility of female cryptic choice ignited a heated debate that is still clear in the literature today (Birkhead & Pizzari 2002; Eberhard 1996). Arguments have raged for years about the criteria necessary to unambiguously demonstrate cryptic choice. Similarly, some purported examples of sperm competition may have been influenced by female cryptic choice (Birkhead & Møller 1998; Simmons 2001). The challenge lies in untangling whether patterns of paternity arise from traits of competing sperm or from traits of the female. The difficulty in defining the theoretical distinction is compounded by an empirical challenge since sperm competition and cryptic choice occur simultaneously within the female’s reproductive tract. In particular, since in most studies researchers are limited to describing outcomes (paternity or sperm use), they are only able to speculate about underlying mechanisms. Clever experimental designs have allowed confirmation that in some cases there are strong influences of sperm or ejaculate traits, and in others that female traits are key (e.g., paralysis of the female during mating to determine whether the female or the sperm themselves determine sperm storage, Qazi et al. 1998). It seems likely, however, that in most cases paternity will depend on an interaction between competition and choice, and atomizing these processes will not necessarily reveal the net effect of sexual selection.



Scott Pitnick

Figure 1. Sperm storage organs (seminal receptacles, SR and spermathecae, SP) and bursa copulatrix (BC) of female *Drosophila melanogaster* initially mated to a male with green fluorescent protein (GFP) tagged sperm heads then remated to a male with red fluorescent protein (RFP) tagged sperm heads. Although all GFP sperm are stored in the SP and SR prior to female remating, after the second mating, GFP sperm are found throughout the tract as they are displaced from storage by RFP sperm.

Resolution of this debate had been stalled, largely because progress requires tracking the dynamic interplay between sperm of competing males and the female's reproductive tract, which had been impossible until now. However, new research from Scott Pitnick's group at Syracuse University has applied molecular tools to resolve this problem. Pitnick, post-doctoral fellow Mollie Manier, and their colleagues examined sperm movement and use in the reproductive tract of female *Drosophila melanogaster* using real-time imaging of fluorescently tagged sperm (Manier et al. 2010). In another stunning example of the molecular manipulation that has made *D. melanogaster* such a valuable model, flies were transformed so that males expressed green fluorescent protein (GFP) or red fluorescent protein (RFP) in the heads of their sperm (Figure 1). After showing that the average fertilization ability of these transformed males fell within the normal range for this species, they mated females to a GFP male and then to an RFP male 3 days later (and vice-versa), then examined sperm movements through the female's reproductive tract. Previous work on *D. melanogaster* had shown that the second male to mate typically fertilized most (~80%) of the female's eggs (Miller & Pitnick 2002). Such last-male sperm precedence is common in insects, but the underlying mechanisms are generally unclear. Such a pattern could arise if (a) sperm of the second male physically displaced that of the first male, (b) sperm of the first male was chemically incapacitated by sperm of the second male, (c) females ejected sperm of the first but not the second male, (d) females preferentially move the sperm of second males into storage and the first male out of storage, or (e) sperm from both males is stored but females preferentially used sperm of second males for fertilization (sperm choice).

Each of these hypotheses produces distinct predictions about the movement and storage of sperm from competing males. These were tested by flash-freezing female at different intervals after the first and second mating, and observing the positions of the fluorescent sperm of competing males (see real-time videos of sperm movement at: http://pitnicklab.syr.edu/Pitnick/proposal_movies.html). Results convincingly demonstrate that the underlying mechanisms leading to the high last male sperm precedence include female effects (movement of first-male's sperm out of storage and sperm ejection) as well as sperm competition effects (physical displacement of the first male's sperm from storage by the sperm of the second male).

The typical sequence of sperm movement revealed in these images is as follows. First, after the initial copulation, sperm of the first male to mate initially moves from the bursa copulatrix into storage (seminal vesicles and spermathecae), where it must reside if it is to be used for fertilization. By 3 days post-mating (the normal inter-mating interval), all the labeled sperm of the first male is in storage. Second, shortly after copulation commences with the second male, sperm of the first male begins to move from storage back into the bursa. This occurred even in cases when none of the second male's sperm had yet been transferred, or when it had been transferred but had not yet entered a storage organ. Thus this cannot have been a sperm displacement effect. In addition, these sperm were visibly active, and showed no evidence of being incapacitated or otherwise inviable as might be expected if the effect arose from chemical manipulation by second males. Instead, it is most likely early sperm movement was controlled by females. Third, sperm of the second male began to move from the bursa to the storage organs as the second copulation proceeded, and at the same time, the sperm of first males began to be forced out of storage (Figure 1). Fourth, as the second copulation ended, sperm of the second male continued to flood into storage and now much of the sperm located in the bursa was that of the first male to mate (Figure 1). Sperm displacement peaked at 60 to 90 minutes after the start of the second mating and resulted in relocation of more than one quarter of the first-male's sperm from storage to the bursa. Fifth, females put an end to this process when they actively ejected the sperm located in their bursa, now disproportionately that of the first male, usually within 5 hours of mating. At fertilization, the use of the remaining stored sperm was directly

proportionate to their relative abundance in storage, so sperm choice by females at fertilization was not a factor in paternity.

This work elegantly confirms predictions from an earlier artificial selection experiment suggesting that traits of both male and female *D. melanogaster* were important in determining paternity (Miller & Pitnick 2002). Clearly, both mechanisms of post-copulatory sexual selection (sperm competition and cryptic choice) are affecting paternity. Females begin the process of moving sperm from first males into the bursa, ejaculates of rival males accelerate this process through sperm displacement, and females end the process through sperm ejection when the sperm of first males are concentrated in the bursa. This study has additional, intriguing implications for understanding the evolution of ejaculate characteristics such as sperm number. The success of sperm displacement for the second male depends heavily on the relative number of sperm in storage and sperm motility. This is because, once some sperm from the second male is in storage, it is also at risk of being flushed out by his own later-arriving sperm. However, if sperm are highly motile and mix, then the sperm that is displaced will be disproportionately that of the first male, which is initially present in storage in higher numbers. As sperm displacement continues, sperm of the second male will increase in number in the storage organs, and at some point it will be present in high enough numbers that the sperm flushed out of the organ will contain a significant proportion of both types of sperm. At this point, success depends on the overall numerical superiority of sperm from the second male. Since male *D. melanogaster* inseminate more sperm than females store, the sperm of the second male flooding into storage had a numerical advantage, and as displacement proceeded, the sperm remaining in storage shifted largely in favour of the second male. Manier, Pitnick and colleagues propose that the 'numbers game' required for sperm displacement explains why males ejaculate many more sperm than can possibly be stored by females, another outstanding puzzle in sexual selection.

Our ability to discriminate causes of patterns of paternity has been minimal until now, with most efforts requiring indirect reasoning or speculation. Manier, Pitnick and colleagues' (2010) ingenious use of fluorescent tags to label sperm of individual males promises to unlock the mysteries of post-copulatory sexual selection. As molecular tools such as this become more widely available and economical, it will be very exciting to see the utilization of this technique in a range of taxa (also see Fisher & Hoekstra 2010). This study may be the first of many that show the intricate inter-relationship between mechanisms of post-copulatory sexual selection and how these together affect paternity. Ideally, such studies will replace the current debate with a broader appreciation of the inter-relationship between these processes. We expect, as before, that studies of insects will lead the way.

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Médaille d'or

Charles Vincent

Le récipiendaire 2010 de la médaille d'or de la Société d'entomologie du Canada pour sa contribution exceptionnelle à l'entomologie est Dr Charles Vincent. Ce prix reconnaît ses contributions, en tant que scientifique, à la gestion des ravageurs, en tant que professeur et mentor pour les jeunes entomologistes de tous niveaux, en tant qu'éditeur et auteur de livres, chapitres et articles en entomologie, ainsi que pour ses efforts soutenus pour supporter l'entomologie canadienne. Charles est chercheur à Agriculture et Agroalimentaire Canada, professeur adjoint à l'Université McGill (Campus Macdonald) et à l'Université du Québec à Montréal et professeur invité à l'Université de Picardie Jules Verne (Amiens, France). Il a contribué à 152 articles avec comité de lecture, 21 livres édités, 4 articles de revue littéraire, 36 chapitres de livres et plus de 1000 autres publications et présentations. Il a également formé 36 étudiants diplômés, travaillé avec 6 post-doctorants et 75 internes. La grande qualité de son enseignement se reflète dans le fait que la majorité de ses étudiants diplômés travaillent maintenant comme scientifiques au Canada, États-Unis, France, Suisse, Guinée et Burkina Faso. En plus de ces accomplissements, il a une influence incroyable en entomologie en agriculture, notamment en développant des méthodes alternatives aux insecticides et en travaillant sans relâche à des activités de transfert de technologie. Son leadership aux niveaux scientifique, organisationnel, industriel/commercial et public a eu un grand impact national et international.

Les recherches de Charles se concentrent sur le contrôle et la gestion des insectes ravageurs en agriculture en utilisant des méthodes de lutte biologique (incluant les bio-pesticides) et physiques. Ses premières recherches consistaient à: quantifier les effets du broyage des feuilles mortes sur la mineuse du pommier et ses parasitoïdes et sur l'inoculum de la tavelure du pommier; déterminer les effets des fibres

Gold Medal Award

Charles Vincent

The 2010 recipient of the Entomological Society of Canada's Gold Medal Award for outstanding achievement in entomology is Dr Charles Vincent. This award recognizes his contributions as a scientist in insect pest management, a teacher and mentor to young entomologists at all levels, an editor and author of books, chapters and articles in entomology, and his tireless efforts in support of Canadian entomology. Charles is a scientist with Agriculture and Agri-Food Canada, an adjunct professor at McGill University (Macdonald Campus) and the Université du Québec à Montréal, and an invited professor at the Université de Picardie Jules Verne (Amiens, France). He has contributed 152 scientific peer-reviewed papers, 21 edited books, 4 refereed review papers, 36 book chapters,

and more than 1000 other publications and presentations. He has also trained 36 graduate students, mentored 6 post-doctorals and 75 interns. The high quality of his teaching is reflected in the fact that most of his graduate students now work as scientists in Canada, the USA, France, Switzerland, Guinea and Burkina Faso. Beyond these achievements, he has had tremendous influence in agricultural entomology, notably by developing alternative methods to insecticides, and by working relentlessly at technology transfer activities. His leadership at the scientific, organisational, industrial/commercial, and public levels has had a high impact nationally and internationally.

Charles' research focus is on the control and management of insect pests in agricultural systems using biological (including biopesticides) and physical control methods. His early research consisted of: quantifying the effects of leaf shredding on spotted tentiform leafminer and its parasitoids, and on apple scab inoculum; determining the effects of cellulose sheeting on the emergence of plum curculio, European apple sawfly, and weeds; and demonstrating that kaolin treatments modify the behavior of blueberry maggot flies. Among other achievements, Charles introduced *Lathrolestes ensator* as a classical biological control agent of the European apple sawfly. By 2008, *L. ensator* had successfully established and to date it is the only known natural enemy of the European apple sawfly in North America. As part of a multi-disciplinary team, Charles developed programs that have substantially (ca. 50%) decreased the use of insecticides in vineyards. This work was mostly based on original knowledge acquired by studying the insect pest and natural enemy fauna of vineyards. Charles was involved in the research, development and registration of Virosoft CP4, the first viral insecticide registered for agricultural use in Canada and now in commercial production by Oligosol Inc. Charles was part of a team (with Hélène Chiasson, Noubar Bostanian and André Bélanger) that developed the botanical insecticide Requiem®, a *Chenopodium*-based extract that exerts insecticidal and acaricidal

de cellulose sur l'émergence du charançon de la prune, de l'hoplocampe du pommier et des mauvaises herbes; et démontrer que les traitements au kaolin modifient le comportement de la mouche du bleu. Parmi ses autres accomplissements, Charles a introduit *Lathrolestes ensator* en tant qu'agent de lutte biologique classique de l'hoplocampe du pommier. En 2008, *L. ensator* s'était établi avec succès et jusqu'à maintenant, il s'agit du seul ennemi naturel connu de l'hoplocampe du pommier en Amérique du Nord. Au sein d'une équipe multidisciplinaire, Charles a développé des programmes qui ont substantiellement (environ 50%) réduit l'utilisation des insecticides dans les vignobles. Ce travail s'est principalement basé sur des connaissances originales acquises en étudiant les insectes ravageurs et la faune d'ennemis naturels dans les vignobles. Charles a été impliqué dans la recherche, le développement et l'enregistrement de Virosoft CP4, le premier insecticide viral homologué pour l'utilisation en agriculture au Canada et maintenant en production commerciale par Oligosol Inc. Charles a fait partie d'une équipe (avec Hélène Chiasson, Noubar Bostanian et André Bélanger) qui a développé l'insecticide botanique Requiem®, un extrait à base de *Chenopodium* qui possède des effets insecticides et acaricides, homologué aux États-Unis en 2008 et en voie d'être homologué au Canada.

Charles a travaillé sans relâche à la promotion de l'entomologie au Canada et internationalement. Chaque année depuis 1996, sous l'égide de la Société pour la promotion de la science et de la technologie du Québec, Charles donne trois jours d'atelier sur la gestion des insectes aux enfants (écoles primaires et secondaires) du grand Montréal. L'objectif de la SPSTQ est d'encourager les carrières scientifiques. Charles a édité le premier livre publié (en français et anglais) sur *La Lutte physique en phytoprotection* (2001) et, avec Daniel Coderre, a édité le premier livre en français publié sur la lutte biologique (*La lutte biologique*, 1992). Un troisième livre, édité par Mark Goettel et George Lazarovits (*Biological Control – A Global Perspective*,

effects, registered in the USA in 2008 and in the process of being registered in Canada.

Charles has worked tirelessly to promote entomology in Canada and internationally. Each year since 1996, under the auspices of the “Société pour la promotion de la science et de la technologie du Québec”, Charles gives 3 days of lectures on insect management to children (primary and secondary schools) of greater Montreal. The objective of the SPSTQ is to foster careers in science. Charles edited the first published book (in French and English) on *Physical Control Methods in Plant Protection* (2001) and, with Daniel Coderre, edited the first book published in French on biological control (*La lutte biologique*, 1992). A third book, edited with Mark Goettel and George Lazarovits (*Biological Control – A Global Perspective*, 2007), documented insights into successes and failures in biological control projects worldwide. Both books have had enormous influence in academia. To document principles and insights relevant to the science and technology of botanical biopesticides, Charles co-edited *Biopesticides d'origine végétale* (2004) with Catherine Regnault-Roger and Bernard Philogène. The book was in such demand that translations have been published in Spanish (Regnault-Roger *et al.* 2004) and English (Regnault-Roger *et al.* 2005). Charles has also edited proceedings of six scientific conferences.

To foster principles of pest management and networking among scientists, Charles has been active in several organizations. He was President of the Entomological Society of Canada (2003) and has been active on a number of Committees, most notably as Chair of three SEQ/ESC meetings, one of which (2000) was with the Entomological Society of America. A member of the Société d'entomologie du Québec, he has contributed in many capacities, among these as SEQ representative to ESC (1987-1990). He has contributed to the Ordre des Agronomes du Québec, the Quebec Society for Protection of Plants, the Entomological Society of America, and he is a member of the Editorial Committee of “Cahiers Agricul-

2007), documente les dessous des succès et des échecs dans les projets de lutte biologique dans le monde. Ces deux livres ont eu un succès et une influence énormes dans les milieux académiques. Afin de documenter les principes et les dessous pertinents de la science et de la technologie des bio-pesticides botaniques, Charles a co-édité *Biopesticides d'origine végétale* (2004) avec Catherine Regnault-Roger et Bernard Philogène. Le livre a eu tellement de demandes que des traductions ont été publiées en espagnol (Regnault-Roger *et al.* 2004) et en anglais (Regnault-Roger *et al.* 2005). Charles a également édité les comptes-rendus de six conférences scientifiques.

Afin d'encourager les principes de gestion des ravageurs et du réseautage parmi les scientifiques, Charles a été actif dans plusieurs organisations. Il a été président de la Société d'entomologie du Canada (2003) et a été un membre actif sur plusieurs comités, le plus notable étant le président de trois réunions de la SEQ/SEC, dont un (2000) avec la Société d'entomologie d'Amérique. Membre de la Société d'entomologie du Québec, il a porté plusieurs titres, dont représentant de la SEQ à la SEC (1987-1990). Il a contribué à l'Ordre des Agronomes du Québec, la Société de Protection des Plantes du Québec, la Société d'entomologie d'Amérique et il est membre du comité éditorial des *Cahiers Agriculture*, une revue multidisciplinaire publiée en français à Paris. Il a organisé des symposia pour le congrès international d'entomologie en 1988, 2000, 2004 et 2008. Tous les ans depuis 2000, il donne un atelier sur la rédaction scientifique en biologie et médecine à l'Université de Picardie Jules Verne. Au fil des ans, le travail de Charles a été largement reconnu. La ville de Montréal en a fait un membre fondateur de l'Insectarium de Montréal. Il a reçu le prix Jean-Charles Mignan (1989 et 1994) de l'Ordre des Agronomes du Québec (3300 membres), la Médaille de distinction agronomique (1999) et Commandeur de l'Ordre du Mérite agronomique (2009). La Société d'entomologie du Québec l'a honoré avec le prix Léon Provancher (professionnel)

ture”, a multidisciplinary journal published in French in Paris. He organized symposia for the International Congress of Entomology in 1988, 2000, 2004, and 2008. Every year since 2000, he has taught a workshop on scientific writing in biology and medicine at the Université de Picardie Jules Verne.

Over the years, Charles’ work has been widely recognized. The City of Montreal made him “Founding Member of Montreal’s Insectarium”. He received the Prix Jean-Charles Magnan (1989 and 1994) from the Ordre des Agronomes du Québec (3300 members), the Médaille de distinction agronomique (1999), and Commandeur de l’Ordre du Mérite agronomique (2009). The Société d’entomologie du Québec, honoured him with the Prix Léon Provancher (professionnel) in 1991. He received a Service Award (2004) from the Entomological Society of Canada and Exceptional Service Awards (2000 and 2007) from the Entomological Society of America. Charles was awarded fellowships from the Programme of the Netherlands Ministry of Agriculture, Nature Management and Fisheries (1994) and the OECD (Paris) Scientific Exchange Program (1995). The city of Saint-Lambert presented him with the 2001 Lambertois Award for his scientific achievements. In 2002 he was, with Noubar Bostanian, co-recipient of an award by the “Association des vignerons du Québec”, in recognition of their contribution to vineyard protection.

Charles’ wide-ranging contributions to entomological research, the education of entomologists, pest management practitioners and the public, and his service to academia and entomological societies make him very qualified to receive the Gold Medal from the Entomological Society of Canada.

en 1991. Il a reçu un prix de service (2004) de la Société d’entomologie du Canada et le prix pour service exceptionnel (2000 et 2007) de la Société d’entomologie d’Amérique. Charles a reçu des subventions du programme du ministère néerlandais de l’agriculture, de la gestion de la nature et des pêches (1994) et le programme d’échange scientifique OCDE (Paris). La ville de Saint-Lambert lui a remis le prix Lambertois 2001 pour son accomplissement scientifique. En 2002, il a été, avec Noubar Bostanian, co-récipiendaire d’un prix de l’Association des vignerons du Québec en reconnaissance de leurs contributions à la protection des vignobles.

Les nombreuses contributions de Charles à la recherche entomologique, à l’éducation aux entomologistes, à la gestion des ravageurs pour les intervenants et le public, et ses services académiques et aux sociétés entomologiques font de lui un candidat extrêmement qualifié pour recevoir la médaille d’or de la Société d’entomologie du Canada.



Steve Marshall

Muscidifurax raptor (Pteromalidae), laying eggs into the puparium of a house fly.



Prix C. Gordon Hewitt

Dezene Huber

Le récipiendaire 2010 du prix C. Gordon Hewitt est Dr Dezene Huber. Dezene intègre les dernières opportunités de recherche en génomique avec un programme de terrain actif en écologie des insectes. La majorité de ses recherches utilise les scolytes comme modèle, en se concentrant sur des questions de défenses des arbres contre la colonisation des scolytes, de la détoxification par les insectes des composés de leurs hôtes, de la biologie de l'hivernation des scolytes et de la médiation du comportement des insectes via les indices olfactifs et gustatifs. Dezene promeut activement l'entomologie, et la lie de façon unique aux sciences appliquées, à l'écologie et à la biologie moléculaire par son champ incroyablement vaste d'expertise. Il est un joueur d'équipe qui sait aller de l'avant et offrir ses services lorsque requis, que ce soit pour des questions universitaires ou scientifiques.

Dezene a reçu son baccalauréat de l'Université de Calgary et son doctorat de l'Université Simon Fraser en 2001. Sa thèse de doctorat traitait des applications des volatiles non-hôtes en tant qu'outil potentiel de gestion pour les scolytes. Ces recherches innovatrices ont généré beaucoup de publicité pour l'entomologie au Canada et ont attiré plus d'attention sur une stratégie de gestion des ravageurs nouvelle pour plusieurs pays dans le monde. Elles ont aussi planté les bases afin de lancer de nombreux domaines de recherche sur la génétique et les mécanismes de défense des plantes et la détoxification par les insectes des composés défensifs des plantes hôtes. Collectivement, les publications de son doctorat ont été citées presque 200 fois et ont influencé la plupart du progrès qui a été fait dans le domaine. Après avoir complété son doctorat, il a mené des études postdoctorales à l'UBC avec Jörg Bohlmann, en travaillant avec des approches moléculaires afin de comprendre les défenses des plantes hôtes. Après 2 ans, il a travaillé à

C. Gordon Hewitt Award

Dezene Huber

The 2010 recipient of the C. Gordon Hewitt Award is Dr Dezene Huber. Dezene is at the forefront of integrating the latest opportunities in genomic research with an active field program in insect ecology. Much of his research uses bark beetles as a model system, focusing on questions of tree defenses to bark beetle colonization, insect detoxification of host compounds, overwintering biology of bark beetles, and the mediation of insect behaviour via olfactory and gustatory cues. Dezene actively promotes entomology, and uniquely links applied science, ecology and molecular biology through his extraordinary breadth of expertise. He is a team player who will step up to the plate and offer his services when needed whether it is in university or scientific affairs.

Dezene received his BSc from the University of Calgary and his PhD from Simon Fraser University in 2001. His doctoral dissertation investigated applications of non-host volatiles

as potential management tools for bark beetles. This pioneering research generated lots of publicity for entomology in Canada and attracted wider attention as a novel pest management strategy in numerous countries worldwide. It has also laid the groundwork for launching new areas of research on the genetics and mechanisms of plant defenses and insect detoxification of host defensive compounds. Collectively, publications from his PhD work have been cited nearly 200 times and have influenced much of the progress that has been made in this field. After completing his dissertation, he pursued postdoctoral studies at UBC with Jörg Bohlmann, working on molecular approaches to understand host defenses. After 2 years, he went to the University of California-Davis, where he worked with Steven Seybold on the role of P450 genes in detoxification of host tree compounds, again in bark beetle systems. Through these collaborations and in his current role, Dezene has expanded his skills to include insect biochemistry, molecular biology and genomics, without sacrificing activity in any of his skills honed earlier. This is an unusually broad expanse of expertise, the sign of a thoroughly modern entomologist, a genomics researcher who actually gets dirty. In 2005, Dezene returned to Canada to accept a Canada Research Chair position at the University of Northern British Columbia. In the last 5 years, he quickly established a well-funded and productive independent research program that continues to advance entomology in Canada. Much of his work since arriving at UNBC has focused on the mountain pine beetle, an insect that threatens jack pine forests in the boreal region that stretches across northern Canada. In his short career, Dezene's lab has, independently or as an integral part of collaborative teams, been awarded no less than \$12.8M in funding. A majority of that funding is from Genome British Columbia, Alberta, and Canada investment in two large, multi-institutional and multidisciplinary projects examining the interacting system genomes of mountain pine beetle, its associated fungi, and host trees. Dezene is the project leader at UNBC, with a

l'Université de Californie - Davis avec Steven Seybold sur le rôle des gènes P450 dans la détoxification des composés des arbres hôtes, toujours dans les systèmes des scolytes. À travers ces collaborations et son rôle actuel, Dezene a élargi ses talents afin d'inclure la biochimie des insectes, la biologie moléculaire et la génomique, sans pour autant sacrifier le travail dans ses talents précédemment acquis. Il s'agit d'un élargissement du champ d'expertise incroyablement grand, le signe d'un entomologiste profondément moderne, un chercheur en génomique qui ose se salir. En 2005, Dezene est retourné au Canada afin d'accepter une chaire de recherche à l'Université du Nord de Colombie-Britannique (UNBC). Dans les cinq dernières années, il a rapidement monté un programme de recherche bien financé et indépendant qui continue à faire avancer l'entomologie au Canada. La plupart de son travail depuis son arrivée à l'UNBC s'est concentré sur le dendroctone du pin ponderosa, un insecte qui menace les forêts de pins gris dans la région boréale qui s'étend dans le nord du Canada. Durant sa courte carrière, le labo de Dezene a, indépendamment ou en tant que partie intégrale d'une équipe de collaborateur, reçu pas moins de 12.8M\$ en financement. La majorité de ce financement provient d'un investissement de Genome British Columbia, Alberta et Canada, dans deux gros projets multidisciplinaires et multi-institutionnels qui explorent les génomes interactifs du système dendroctone du pin ponderosa, son champignon associé et ses arbres hôtes. Dezene est le chef du projet à l'UNBC avec une équipe de trois collègues scientifiques et de nombreux postdoctorants, étudiants gradués et personnel de soutien. Dezene a écrit ou co-écrit plus de 25 articles de journaux et chapitres de livres, 9 proceedings, 2 brevets et a fait plus de 60 présentations invitées ou soumises. Son indice *h* est déjà de 11 (Google Scholar 22 février 2010), indiquant que 11 de ses publications ont déjà été citées un minimum de 11 fois – un accomplissement remarquable pour un scientifique en début de carrière.

Dezene est un professeur et un mentor très

team of three scientist colleagues and multiple postdoctorals, graduate students, and support staff. Dezene has authored or co-authored more than 25 journal articles and book chapters, 9 proceedings, 2 patents, and has more than 60 invited and submitted presentations. His *h*-index is already 11 (Google Scholar 22 Feb 2010), indicating that 11 of his publications have already been cited a minimum of 11 times – a remarkable achievement for an early-career scientist.

Dezene is a very dedicated teacher and mentor. He has supervised or is currently supervising 5 graduate students and postdoctorals, and has served, or is serving, on 15 graduate supervisory committees. Moreover, he has employed and/or supervised 14 undergraduate students in research projects. This is in addition to delivery of no fewer than five courses at graduate and undergraduate levels, exclusive of independent study and special topics courses. Combined with his diverse outreach activities to elementary schools, judging science fairs, speaking engagements with the media or stakeholders such as seed-grower associations, his broad impact on entomology education and research in Canada continues to expand.

Dezene has a strong record of service at the department, university, provincial and national society levels. He has served on the Executive of the Entomological Society of British Columbia since 2007, and has served on the Entomological Society of Canada Science and Policy Education Committee since 2008. He is on the Scientific Program and Photography Committees, and the Student Program Subcommittee for the 2010 Entomological Society of Canada/Entomological Society of British Columbia Joint Annual Meeting.

Dezene is an outstanding young leader of entomology in Canada and a deserving recipient of the C. Gordon Hewitt Award presented by the Entomological Society of Canada.

dédié. Il a supervisé ou supervise actuellement 5 étudiant gradués et postdoctorants, et a servi, ou sert sur 15 comités de thèse. De plus, il a employé et/ou supervisé 14 étudiants de premier cycle dans des projets de recherche. Ceci en plus de donner pas moins de cinq cours de premier cycle et gradués, excluant les études indépendantes et les cours sur des sujets spéciaux. Combiné avec ses diverses activités dans les écoles primaires, les concours de sciences, les entretiens avec les médias et des intervenants tels que des associations de producteurs de semence, son impact sur l'éducation et la recherche en entomologie au Canada continu de prendre de l'ampleur.

Dezene a un fort dossier de service aux niveaux départemental, universitaire, provincial et national. Il a servi sur le conseil exécutif de la Société d'entomologie de Colombie-Britannique depuis 2007, et a servi sur le comité politique, scientifique et éducation de la Société d'entomologie du Canada depuis 2008. Il est sur les comités du programme scientifique et de la photographie et sur le sous-comité du programme étudiant pour la réunion conjointe annuelle de la Société d'entomologie du Canada et de la Société d'entomologie de la Colombie-Britannique de 2010.

Dezene est un incroyable jeune chercheur en entomologie au Canada et mérite d'être le récipiendaire du prix C. Gordon Hewitt présenté par la Société d'entomologie du Canada.



Atlantic Forestry Centre, Fredericton, through Jon Sweeney.

Frank Ernest Webb

1918-2010

unmanned “buzz bombs” being directed at British targets. It had been discovered that the most effective tactic was to flip the wing of the bomb with the wingtip of the plane, which caused the bomb to crash short of its target. Frank was discharged after the war in 1945 with the rank of Flying Officer.

He was a long time member of Royal Canadian Legion Branch # 4, the Canadian Air Force Association, and the Fredericton Garrison Club.

Frank took advantage of the support of the Department of Veterans’ Affairs to further his education and enrolled in Forestry at the University of New Brunswick. He graduated in 1949, having come second in a class that was unusually large because of the great number of veterans taking advantage of the DVA plan.

Frank worked for the Forest Biology Division of Agriculture Canada where he, like others, was encouraged to take graduate studies. He earned his PhD at the University of Michigan with a thesis titled “An ecological study of the larch casebearer, *Coleophora laricella* Hbn. (Lepidoptera: Coleophoridae)”.

Early in his career with the Forest Biology Division (which in 1960 became part of the Canadian Forestry Service), Frank was the senior applied researcher on spruce budworm, responsible for topics such as infestation and damage mapping and spray timing. In connection with the latter, I recall that he developed a spring phenology map for New Brunswick that made it possible to time control activities with insect and host development and thereby save a lot of travel, better spent elsewhere.

Frank became a research manager when he was appointed Director of the Winnipeg Forest Research Laboratory in 1960. Later, as Associate Director at the Fredericton Forest Research Laboratory, he was very effective in ensuring that projects which were approved had the resources available to effectively implement them. In 1965 he became Director of the Fredericton Laboratory. Next, he was transferred to the Canadian Forestry Service headquarters in Ottawa as Special Advisor for forest protection to Director-General, Malcolm L. Prebble.

The death of Frank E. Webb occurred at the Dr Everett Chalmers Hospital in Fredericton, New Brunswick, on Friday, 4 June 2010. He was born in North Battleford, Saskatchewan, the son of the late Ernest and Monica Webb. He was predeceased by his wife Beulah Johnson in 2002 and later by his second wife Edith MacDonald Webb.

Frank was a veteran of World War II. In 1938 Frank, who had yet to settle into a career, was visiting England, joined the Royal Air Force and was trained to be a fighter pilot. When war broke out 3 September 1939, he was ready to play his part. In 1941 he was posted in Debert, Nova Scotia, with the British Commonwealth Air Training Plan, where he was a Link Trainer Instructor. (The Link Trainer was a ground based flight simulator.) Later, he remustered to the Royal Canadian Air Force, where he saw further action as a fighter pilot. At one point he flew Typhoons, in which he attacked the

He completed his career in the Province of New Brunswick where he advised the New Brunswick Forest Service and Forest Protection Ltd., the Crown Corporation that did the aerial spraying. Indeed, he was always available and assisted even me by reviewing my manuscripts on impacts of forest spraying on aquatic invertebrates, having done some of the earliest work himself. Frank's work was not widely published, but nonetheless made a difference in how, now, and in the future, we manage forest insect pests.

Frank is survived by one son, Brian Webb of Montreal, his brother, Robert, of Saskatoon, his sister Mona Gilstrap, of Victoria, and one stepson, Duncan MacDonald of Fredericton.

Doug Eidt with help from other CFS retirees: Ed Kettela, Doug Embree, Murray Neilson, and Bill Varty.

Assistant Editor required for the *Bulletin*

The current Assistant Editor, Fred Beaulieu, has confirmed that he will step down from this position following publication of the December 2010 issue. The primary responsibilities of the Assistant Editor are to develop the layout of the *Bulletin* (using Adobe InDesign software) and, together with the editor, to proofread the document before publication. The position offers an ideal opportunity to become better acquainted with ESC members and contribute to the historical documentation of the Society's activities.

The ability to work in both French and English would be an asset. The Assistant Editor would be a trustee of the Society and a member of the Governing Board.

Normally, the position is held for a 3-year term. For more information, please contact Cedric Gillott (306-966-4401; cedric.gillott@usask.ca) or Fred Beaulieu (613-759-1789; frederic.beaulieu@agr.gc.ca). Persons should make their interest known to the Editor by 31 October 2010. Final selection will be made by an ad hoc committee convened by the ESC President.

Rédacteur adjoint recherché pour le *Bulletin*

Le rédacteur adjoint actuel, Fred Beaulieu, a confirmé qu'il quittera son poste suite à la publication du numéro de décembre 2010. Les responsabilités principales du rédacteur adjoint sont de développer la présentation du *Bulletin* (à l'aide du logiciel Adobe InDesign) et, de concert avec le rédacteur, de corriger les épreuves avant publication. Le poste offre une opportunité unique de rencontrer des membres de la SEC et de contribuer à la documentation historique des activités de la société.

La capacité à travailler en français et en anglais est un atout. Le rédacteur adjoint serait un fiduciaire de la société et un membre du conseil d'administration.

Le mandat pour ce poste est normalement de 3 ans. Pour plus d'informations, veuillez contacter Cedric Gillott (306-966-4401; cedric.gillott@usask.ca) ou Fred Beaulieu (613-759-1789; frederic.beaulieu@agr.gc.ca). Les personnes intéressées doivent se manifester au rédacteur d'ici le 31 octobre 2010. La sélection finale sera effectuée par un comité ad hoc nommé par le président de la SEC.

Entomologists at play / Entomologistes en coulisses

Silverlocks and the three 'Bs'

Cedric Gillott

A 45-year career as an entomologist brought its own rewards, not least being the long-term associations that I developed with like-minded professionals, through graduate student supervision, attendance at conferences, collaborative research projects, and such like. That said, there have been many occasions when studying termite caste formation, control of a range of prairie pests, the workings of the insect gut, even grasshopper sex life, left a void! This 'emptiness' was filled in various ways, but most notably by the three 'Bs' – ball games, bird breeding, and brewing!

Like numerous other lads growing up in England, if I had had my way I would have become a professional soccer player. Fortunately(?), I was never good enough to reach the level required, and after a series of twists and turns (and occasional reverses, such as being held back for a year at high school for poor academic performance, due to my fervour for The World Game), I entered the University of Nottingham which kindly bestowed upon me both undergraduate and PhD degrees. Happily, the effort required to achieve these goals did not interfere with playing soccer on the University's teams, which I did for some 5 years.

In 1965 my wife and I arrived in Canada where I took up a faculty position at the University of Saskatchewan, in Saskatoon. Within a few days, I had discovered that Saskatoon had



Three generations of soccer players. The author with younger son Neil and grandson Mathew playing in a 2008 'fun match'.

'Entomologists at Play' is intended as a new series in the Bulletin, bringing readers reports on what professional entomologists do in their leisure time. Whether you are a graduate student, mid-career scientist, or retiree, if you have interesting hobbies, cultural and/or athletic activities, we should love to hear about them. Please contact the editor if you would like to share your interests with us.

a thriving, albeit small, soccer community which allowed me to indulge my passion for some three more decades. This included representing Saskatchewan in inter-provincial competition and captaining the Saskatoon City team in the now-defunct Western Canada Soccer League. As well, I soon took up coaching, first with the University of Saskatchewan (1968-78) men's squad, then Provincial Boys Select teams (1981-1991), the Saskatchewan Canada games teams of 1977 and 1993, and a range of youth and adult club teams. I continued to play soccer into my early 50s. Fittingly, the name of my last team was 'Silver Foxes', the first word a tribute to a common feature of team members' hair (at least for those that had any), the second to the 'cunning' with which we (thought we) played the game!

In 1986, during a sabbatical leave in the Division of Entomology, CSIRO, Canberra, Australia, I was able to reconnect with another ball game, tennis, which I had played as a youth and occasionally at university, but had put on hold for about 20 years after our move to Canada. In Canberra, I discovered that hitting a small, yellow, furry ball, was an ideal antidote to hours spent looking down a microscope at the private parts of male Australian sheep blow flies. This enjoyment of the game has continued, practically uninterrupted, to the present time and I still play three or more times a week. I say 'practically uninterrupted' because occasionally entomological interference occurs. In late summer and early fall evenings, it is not unusual in Saskatoon for play to be temporarily suspended due to invasions of swarming mayflies, and migrating diving beetles and giant water bugs, attracted to the floodlights and falling on the courts!

The second passion, aviculture, also has an entomological connection, for it was a fellow graduate student that introduced me to the 'art and science' of breeding exotic birds in captivity. Initially, as apartment-dwelling students, my wife and I could hardly do more than dream about what might be. However, with the move to Saskatchewan and, specifically, to life on an acreage, our hobby was able to flourish. Initially, our aviary had 4 flights; the building of a new facility took this number to 25; and a few years later, a further extension took us to the present 37. We have always been especially interested in parrotlike birds, especially Australian and Asiatic species, and have had good success in breeding over 20 species of these under the 'rigorous' climatic conditions of the Canadian Prairies. Our breeding stock came from both



Cedric Gillott and Marilyn Mierau

Some examples of birds we have bred. Centre: citron-crested cockatoos. Clockwise from top right: Mollucan cockatoo chick, golden-mantled rosella, crimson rosella, superb parakeet.



What's your tippie?
(From left): Red lager,
brown ale, cider, oatmeal
stout, light ale, and Czech
pilsner.

within Canada and abroad (Germany, The Netherlands, and England). Equally, we have shipped birds Canada-wide, as well as to England.

In 1971, we began brewing beer (and, a little later, making wine), a response to a general dissatisfaction with the local 'plonk'. Initially, a limited range of beer kits (simply a can of hop-flavored malt extract with a packet of dry yeast stuck to the top) was available; in fact, we typically returned home with kits in our suitcases after visits to the UK where home-brewing had an earlier start than in Canada, hence a greater variety of styles was at hand. As we acquired expertise and equipment, our interest grew and we changed to 'all-grain' brewing as occurs in commercial breweries. Using various combinations and types of malted barley, selected hop varieties and water specifically designed for a particular beer style, it is possible to produce excellent replicas of the World's great beers. Over the years, we have made many wonderful styles, but our favorites are brown ales, stouts, pale ales, barley wine, Czech and German lagers, and various English bitters.

We also make cider, using locally grown apples and crab apples, and fruit/vegetable wines, notably gooseberry, rhubarb, chokecherry, plum, raspberry, and parsnip, the last having a superb, sherry-like flavor. On a cold mid-winter's day in Saskatchewan, there is a good deal of satisfaction in sitting down to a dinner made almost entirely from home-grown materials (yes, we are also keen gardeners and raise rabbits, chickens and turkeys!) liberally washed down with home-made beer or wine!

(From left): Blueberry
port, parsnip wine,
strawberry wine, goose-
berry sparkle, rhubarb
wine, chokecherry wine,
mead



Cedric Gillatt

60th Annual General and Governing Board Meetings

The Annual General Meeting of the Entomological Society of Canada will be held at the Coast Plaza Hotel, Vancouver, British Columbia on Tuesday, 2 November 2010 from 17:00 to 17:45. The Governing Board Meeting will be held at the same location on Saturday, 30 October 2010 from 08:30 to 17:00. Matters for consideration at either of the above meetings should be sent to Annabelle Firlej, Secretary of the ESC.

60^{ème} Assemblée générale annuelle et la réunion du conseil d'administration

L'assemblée générale annuelle de la Société d'entomologie du Canada aura lieu à l'Hôtel Coast Plaza, Vancouver, Colombie Britannique, le mardi 2 novembre 2010 de 17:00 à 17:45. La réunion du conseil d'administration aura lieu au même endroit le samedi 30 octobre 2010 de 08:30 à 17:00. Veuillez faire part à la secrétaire, Annabelle Firlej, de tout sujet pouvant faire l'objet de discussion lors de ces réunions.

Call for interest in the Editor-in-Chief position for *The Canadian Entomologist*

There will be an opening for the Editor-in-Chief position for *The Canadian Entomologist* as of October, 2011. The Editor-in-Chief of *The Canadian Entomologist* serves as one of the trustees of the Entomological Society of Canada (ESC) and is responsible for the scientific and editorial integrity of *The Canadian Entomologist*. The ESC executive is keen to hear from members who might be interested in this exciting and challenging position. For further questions regarding this position or for suggestions of potential candidates, please contact ESC President Maya Evenden (see inside back cover for contact information).

Appel d'intérêt pour le poste de rédacteur en chef pour *The Canadian Entomologist*

Il y aura une ouverture pour le poste de rédacteur en chef pour *The Canadian Entomologist* en octobre 2011. Le rédacteur en chef de *The Canadian Entomologist* fait partie des fiduciaires de la Société d'entomologie du Canada (SEC) et est responsable de l'intégrité scientifique et éditoriale de *The Canadian Entomologist*. Le comité exécutif de la SEC est prêt à entendre les membres qui pourraient être intéressés par ce poste excitant et plein de défis. Pour plus d'information concernant le poste ou pour des suggestions de candidats potentiels, veuillez contacter la présidente de la SEC, Maya Evenden (voir à l'intérieur de la couverture arrière pour ses coordonnées).

Entomological Society of Canada – Bert and John Carr Award

The Carr Award is named in honour of Bert and John Carr, who left a legacy of entomological knowledge resulting from the collection and taxonomy of several hundred thousand North American beetle specimens. This work began as a hobby but grew into a vocation after John retired from the oil patch. The Carrs were sought after by professional, amateur and student entomologists for their insights and knowledge in the field. When the Carrs were no longer able to do the field or office work required to further the collection, it was donated to the Canadian National Collections of Insects, Arachnids, and Nematodes in Ottawa. John and Bert were awarded the Norman Criddle Award in 1990 by the Entomological Society of Canada and the Frederick S. Carr Award in 2002 by the Entomological Society of Alberta for their contributions to the entomological community. This award has been made possible by the Carrs' desire to see an interest in science and nature carried through to the next generation.

The Bert and John Carr Award is a cash award in support of research activities by individuals who study insect faunistics, or the natural history and taxonomy of Canada's insect fauna. **Preference will be given to applications by amateurs, but applications 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 up to \$500; and (3) a current curriculum vitae.

The first Bert and John Carr Award will be made in 2011.

Le Prix Bert et John Carr de la Société d'entomologie du Canada

Le prix Carr est nommé en l'honneur de Bert et John Carr qui ont légué un héritage de connaissances entomologiques provenant de la collecte et de la taxonomie de plusieurs centaines de milliers de spécimens de coléoptères d'Amérique du nord. Ce travail a débuté en tant que loisir, mais s'est développé en une vocation suite à la retraite de John de l'industrie pétrolière. La famille Carr était recherchée par les professionnels, les amateurs et les étudiants en entomologie pour leurs connaissances et leur point de vue dans le domaine. Quand ils sont devenus incapables d'accomplir le travail de terrain et de bureau requis par la collection, elle a été offerte à la collection nationale canadienne d'insectes, arachnides et nématodes à Ottawa, en Ontario. John et Bert ont reçu le prix Norman Criddle de la Société d'entomologie du Canada en 1990 et le prix Frederick S. Carr par la Société d'entomologie de l'Alberta en 2002 pour leur contribution à la communauté entomologique. Ce prix voit le jour grâce au désir de Bert et John Carr de voir leur intérêt dans les sciences et la nature être transmis de génération en génération.

Le prix Bert et John Carr est un prix en argent permettant de supporter les activités de recherche d'individus étudiants la faunistique entomologique ou l'histoire naturelle et la taxonomie de la faune des insectes du Canada. La préférence sera donnée aux demandes d'amateurs, mais les candidatures d'étudiants et autres seront considérées. Les candidatures doivent contenir : (1) le nom et l'adresse du candidat ; (2) une description des activités de recherche à conduire, incluant un estimé des coûts jusqu'à 500.00\$; et (3) un curriculum vitae à jour.

Le premier prix Bert et John Carr sera disponible en 2011.



John and Bert Carr

Summary of items arising from the 8 June 2010 meeting of the Executive Council

Annabelle Firlej, Secretary

President

The President signed a contract with Agriculture and Agri-Food Canada (AAFC) and a copyright statement was written with the Publication Committee to permit the ESC website to host pdf's of Entomological Monographs published by AAFC.

The President contacted ESC members at the Universities of Calgary, British Columbia and Simon Fraser to encourage them to lobby their libraries to purchase the digital archives of *The Canadian Entomologist* and the *Memoirs*.

The President received consent from the SEQ that the 2013 JAM could be held in Guelph, Ontario, to celebrate the 150th anniversary of the ESO/ESC (the 2013 meeting was supposed to take place in Québec). The Executive was in favor of this project. Gary Umphrey forwarded to the President a proposal for this meeting and asked the President to obtain feedback from the ESC on the following issues: 1. Approval of the proposal and dates; 2. Discussion on profit sharing between ESC and ESO; and 3. Policy on advertising for the JAM.

Treasurer

In 2009 the Society had net revenue of \$1248 (compared to net revenue of more than \$30 000 for the year 2008). Total revenue for 2009 was \$205 753, and total expenditure amounted to \$220 988 (net revenue was generated by interest on investments). Overall, the Society is in a good financial situation with an expected increase in revenue from BioOne and the sale of digital back issues of *TCE* and *Memoirs*. The Treasurer doesn't foresee any significant deterioration in the financial situation of the Society in the near future. On 13 May 2010, the Society had 396 members compared to 414 as of 30 April 2009.

Headquarters Committee

At the last meeting, the Committee was charged with obtaining a quote for repairing the back porch roof (asphalt shingles too old) to avoid further damage. This remains an outstanding action item and needs to be addressed by the Committee. The President contacted two societies that eventually showed no interest in renting space in the Headquarters office.

Finance Committee

The Committee recommends no increase in subscription rates and the cost of reprints for *TCE* and the *Bulletin* for 2011.

Ad Hoc Business Plan Committee

At the previous meeting, the Committee was charged with evaluating the possibility of including paid notices on blank pages of *TCE* to obtain new revenue. This remains an outstanding action item and needs to be addressed by the Committee.

Scientific Editor

From October 2009 to May 2010, 78 manuscripts were received; 26 were rejected by the Editor-in-Chief, 17 have been accepted, 14 rejected by reviewers and 21 are under review. The number of reviewable manuscripts submitted in 2010 appears to be good (52) compared to the same period in 2008 (47) and 2009 (40). Dr Deepa Pureswaran has been appointed as a new associate editor. New wording to the Standing Rules to add a division editor was approved by the Board and should be presented by the Secretary to the membership at the AGM for approval. The EiC

will lose the use of his computer in summer 2010 and will buy a new laptop with the software he needs for his editorial duties using the EiC annual allocation for miscellaneous expenditures.

Concerning the proposal for a paid EiC, the Ad Hoc Business Plan Committee has concluded that this possibility should not be immediately dismissed; however, the current status of *TCE* (in terms of its impact factor) is perceived as being somewhat too low to justify this measure. Rather, effort should focus on making this position much less onerous than it currently is. The Committee brought some suggestions to reduce the workload of the EiC: 1. Let division editors do the bulk of the work – the EiC should not have to devote so much time to the review process; 2. Invest in an on-line submission/review system with letter templates and automatic transmission of reminders; 3. Let the NRC do the copy editing; and 4. Develop better reviewer databases.

R. Bennett provided brief rebuttals to the first three points and outlined the rationale for the current approach to *TCE* editorial practices. The President contacted a list of potential candidates for the next position of EiC and B. Roitberg is the most promising prospect. B. Roitberg is currently discussing with R. Bennett the amount of work and will get back soon to the President with his decision.

Web Site

JAM Programs from 2001 to 2009 (except 2005) are now posted on the website. All obituaries published in online issues of the Bulletin, 2001-present, are now available individually. Order forms for joining the ESC, membership renewal and the common names list are now operational. The AAFC monographs series available on the website are very large files and occasionally cause bandwidth problems. In arrangement with BlackSun, the Webmaster purchased an additional 50 GB of bandwidth per month at a cost of \$180.00 for a 6-month period. As the monographs have only recently been offered, the demand may diminish after a few months.

Web Content Committee

The Insect Common Names Committee should test the new Common Names database by entering false common names.

A new contract (\$1050) was given to Eric Barstad of Shadow Box Creative Media Ltd to design a JAM registration/payment/abstract submission page that would be hosted by the ESC and that could be recycled every year by the regional society organizing the JAM. As of 8 June 2010, both English and French versions had been completed and were ready for launching.

Publications Committee

At the last meeting, the Committee was charged with reviewing the Publication Committee guidelines, to develop conditions of use for downloading material on the website and to add the photo contest rules and images to the Committee Guidelines. These remain action items that need to be addressed by the committee.

Nominations Committee

Candidates for Second Vice President are Rose De Clerck-Floate and Dave Gillespie. Candidates for Director-at-Large are Brent Elliott, Dwayne Hegedus, and Chris Schmidt. Amendments to Bylaws permitting electronic elections will be presented by the Secretary at the AGM. The Chair is currently reviewing the Nomination Committee Guidelines.

Achievement Awards Committee

The Board approved addition of the Bert and John Carr Award to Standing Rules and procedure of attribution to Committee Guidelines. The change to the Standing Rules should be presented by the Secretary for vote at the AGM. The 2010 recipients of the Gold Medal and Hewitt Awards have been selected and approved by the Governing Board. The Gold Medal

recipient is Dr Charles Vincent and the Hewitt Award recipient is Dr Dezene Huber. The 2010 Criddle Award recipient is Dr Dennis St. John.

Bylaws, Rules and Regulations Committee

The Bylaws Committee has implemented substantial changes to the Standing Rules, and has assisted the Secretary in the creation of a ballot to modify existing by-laws with the intent of permitting electronic balloting where appropriate (existing by-laws require mail-in ballots for many items).

Membership Committee

Following the recent death of T. Shore, the President appointed M. Erlandson as the Chair. At the last meeting, the Committee, in collaboration with the JAM organizer, was charged with implementing an ESC membership desk during registration at each annual meeting to receive membership fees and to recruit new ESC members. This remains an outstanding action item and needs to be addressed by the committee.

Science Policy and Education Committee

The Committee received a response signed by L.A. Lavell, Executive Correspondence Officer, to the letter addressed to the Prime Minister of Canada asking for a reversal of the decision to discontinue the NRC Monograph Publishing Program. In addition to the customary reply, Mr Lavell forwarded a copy to Tony Clement, Minister of Industry. The Chair forwarded this letter to Paul B. Cavers, Editor, NRC Monograph Publishing Program.

Following the controversy over the general email that went out alerting members to the possibility of lending their “scientific voice” to address climate change, members of the Committee gave their opinion on this issue. Although there was some disagreement among members about the appropriateness of this campaign, all agreed about the importance of treating similar issues on a case-by-case basis and on maintaining an open dialogue at the Science Policy and Education Committee and ESC Board level, so that appropriate decisions are made each time a similar issue comes up. No action has been taken yet regarding the production of a page on the ESC website outlining the importance of insects in biodiversity but the Chair will consult the Committee on this issue.

Student Affairs Committee

The Chair has posted notices online (ESC website) and in print (*ESC Bulletin*) regarding the need to fill these positions on the Board. The Committee is still working on updating the Directory of Entomology Education (will be done by October). The Chair contacted the President with respect to several concerns she has regarding the Graduate Student Symposium (GSS) at JAM 2010. The two main concerns were: 1. The timing required by the local organizing committee was too early for the GSS to receive and evaluate abstracts from graduate students wishing to participate in the symposium; and 2. The local organizing committee initially decided not to provide support for the GSS prizes. After discussions with A. Thielman following this decision, however, the local organizing committee was successful in obtaining some funds from the ESC for symposia and has decided to contribute \$600 towards the GSS.

The new chair of the Annual Meeting Committee (Brent Elliott) will work with A. Thielman to develop guidelines for running the GSS in the future.

Marketing Committee Report

The Marketing Committee has welcomed Maxence Salomen on board. Letters to encourage members to contact their libraries to promote purchase of the back issue archives for *TCE* and *Memoirs* have resulted in 20 new subscriptions, with 4 more anticipated by the end of the fis-

cal year in the spring. The Committee has collected materials from the ESC main office for examination and review of a new brochure/poster.

Annual Meeting Committee Report

Following the recent death of T. Shore, the President has appointed B. Elliott as the Chair. The Chair is currently reviewing the Annual Meeting Committee Guidelines.

Biological Survey of Canada Report

The first volume of the grasslands project entitled ‘Arthropods of Canadian Grasslands. Volume 1: Ecology and Interactions in Grassland Habitats’, edited by J.D. Shorthouse and K.D. Floate, has been completed. The BSC will organize its annual symposium at the 2010 ESC/ESBC JAM around the theme of grasslands. The 8th BioBlitz organized by the BSC will be held in Sudbury, Ontario, from 14-20 June 2010, with a special mention to the United Nations International Year of Biodiversity. The ESC Office Manager is now providing accounting services for the BSC under the supervision of the BSC Treasurer, P. Bouchard. The BSC is currently negotiating a new Memorandum of Understanding with the Canadian Museum of Nature. For the period 1 April 2010 to 31 March 2011, the CMN will continue to provide office space and 24 days of services of an administrative assistant. There is a good chance that this fiscal year may be the last for which any support from the CMN is received, and contingency plans for the transition of the role of the Secretariat are being discussed by the Board of Directors.

Affiliated Entomological Societies

Updates were received from three regional Societies. There were no requests for action.

Other Business

Bioquip

Bioquip was interested in selling some books (*Memoirs, Insects of Yukon...*) and the company is currently in communication with the office manager who has sent it many copies of these books for the cost of shipment.

Visitor from Vancouver Convention Centre at October Board Meeting

Staff of the Convention Centre contacted the President about the possibility of the 2016 International Congress of Entomology being held in Vancouver and would like to address the ESC Board at the 30 October Meeting. The President contacted Murray Isman who was recently involved with a bid to hold the ICE in San Diego. Dr Isman mentioned that he might be interested in helping with this as long as there were enough entomologists in western Canada who were “on board”. The Executive will need to assess the level of involvement expected from the ESC in organizing and hosting the ICE.

Visitor (Steve Marshall, from CJAI) at October board meeting

Steve Marshall, current EiC of the Canadian Journal of Arthropod Identification (CJAI), is looking for a new EiC as well as a technical editor. He would like to team up with the ESC, which could become the publisher of CJAI. The Executive Council is in favour of inviting Steve to speak to the Board at its October Meeting in Vancouver.

Commemorative stamps for 150th anniversary of ESC/ESO

This was viewed as a good suggestion by the Executive, and the Executive should ask Canada Post to issue commemorative stamps. Suggestions about stamp design should be collected from members during the upcoming JAM (set up a suggestion box).

Error in the bylaw amendment document mailed out to members

There was an error in the mail-out regarding the amendment to By-law XX.1. The error occurred in both English and French versions. All other by-law amendments were correct. The Society needs to send out an additional ballot with the correct wording to describe the change required in By-law XX.1.

Taylor & Francis offer to publish TCE

P. Bouchard provided an account of the discussions he has had with representatives of Taylor & Francis that wishes to publish *TCE*. Here is a summary of the background information and highlights of what T&F offers: 1. Current contract with NRC ends in Sept. 2010 – May be a good opportunity to move to T&F or sign a short term contract with NRC; 2. NRC Press is a printer; ESC is the publisher (T&F would become the publisher but ESC would retain copyright); 3. The Canadian Phytopathological Society has successfully moved from NRC Press to T&F and is happy with the change (has a 7-year contract); NRC provided its kind collaboration for the transfer; 4. A contract with T&F would include use of its online manuscript submission/tracking system (“Scholar One”); 5. 40% of total revenues would be returned to the ESC; 6. T&F promises an increase in *TCE* impact factor; 7. T&F would provide copy editing; 8. *TCE* Editorial Board would retain its full freedom; 9. Four issues/year – 650 pages/year; and 10. Expected revenues will be ca. \$110 000/year.

P. Fields moved that an Ad hoc Committee be created to examine the publication of *TCE* outside of NRC. P. Mason seconded. This Committee could include P. Fields, P. Bouchard, B. Roitberg, R. Bennett, P. de Groot, and S. Brooks. Suggestions for a Committee Chair include K. Floate, D. Gillespie and G. Boivin.

HST on membership charges for Ontario and British Columbia residents as of 1 July 2010

British Columbia and Ontario will switch to HST on 1 July 2010. This will have implications for various fees paid by members from these two provinces, and the membership form needs to be reviewed to include the HST that will be charged to these members.

On the importance of insects

“I always felt that insects are the general rule, and everything else is a special case.” — Paul Bystrak

“One tiny insect may be enough to destroy a country.” — from Ancient Arabic

Overall financial assessment of the Entomological Society of Canada (values in dollars)

	2009	2008	2007	2006	2005
Balance beginning of year	847930	815203	808180	825764	803884
Total revenue	205753	198626	224214	202892	206712
Total expenditure	220988	181442	236679	240865	204015
Excess revenue (expenditure) for year	(15235)	17184	(12465)	(37973)	2697
Gain (loss) on sale of investment	NA	NA	NA	NA	(178)
Interest on investment	16483	17654	17460	18869	14964
Net revenue (expenditure) for year	1248	34838	4995	(19104)	17483
Net revenue (expenditure) – Endowment fund	(3176)	10	754	(639)	529
Net revenue (expenditure) – Scholarship fund	11695	6859	11814	10642	11994
Expenses / taxes / depreciation of ESC Head Office	(12918)	(8980)	(10540)	(8483)	(8126)
Balance end of year	844779	847930	815203	808180	825764

General account

Negative values are in parentheses
 For more details, please see <http://www.esc-sec.ca/> and click on Members' area

Diseases and Pests of Greenhouse Vegetable Crops

Request for Information, Photographs and Illustrations

An Editorial Committee, consisting of Bruce Gossen, Mary Ruth McDonald and Ron Howard, is spearheading a major revision to the book *Diseases and Pests of Vegetable Crops in Canada*, published in 1994. The revision will be in the form of several separate volumes based on crop groupings. The first volume being prepared is called *Diseases and Pests of Greenhouse Vegetable Crops* and is scheduled to be published in 2011. The editorial team involved in writing this new volume comprises the plant pathologists and entomologists whose names and email addresses appear below.

Senior Editor

Ron Howard (ron.howard@gov.ab.ca)

Section Editors*

Cucumber. Gillian Ferguson (gillian.ferguson@ontario.ca) and Cynthia Scott-Dupree (cscottdu@uoguelph.ca)

Lettuce. Ron Howard (ron.howard@gov.ab.ca) and Tracy Hueppelsheuser (tracy.hueppelsheuser@gov.bc.ca)

Pepper. Ray Cerkaskas (ray.cerkaskas@agr.gc.ca) and Ken Fry (kfry@oldscollge.ca)

Tomato. Siva Sabaratnam (siva.sabaratnam@gov.bc.ca) and Les Shipp (les.shipp@agr.gc.ca)

Specialty Vegetables. Ray Cerkaskas (ray.cerkaskas@agr.gc.ca) and Tracy Hueppelsheuser (tracy.hueppelsheuser@gov.bc.ca)

*The first name for each section is the plant pathology editor and the second is the entomology editor.

The section editors will be contacting some Canadian Phytopathological Society members, as well as those of the Entomological Society of Canada, to specifically request written information, photographs and illustrations for use in preparing the book. However, this does not preclude other individuals from submitting such material, and the editorial team would like to invite all CPS/ESC members to consider contributing references, articles, high quality photographs, illustrations of disease/pest life cycles, and the like for their use. If you have something to contribute now or in the near future, please contact the appropriate section editor to let them know what you may be able to provide. The section editors have prepared draft tables of contents for their chapters, which they can provide to individuals who want to know more about the proposed book.

Annual meeting of the Entomological Society of Québec (ESQ)

11 and 12 November 2010,
Trois-Rivières, Québec

Meeting theme: Climatic changes: will the truth be revealed by insects?

Congrès annuel de la Société d'entomologie du Québec (SEQ)

Les 11 et 12 novembre 2010,
À Trois-Rivières, Québec

Thème du congrès: Changements climatiques: la vérité sortira-t-elle des insectes?

New Books

Principles and Procedures for Rearing High Quality Insects. J.C. Schneider (Ed.). 2009. Mississippi State University.

The Insect Rearing Center in the Department of Entomology & Plant Pathology at Mississippi State University is proud to announce the publication of this new book, written by the instructors for the highly successful, annual insect rearing workshop of the same name. The book covers all of the major topics necessary for developing a successful insect rearing program or for improving an existing program:

Insectary Design and Construction, Insectary Management, Insectary Health and Safety, Genetics, Environmental Biology, Nutrition, Feeding, and Artificial Diets, Microbial Contamination, Entomopathogens, Quality Control, and Production Systems.

The book contains 370 pages, illustrated by 214 graphs/tables and images (24 in full color), and a 1300-entry index. A laminated hard cover, coated paper stock, and a sewn binding make a durable and easy to use volume. For more information and to purchase the book online, visit the Insect Rearing Center website <http://www.irc.entomology.msstate.edu>.

Review of adventive species of Coleoptera (Insecta) recorded from eastern Canada. Klimaszewsky, J., Langor, D., Majka, C.G., Bouchard, P., Bousquet, Y., LeSage, L., Smetana, A., Sylvestre, P., Pelletier, G., Davies, A., DesRochers, P., Goulet, H., Webster, R.P., Sweeney, J.D. 2010. Pensoft Series Faunistica #94. ISBN: 9789546425522, 170x245 | 20 colour plates, 189 figures, 49 tables. In English. Hdb, 272 pp. EUR 55.00. <http://pensoft.net/newreleases/14824.htm>

The first comprehensive account of adventive species of Coleoptera recorded from Atlantic Canada and Quebec is provided. Currently, 510 adventive species in 290 genera and 48 families of beetles are presented. Of these, 419 species are recorded from Quebec, 283 from New Brunswick, 357 from Nova Scotia, 198 from Prince Edward Island, and 195 species from insular Newfoundland and Labrador combined. The most adventive species are in the families Staphylinidae (120), Curculionidae (85), Carabidae (45) and Chrysomelidae (43). The adventive species constitute approximately 14.6% of the total species in 48 beetle families with adventive species in the region. The 48 beetle families are reviewed; their diagnostic features and a list of species with distribution data and dates of introduction are provided in tables under each family. A key to the families is also included. Forty-five images of morphological structures and 144 exemplary adventive species are provided, with each family of Coleoptera represented by at least one image.

Overwintering and Cold-Hardiness of Ants in the Northeast of Asia. Berman, D.I., Alfimov, A.V., Zhigul'skaya, Z.A., Leirikh, N.A. 2010. 175x245 | numerous colour photos and graphs, 22 tables. In English. Hdb, 294 pp. EUR 50.00. <http://pensoft.net/newreleases/14825.htm>

This monograph attempts to determine how land insects (several abundant species of ants taken as an example) adapt to winter survival in northeastern Russia, the region with the lowest winter temperatures in the Northern Hemisphere. Data on the geographical, landscape and habitat distribution of species, the abundance of nests and families, location and organization of nests and population structure are given. Winter thermal regimes under conditions of extreme continental climate in differently positioned nests are described in detail. The influence of permafrost on the vital functions and wintering conditions of ants is examined. Characteristics of the cold-hardiness of larvae and adults (supercooling points and long-term tolerable temperature), seasonal changes in these parameters and concentrations of substances enabling cold-hardiness are given. The summarizing part of the book contains analysis of the relations between spatial

distribution and cold-hardiness in ants in general, as well as of the adaptive strategies of these insects, which are intolerant of tissue freezing, that enable them to exist under extremely harsh climatic conditions. The book is addressed not only to entomologists working in biological and agricultural research institutes, but also to all ecologists interested in the strategies of animal adaptations to extreme conditions and cold in particular. The book will also be of use to students of biology and of local lore.

Biological Survey of Canada Newsletter

The Biological Survey of Canada's Newsletter, Volume 29, Issue 1 (Spring 2010) is available at http://www.biology.ualberta.ca/bsc/news29_1/bscspring2010.pdf

2009 Pest Management Research Report

The 2009 Pest Management Research Report is now available and can be viewed at the following link: http://www.cps-scp.ca/pest_management-reports.shtml

PhD Student Position Available

The Canadian Facility for Ecoinformatics Research (CFER) in Biology at the University of Ottawa is seeking an outstanding PhD candidate for a new research project linking macroecology and global change biology. Current research at CFER explores a broad range of questions at the interface of these disciplines with additional focus on endangered species conservation and ecological applications of remote sensing. CFER currently hosts four MSc and two PhD students, and three postdoctoral researchers. CFER research productivity is high and we are extremely well equipped (see <http://www.macroecology.ca> for details).

The student will join the **Canada Global Change Transect (CGCT)** project. The CGCT is an ambitious, national-scale, interdisciplinary project that seeks to: 1) directly observe the distribution of a large number of butterfly species through multiple regional transects to test whether species' ranges are shifting predictably in response to observed environmental changes; and 2) test and calibrate model predictions of butterfly species' ranges with transect observations to allow reliable predictions of future impacts of global change. Depending on the interest and quality of the applicant, the project offers considerable flexibility in designing a research program that investigates areas of personal interest within the overall framework of the project.

Applicants should have demonstrated excellence in ecology and conservation biology and be capable of advanced statistical analysis. Experience in spatial ecology, entomology, and in the use of geographic information systems (GIS) or geomatics software is an asset. Proficiency in spoken and written English is essential. Selection of a student will be based on academic achievements, reference letters and previous research experience. Students with their own scholarship support can expect additional support through CGCT and will be competitive for teaching assistantships. Non-scholarship applicants will receive the standard University of Ottawa stipend: \$18 500/year.

The position is available starting the Winter Semester (January 2011) and no later than May 2011.

Interested candidates should e-mail (1) their transcript, (2) curriculum vitae, (3) a letter describing their research experience and interests (2 page limit), (4) recent TOEFL scores (if appropriate), and (5) the names and contact information of three references to Dr Jeremy Kerr, 30 Marie Curie, Department of Biology, University of Ottawa, Ottawa, ON, Canada K1N 6N5. Office phone: (613)562-5800, ext. 4577; E-mail: jkerr@uottawa.ca.

Position available: Assistant/Associate Professor in Plant Protection Entomology, University of Manitoba (Academic Vacancy - 11753)

The Department of Entomology, Faculty of Agricultural and Food Sciences, University of Manitoba invites applications for a tenure track position at the rank of Assistant or Associate Professor, commencing 1 January 2011, or as soon as possible thereafter, to teach and conduct research in Plant Protection Entomology. The position will be weighted at approximately 45% teaching, 40% research and 15% service/outreach. Qualified applicants must possess: a PhD in entomology or a closely related field, a record of independent research as demonstrated by scholarly publications, the potential for developing a strong externally funded research program in one or more areas of plant protection entomology, demonstrated ability or potential for excellence in undergraduate and graduate teaching, and excellent oral and written communication skills. The successful candidate will be required to teach introductory courses in the area of economic entomology and/or ecology, participate in development of a distance education course in applied entomology, and participate in advanced level teaching in the Department's programs. Teaching assignments will balance the expertise of the successful candidate with the needs of the Department. The successful candidate will be expected to lead an active research program, including supervision of graduate students in the area of plant protection entomology, with emphasis on management of economically-significant insect pests of crops on the Canadian Prairies. The successful candidate will be expected to secure external research funding for their research. The successful candidate will be expected to participate in the service functions of the Department, including involvement in extension activities related to plant protection entomology.

The Department of Entomology (<http://www.umanitoba.ca/afs/entomology/>) is part of the Faculty of Agricultural and Food Sciences, which is committed to an interdisciplinary systems-approach to both teaching and research. The Department of Entomology is a small unit; collegiality, as well as cooperative and effective interactions with colleagues, support staff and students, are essential to its effective operation. Development of good working relationships with other agricultural scientists and entomologists at the University of Manitoba and elsewhere, and with extension entomologists in government and industry is expected. Rank and salary will be commensurate with experience and qualifications.

The University is located in Winnipeg, the largest city in the province of Manitoba. The city has a rich cultural environment including symphony, opera, dance, theatre, and ethnic festivals. The region provides ample opportunities for outdoor recreation in all seasons. Learn more about Winnipeg at <http://www.winnipeg.ca>

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, Aboriginal peoples and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Applications, including a curriculum vitae, short statement of teaching philosophy and research interests and the names and addresses (including phone, fax and e-mail addresses) of three referees should be sent to Dr N. J. Holliday, Chair, Search Committee, Department of Entomology, Faculty of Agricultural and Food Sciences, University of Manitoba, Winnipeg, Manitoba, R3T 2N2 Canada. Telephone: (204) 474-6020; FAX: (204) 474-7628; e-mail: Neil_Holliday@Umanitoba.ca. Specify position number 11753 in the application. Closing date for applications is 15 October 2010. The review of applications will continue until the position is filled. Application materials, including letters of reference, will be handled in accordance with the Freedom of Information and Protection of Privacy Act (Manitoba). Please note that curricula vitae may be provided to participating members of the search process.

For more information on this opportunity, please visit www.umanitoba.ca/employment.

Teaching an old dog a new trick (continued from page 184)

But now I have a confession to make! As my experience has grown over the last 6 months, I have become increasingly interested in how exactly each *Bulletin* issue is put together by Fred. A recent upgrade of the software that Fred uses, from Adobe InDesign Version CS2 to Version CS5, partly provoked by a few incompatibility problems between CS2 and the version that the printing company was using, was the catalyst. I now have CS5 installed and, by the time you read this, Fred will have given me a lesson or two on the rudiments of *Bulletin* production. Indeed, it is even slightly possible that parts of this issue may have been cobbled together by my own arthritic hands! Who says you can't teach an old dog a new trick?

Finally, just to clarify a point from Maya's Up front, it is not actually necessary to be President of Canada's national entomological society to discuss insect invasions, talk about insect neurophysiology, and offer advice on how to deal with 'nasties'! Even mere mortals such as myself can enjoy these privileges! Just a few weeks ago, with help from a colleague, Bob Randell, I found myself in the role of Sherlock Holmes (or was it Miss Marple?) assisting a member of the local constabulary with his own insect problem. His problem originated (literally) from a mat under a small bamboo table on his patio, in the form of a long, gradually widening column of tiny maggots! Our 'sleuthing' revealed that the maggots were larvae of a drain fly (moth fly, psychodid), probably migrating to a pupation site. Very likely, they had enjoyed feasting on microbes in the mat which since its purchase had remained constantly damp due to the frequent rains that had fallen over Saskatoon during June. Fascinating, yet just another example of the way in which the creatures that we study can present new challenges from the most unexpected sources.

Apprendre à un vieux singe à faire la grimace

(suite de la page 184)

parties de ce numéro auront été assemblées par mes propres mains arthritiques! Qui a dit qu'on n'apprenait pas à un vieux singe à faire la grimace?

Finalement, simplement pour clarifier un point dans l'Avant-propos de Maya, il n'est pas réellement nécessaire d'être président de la société nationale d'entomologie du Canada pour discuter des invasions d'insectes, faire de la neurophysiologie des insectes et donner des conseils pour gérer les saletés! Même de simples mortels tels que moi peuvent apprécier ces privilèges! Il y a tout juste quelques semaines, avec l'aide d'un collègue, Bob Randell, je me suis retrouvé dans le rôle de Sherlock Holmes (ou était-ce Miss Marple?) en assistant un membre de la police locale avec son propre problème d'insecte. Son problème a pris ses racines (littéralement) dans un matelas sous une petite table en bambou sur sa terrasse, sous la forme d'une longue colonne s'élargissant graduellement, formée d'asticots! Notre enquête a révélé que les asticots étaient des larves de moucheron (psychodidés), probablement en migration vers un site de pupaison. Ils avaient fort probablement apprécié un festin de microbes sur le matelas puisque, depuis son acquisition, il avait été constamment trempé à cause des pluies fréquentes qui sont tombées sur Saskatoon depuis juin. Il est fascinant de constater, encore une fois, la façon dont les créatures que nous étudions peuvent nous amener des nouveaux défis de sources des plus inattendues.

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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.

Bulletin of the Entomological Society of Canada

Editor: Cedric Gillott
Assistant Editor: Fred Beaulieu

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

Published by the
Entomological Society of Canada
393 Winston Ave.
Ottawa, Ontario, Canada K2A 1Y8
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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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ISSN: 0071-0741
Customer Account No. 3975533
Publications Mail Agreement No. 40033986
Printed in Canada
Contents copyrighted 2010 by the Entomological Society of Canada

Submission deadline for the next issue: 31 October 2010



Bulletin de la Société d'entomologie du Canada

Rédacteur : Cedric Gillott
Rédacteur adjoint : Fred Beaulieu

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

Publié par la
Société d'entomologie du Canada
393 Winston Ave.
Ottawa, Ontario, Canada K2A 1Y8
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La Société d'entomologie du Canada a été établie en 1863 principalement pour promouvoir l'étude et l'avancement de l'entomologie. Elle soutient l'entomologie par l'entremise de publications, de réunions et d'autres activités.

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ISSN: 0071-0741
Numéro de client: 3975533
Numéro de convention: 40033986
Imprimé au Canada
Droits d'auteur 2010 Société d'entomologie du Canada

Date de tombée pour le prochain numéro: 31 octobre 2010



Teaching an old dog a new trick

As I mentioned in my first version of the editor's column, an initial hesitancy in taking on the job of *Bulletin* Editor stemmed from my complete ignorance of desk-top publishing. However, having been reassured that this facet of preparing the *Bulletin* lay with the Assistant Editor (currently Fred Beaulieu), I accepted the invitation.

Since my initial e-mail requesting submissions for the January 2010 issue, I have been extremely gratified with the responses and spirit of co-operation from contributors, both regular and those that send me one-off items. Indeed, the 'success rate' for solicitation has been such that, with the authors' agreement, we have had to defer publication of a couple of items to a later issue due to lack of space. Though it takes time from an already busy schedule to prepare an article, I trust that contributors feel that it is a worthwhile activity (or as Maya notes "it's good for the soul"), to be enjoyed by many readers including non-members of the Society.

(continued on page 181)

Apprendre à un vieux singe à faire la grimace

Tel que mentionné dans ma première version de la colonne éditoriale, une hésitation initiale à prendre en charge les tâches de rédacteur en chef du *Bulletin* a émergé de mon ignorance complète de la préparation informatique de la publication. Cependant, après avoir été rassuré que cet aspect de préparation du *Bulletin* était géré par le rédacteur adjoint (présentement Fred Beaulieu), j'ai accepté l'invitation.

Depuis mon courriel initial réclamant des soumissions pour le numéro de janvier 2010, j'ai été extrêmement gâté avec des réponses et l'esprit de coopération des contributeurs, autant les réguliers que ceux qui m'ont envoyé des textes hors colonnes. En effet, le taux de succès de la sollicitation a été tel que, avec l'accord des auteurs, nous avons été forcé de reporté la publication de certains textes à un numéro ultérieur par manque d'espace. Bien que ce soit coûteux en temps de préparer un article, j'ai confiance que les contributeurs se sentent gratifiés (ou comme Maya l'a écrit, « c'est bon pour l'esprit ») d'être lus par autant de lecteurs, incluant des non-membres de la Société.

J'ai par contre une confession à faire! Alors que mon expérience s'est accrue durant les 6 derniers mois, je suis devenu de plus en plus intéressé à voir comment exactement chaque *Bulletin* est assemblé par Fred. Une récente mise à jour du logiciel que Fred utilise, Adobe InDesign Version CS2 vers la Version CS5, en partie provoquée par quelques problèmes d'incompatibilité entre CS2 et la version utilisée par la compagnie d'impression, en a été le catalyseur. J'ai maintenant CS5 sur mon ordinateur, et au moment où vous lirez ces lignes, Fred m'aura donné quelques leçons sur les rudiments de production du *Bulletin*. En effet, il est même possible que certaines

(suite à la page 181)

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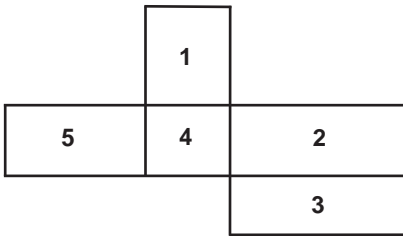
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Publications Mail Agreement No. 40033986
 Date of issue: September 2010

ISSN: 0071-0741

Images

On the spine: *Cyphocleonus achates* (Fahraeus) (Coleoptera: Curculionidae) is a root feeding weevil introduced into Canada for the biological control of non-native species of knapweed (*Centaurea* spp.). Photo: B. Van Hezewijk

Beneath the title: *Alucita adriendenisi* (Landry & Landry) (Lepidoptera: Alucitidae), found across much of Canada, was named in honour of Adrien Denis who assisted Carl Atwood, the father of Margaret Atwood, in his entomological work and left a significant impression on the Atwood family. Photo: J. Dombroskie

1 Caterpillar of the spurge hawk-moth, *Hyles euphorbiae* (L.) (Lepidoptera: Sphingidae), on leafy spurge (*Euphorbia esula* L.), Spruce Woods Provincial Park, Manitoba. Photo: A. Leroux

2 Mating flesh flies (Diptera: Sarcophagidae), Gatineau Park, Quebec. Photo: M. Larrivée

3 *Piagetiella peralis* (Leidy) (Phthiraptera: Menoponidae), a parasite found in the pouch of American white pelican (*Pelecanus erythrorhynchus*). Photo: T. Galloway

4 Collecting parasitoids of the cabbage seedpod weevil, *Ceutorhynchus obstrictus* (Marsham) (Coleoptera: Curculionidae), in Swiss canola (*Brassica* sp.) fields. Photo: T. Haye

5 A highly ornamented soil mite from native grasslands in Alberta (Prostigmata: Stigmaeidae). Photo: H. Proctor

Back cover: A round-headed apple tree borer, *Saperda candida* (Fabricius) (Coleoptera: Cerambycidae) near Peterborough, Ontario. Individuals of this species vary in the predominance of light (as in this specimen) or dark stripes. Photo: J. Fitzsimmons

Français à l'intérieur de la couverture avant