

# Bulletin

Entomological Society of Canada  
Société d'entomologie du Canada

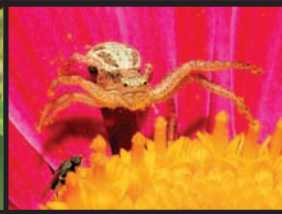
Volume 40  
Number / numéro 3



September / septembre 2008

Published quarterly by the  
Entomological Society of Canada

Publication trimestrielle par la  
Société d'entomologie du Canada



---

Up front / Avant-propos .....	101
Moth balls / Boules à mites .....	103
Tacit Entomological Field Practices / Pratiques entomologiques tacites .....	105
Joint annual meeting / Congrès conjoint .....	111
Meeting announcements / Réunions futures .....	112
Dear Buggy / Cher Bibitte.....	113
The student wing / L'aile étudiante .....	116
Lab profile / Profil de labo .....	118
Book Reviews / Critiques de livres .....	122
In Memory / En souvenir de .....	130
Mating in the crab spider / Accouplement chez l'araignée crabe <i>Misumena vatia</i> .....	144
Biological Survey of Canada / Commission biologique du Canada .....	147
Entomologists at work / Entomologistes au boulot .....	151
Officers of affiliated societies / Dirigeants des sociétés associées .....	154
The buzz / Bourdonnements .....	156
Governing board / Conseil d'administration .....	inside back cover

---

## Images

**Sur le dos :** *Silusa californica* Bernhauer (Staphylinidae, Aleocharinae), décrit originellement à Pasadena, Californie, possède une aire de répartition assez courante, transcontinentale au Canada avec une extension vers le sud dans les Rocheuses. Photo : K. Bolte

**Sous le titre :** *Aphodius distinctus* (Müller), une espèce européenne de bousier (Scarabaeidae) commune dans toute l'Amérique du Nord. Photo : H. Goulet & C. Boudreault

1. Élevé sur des cônes à graines du thuya géant, *Thuja plicata* Don ex D. Don (Cupressaceae), ce mâle d'*Eurytoma* sp. (Eurytomidae) est ou bien un parasitoïde associé à la cécidomyie des cônes du thuya géant, *Mayetiola thujae* (Hedlin) (Cecidomyiidae), ou alors un spermatophage. Photo : D. Manastyrski

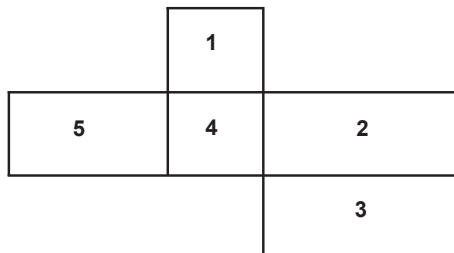
2. *Spilomyia alcimus* (Syrphidae) sur le ptéleá *Ptelea trifoliata*. Wheatley, comté d'Essex, Ontario, 2 juin, 2007. Photo : J. Lucier

3. Bob Lamb en train de faire des récoltes au parc national Riding Mountain, Manitoba, durant le Bioblitz de la Commission biologique du Canada en 2007. Photo : P. MacKay

4. Stade immature de *Xysticus* sp. (Thomisidae) sur une marguerite dans un jardin au pied du mont Bowman, Colombie-Britannique, juillet 2005. Photo : J. Bovee

5. Galles rouge vif de la génération agamique de *Trigonaspis quercusforticorne* (Walsh) (Cynipidae) sur des nouvelles ramilles du chêne à gros fruits (*Quercus macrocarpa*) à Souris, MB. Photo : S. Digweed

**Plat inférieur :** Abeille découpeuse, probablement *Megachile* sp. (Megachilidae), à Pender Island, Colombie-Britannique, juillet 2007. Photo : B. Roitberg





**I**t is hard to believe, but I am already approaching the end of my term as your President. Time flies when you're having fun, or when you're really busy. This has been an eventful year. Thanks to the hard work of Vice-President Paul Fields and his ad-hoc committee some key decisions were made regarding the near future of *The Canadian Entomologist*. We have elected to maintain ownership of the journal and to have all back issues digitized. In addition, we have joined BioOne which will promote electronic access to the journal to their numerous clients. Paul will be providing more details on this subject at the upcoming annual meeting in Ottawa.

We have also been fortunate to staff two key positions with the society with excellent candidates. Rick West will conclude his lengthy term as Secretary after the AGM, but will continue to serve the Society as webmaster. If you haven't visited the website lately you are in for a pleasant surprise as Rick revamped the site this spring. I would like to thank Véronique Martel for helping Rick with the French translation of this (as well as many other translations). Replacing Rick as secretary is Annabelle Firlej. Annabelle was introduced to you in last month's Up Front

**Q**uoi que ce soit difficile à croire, j'approche déjà de la fin de mon terme en tant que président. Le temps file quand on s'amuse, ou quand on est occupé. Cette année a été bien remplie. Grâce au bon travail du vice-président, Paul Fields, et de son comité ad-hoc, plusieurs décisions clés ont été prises concernant l'avenir proche de *The Canadian Entomologist*. Nous avons décidé de conserver la propriété de la revue et de rendre l'accès aux archives informatisé. De plus, nous avons joint BioOne qui va promouvoir l'accès électronique à la revue à leurs nombreux clients. Paul va fournir plus de détails sur le sujet lors de la prochaine réunion annuelle à Ottawa.

Nous avons également été chanceux de trouver d'excellents candidats pour combler deux postes au sein de la société. Rick West terminera son long terme de secrétaire après l'assemblée générale annuelle, mais continuera de travailler au sein de la Société en temps que webmestre. Si vous n'avez pas visité le site Internet récemment, vous aurez une agréable surprise puisque Rick a rajeuni le site ce printemps. Je voudrais remercier Véronique Martel qui a aidé Rick avec la traduction française du site (ainsi que pour de nombreuses autres traductions). Rick est remplacé au poste de secrétaire par Annabelle Firlej. Annabelle vous a été présentée lors de l'Avant-propos du mois passé par le vice-président Paul Fields. La barre sera haute, mais heureusement, Rick restera disponible afin de la conseiller dans la phase d'apprentissage de son emploi.

Je voudrais également remercier Robb Bennett et son équipe éditoriale pour leur travail incroyable avec *The Canadian Entomologist* durant la dernière année. Au moment d'écrire ces lignes, la revue a désespérément besoin de soumissions, alors veuillez s'il-vous-plaît considérer d'encourager votre revue en soumettant des articles à *The Canadian Entomologist*. Nous sommes dans un environnement qui change très rapidement au niveau

article by Vice-President Paul Fields. She will have big shoes to fill, but fortunately Rick will still be around to provide advice to her in the learning phase of her job.

I would also like to thank Robb Bennett and his editorial staff for doing yeoman's duty with *The Canadian Entomologist* over the past year. At the time of writing, the journal is desperately short of submissions, so please consider supporting your journal by submitting papers to *The Canadian Entomologist*. We are in a rapidly changing environment with respect to publications and are trying hard to adapt *TCE* to remain competitive and well-respected.

Kevin Floate and Fred Beaulieu are doing an excellent job producing the *Bulletin*. Kevin has also been of great help to me in answering a variety of odd "bug" questions that come my way through having my name on the ESC webpage.

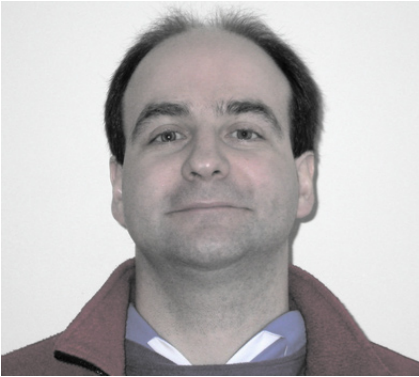
I hope to see as many of you as possible at the upcoming Joint Annual Meeting in Ottawa October 18-22, 2008 at the Crowne Plaza. John Huber and his team are putting together an excellent meeting. I realize it is getting tougher, particularly in some government departments, to get permission to attend conferences. Sometimes it helps your cause if you are attending one of the meetings associated with the conference. If any of you think it would help your chances of attending to have me write a letter to your employer please let me know. The annual meeting is a focal point for this organization and your attendance is mutually beneficial.

des publications, et nous essayons ardemment d'adapter *TCE* afin de le maintenir compétitif et respecté.

Kevin Floate et Fred Beaulieu font un excellent travail en produisant le *Bulletin*. Kevin a également été d'une grande aide en m'aidant à répondre à une variété de questions qui me sont parvenues du fait que mon nom apparaît sur le site de la SEC.

J'espère vous voir le plus nombreux possible à la prochaine réunion annuelle conjointe à Ottawa, du 18 au 22 octobre 2008 au Crowne Plaza. John Huber et son équipe mettent sur pied une excellente réunion. Je réalise qu'il devient difficile, particulièrement dans certains départements gouvernementaux, d'obtenir des permissions afin d'assister à des conférences. Il est parfois plus facile d'en obtenir si vous assistez à une des réunions associées à la conférence. Si certains d'entres vous pensent qu'une lettre rédigée par moi-même à votre employeur puisse aider votre cause, veuillez me le faire savoir. La réunion annuelle est un point crucial pour cette organisation et votre participation est mutuellement bénéfique.





## Ento-Communication

There has been much written about communication in insects, from the subtleties of pheromone changes in bark beetles to the musical stridulation of Orthoptera. When it comes to studies of insect communication, I must confess, I'm no Karl von Frisch, that is to say, most of the subjects of my entomological interest ceased any form of meaningful communication about the time the pin entered their mesonotum (if not a long, long time before). So allow me to summarize the subject in blindingly simple terms: Insects communicate. OK, perhaps I could modify my summary by stating MOST insects communicate but I think that's getting just a little bit too specific.

The aspect of communication in the field of entomology that I would like to discuss does not occur between insects, but rather between entomologists. I hear all of you shouting with glee: Yay! Let's have an exhilarating discussion on entomological terminology! Now

---

*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: [bennetta@agr.gc.ca](mailto:bennetta@agr.gc.ca), telephone: (613) 759-1900.*

before you get your hopes up that I will be discussing the correct application of the term 'sternaulus' in Hymenoptera (and believe me, I could go on and on about this), just stop. Take a deep breath. OK, let me be more precise. The kind of communication I am going to discuss does not occur between all entomologists (you won't find these definitions in any glossary of entomology). Indeed, it only occurs between a few of us who for some strange reason began using entomological terms as synonyms for everyday words. How has this happened? Apart from the obvious answer that some of us have been inhaling naphthalene for WAY too long, I think it happens in every field, especially those with large vocabularies of specialized terms. What follows are just a few of the words and definitions that I am aware of that fall into the category of Ento-slang. Note: some of the following subject matter may not be suitable for a larval audience. Imago's discretion is advised.

## A (Very) Concise Lexicon of Ento-Slang

- aedeagus** (interj.): goodbye, see you later.  
**calliphorid's breakfast** (adj.): dead; obsolete.  
**culicimorphous** (adj.): pestilent; bothersome – especially used in relation to sounds. *The lecturer's high-pitched voice became more and more culicimorphous as the seminar continued.*  
**drosophilous** (adj.): removed from nature; no longer applicable to real life. *Your hypothesis, however well-formulated, is stunningly drosophilous.*  
**emerald ash borer phenomenon** (n.): The annoying circumstance in which a less temperate country lends its pestilent, invasive species to its more temperate neighbour.  
**grylloblattidish** (adj.): rare; hard to find or collect. *Glimpses of his intelligence were grylloblattidish at best.*



**gyrinusly** (adv.): haphazardly; without direction; round and round in circles. *If you keep driving so gyrinusly, you're going to end up calliphorid's breakfast (q.v.)!*

**Karner blue phenomenon** (n.): In conservation biology, the annoying circumstance in which a more temperate country almost always loses its endangered species to extinction before its less temperate neighbour.

**leper** (n.): one who collects Lepidoptera as a hobby.

**Malpighian tubules** (n.): What can result when one sneezes heavily while eating spaghetti.

**mymaridesque** (adj.): extremely small; practically imaginary; almost not worth considering.

**ommatidially challenged** (adj.): blind; narrow-minded. *If you think that's a leafbeetle, you must be ommatidially challenged!*

**pentatomidous** (adj.): foul smelling; stinky. *After five days in the bush, I was smelling particularly pentatomidous.*

**royal jelly** (n.): in trouble. *You've really got us into the royal jelly this time.*

**tentorial arms** (n.): supposedly accidental, but actually deliberate movements made by young men towards their young female friends in dimly lit movie theatres. *He seemed like a real gentleman until the lights went down, but then his tentorial arms came out...*

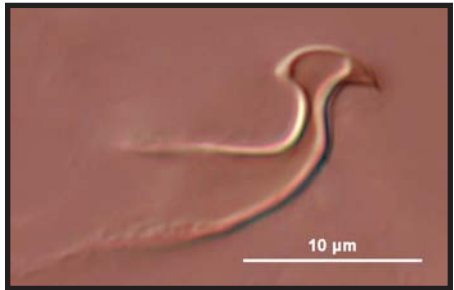
**weta** (adj.): considerate; thoughtful. *That's very weta of you.*

Until next issue, Moth Balls offers you a hearty aedeagus!



Steve Marshall

The Two-spotted Stink Bug (Pentatomidae: *Perillus bioculatus*)



Fred Beaulieu

The mymaridesque aedeagus of a spider mite (Tetranychidae: *Tetranychus* sp.)



## Tacit Entomological Field Practices

by Ronald Silvers

I want to begin my remarks by posing the presence of a naive collector of insects who, engaged in field research, attempts to find specimens in their appropriate habitats. I refer to such a person as naive insofar as he or she would have no background in entomology and would be new to the environment in which insects are intended to be collected.

---

*Ronald Silvers is Professor Emeritus of the University of Toronto. Utilizing phenomenology and hermeneutics he focused his sociological research and teaching in the area of the social organization of knowledge issuing out of perception. When he attended Peter Kevan's and Rob Roughley's Arctic and Boreal Entomology Course in Churchill, Manitoba in 2003, his experiences at that time led to the writing of this paper which he presented to that group. He has published extensively in arts and media and been formally recognized for his graduate teaching innovations.*

The purpose of posing the presence of the naive collector is to allow us to uncover the taken-for-granted practices that knowledgeable entomological collectors use in their everyday activities. [I refer to 'taken-for-granted practices' as posited in the human studies areas of ethnomethodology and phenomenology which I will discuss later.]

At this point I want to set the stage for my examination of taken-for-granted practices of field research by describing a discovery of a whirligig beetle at the docks in Churchill.

*Moe and Rob had already obtained a few Gyrinus specimens and were moving water and assorted materials that lay around the dock in order to locate others. I watched and realized that I had not noticed what they saw as they scooped up specimens. Rob mentioned that this beetle drops down suddenly from the surface of the water. I looked on the surface and below to try to discover what they observed, but without success. Several minutes passed and then I noticed an insect zigzagging along the top of the water. Mentioning this movement to Rob, he confirmed that this movement was a trait of the beetle they were looking for and that indeed, the shifting trajectory is associated with its name as the "whirligig beetle".*

I looked up the name, "whirligig beetle" in Richard White's *A Field Guide to the Beetles of North America* and found its family name Gyrinidae together with its own name *Gyrinus*. There on page 101 was an image of not only the structure of the whirligig, but drawings and a written description of its movement. "*Whirligig beetles are also known as waltzing beetles or scuttle bugs because the adults rapidly whirl and gyrate on the film of the water surface for support.*" Additional information in this section of the Guide described: how the whirligig are active in the daytime, and sometimes on hot dry evenings; they are found



Arctic & Boreal Entomology Course

Rob Roughley and students of the Arctic and Boreal Entomology course collecting aquatic insects for further study.

near the shore. They are skillful divers, look silvery underwater, fly well, are scavengers on animals and plant material, etc. The Guide went on to outline how to catch whirligigs with an aquatic net. Geographical areas of the United States were identified as to where *Gyrinus* could be found, and even the size of the water that serves as a habitat.

I describe Moe and Rob's collecting, my spotting of the whirligig, and the information contained in Richard White's Guide in order to raise the issue of what we need to know and what we need to do to become capable of collecting an insect. To collect an insect we indeed have to be able to perceptually locate it within our field of vision. I state this truism in order to underscore the problem of what is initially necessary to become a field researcher. While this appears to be immediately obvious, what is necessary to bring about this perception remains absent in texts about collecting insects.

Now I want to emphasize that while providing information about insect habit and habitat is helpful to the novice, these do not constitute sufficient knowledge for actually finding insects. So, in this case, while White's book is

very rich in providing information about the whirligig's habits and habitat, it does not provide a basis for actually discovering them.

Actually, as I looked through the White's Guide, I realized that most of his descriptions are not as complete and informative as the whirligig section, inasmuch as his write-ups of other types of beetles contain few descriptions of their movements and speed. And even when movement and speed are described, they yet create further questions for the novice. For example, we learn that adult *Eucinetid* beetles can jump, but for the uninitiated, the question would be "how high do they jump and in what direction"? I do not mean to be facetious in posing such a query, for my immediate information request, as a novice is, WHERE AND HOW DO I LOOK IN ORDER TO SEE THE INSECT?

### Preparing ourselves for observation

Perhaps the question we should be asking is not what information we need to have in order to commence collecting, but rather how can we prepare ourselves for the field. Since having information about the habitat and habits of



insects is insufficient for actually discovering them on one's own, what do we need to do to notice them? There is something more that we need to have, something that the seasoned entomological collector possesses, but, curiously, this is not included in field guides and texts about collecting.

I am referring to the tacit knowledge the collector acquires over time. This is an embodied knowledge that is developed in the field. I use the term "tacit knowledge" as formulated by Michael Polanyi (1966). Polanyi points out that we not only have explicit knowledge, but a type of knowing that is recognized in the phrase, "we know more that we can say". For example, it has been pointed out that we can identify a person's face among millions of other faces, but we cannot tell how we recognize it. The way we come to such knowledge, and so much of what we rely upon within our daily experience and within science itself, is from personal experience and observation. Our field guides and our classroom teachers' lectures offer us information, but to bridge the gap between text and classroom discourse on the one hand, and the meaning and significance of such information on the other hand, we must enter into the realm of practical experience.

We can add an additional step in this process of how we come to know what we know. Polanyi differentiates between focal and tacit knowledge. Knowledge about an object or phenomenon that is in focus is Focal Knowledge: this type of knowledge is readily supplied in the field guides and textbooks. Tacit knowledge is used as a tool to handle what is in focus. The naive field observer tries to discover the tacit knowledge surrounding the focal knowledge of an insect.

As a social scientist, it is obvious that I cannot use a questionnaire or interview schedule to obtain tacit knowledge: the "more than we can say" provision eliminates this possibility. It is only through engaging in field research, that is, in attempting to carry out entomological field observations, that the naive observer can experientially discover common, everyday knowledge, of collecting. It is only by observ-

ing the behavior of other field researchers and my own field practices that I may be able to eventually notice insects within my vision and come to understand how tacit knowledge may be gained.

There are two approaches in human studies that can be employed: ethnomethodology and phenomenology. Ethnomethodology is not a method of research. It refers to people's methods of everyday, mundane practices. These are practices that would be tacit, but nevertheless crucial in our normal activities, such as turn taking in conversation. Ethnomethodologists (within the social science of Sociology) conduct their research by audio and video recording people's mundane experiences in order to uncover the way in which they conduct their activities. Phenomenology also examines normal routines of life, but does so in terms of examining not only taken-for-granted practices of subjects, but also, taken-for-granted practices of themselves as researchers. The questions posed by phenomenologists are: what practices of understanding do the subjects employ; what practices of understanding do I employ? To uncover of interpretive practices of subject and researcher, retrospective accounts and self-reflection is applied. In this paper, I have featured myself as both subject (the naive field observer) and researcher (the interpreter of field notes).

To return to the discussion of what was learned at the docks where Moe and Rob were collecting what was it that led to my first discovery of the whirligig? Actually, I had suddenly noticed a zigzag movement upon the water, even before I realized that the movement was that of an insect. More striking is the fact that I had not noticed any movement before spotting the zigzag pattern. Yes, the patterns were there and the insects were there, but I had failed to visually apprehend them. So we can conclude that the experience of "not seeing" is actually a difference between seeing and being aware of what we see. In other words, the insects were not absent to my sight, but absent to my awareness of their presence. With this realization in mind, the question then

becomes: what tacit knowledge do I require to be aware of the insects' presence?

The question introduces a paradox for its answer. To acquire tacit knowledge the naive field observer must gain understanding experientially, but does not know the type of experience that is necessary to become aware enough to discover what is within his/her midst. How do we acquire in the field what we need but do not know? What must we do in the field in order to eventually come upon the way the insect can be noticed?

### Search image

Peter introduced me to the term, search image. I found the concept search image to be present in entomology and ornithology. The term refers to a particularity within a vast array of an environment that is associated with prey; it is a feature that stands out against the background of the totality of the environment that is before us and apprehended by our physical senses. Birds may change their selection of insects for feeding when their normal selection becomes unavailable by developing a "search image" for a new prey. Similar to birds, we develop search images for new particular subjects within our environments when one needs to do so.

The underlying significance of how the search image works is that the "predator" [here for our case the entomological collector] does not take in the immediate environment as a whole, but through his or her senses highlights a particular feature (the prey) against the background of all that is left.

As I reflect back upon my own introduction to the bug sites that we visited during our field excursions, I realize that although in most cases I could not find insects that were within my midst, I did employ search images that resulted in discovering other features of the sites. During the first days in the field, I continually found bone fragments, particularly skull bones at a number of places. Later I began to find mushrooms. In both cases, the featured "find" was repeated within short periods of time. They seemed surprisingly plentiful

for these things. Both animal bone fragments and the mushrooms appeared very interesting and each had a beauty to it that I found to be claiming. In the first few days, walking in the bog, along the bluffs, or in the boreal forest particulars that stood out, although these were not the objects that I wanted to find.

What can we say when we realize that seemingly irrelevant material to the task at hand (here, collecting insects) is discovered and collected? We can note two things. First, that we do indeed enter a new environment with previously used search images that become operative. Second, that the search images that are applied are not intentional. These arise from unknown and internal necessities of our past.

That is to say, we do select from an environment that is new to us, although what we select may not be appropriate for the intended activities at hand. What is instructive here is that to discover insects I needed to suspend earlier search images in order to permit new ones to emerge.

The second feature about the novice's previously developed search images is that they are unintentional. I did not look for bones and mushrooms, and, in fact, I was surprised to find them. Reflectively, I can say that search images that we possess from other settings and activities are immediately brought to a new setting and become a part of our perception even when we intended to carry out other activities. Indeed, when we bring old search images to a new activity they interfere with our immediate interests: here the discovery and collecting of insects.

### Sensitizing and concentrating observation

It was only at the end of the first week and beginning of the second of our field excursions that I began to glimpse how a new search image is acquired.

*At the rock ponds I observed the preparation of laying traps in the water. My attention moved to the pond outline and then to the reflections of stones in the*



Steve Marshall

Water striders feed on a drowned bee.

*water. And then I noticed what Rob was to identify for me as water striders. They skim across the water gracefully, and move continuously, except when they bang into each other. I watched them for about half an hour. After following their movements, I noticed that they have what appeared to be somewhat flat backs that are grayish compared to the rest of their body. At times they come up and walk on the rocks. Mainly however, they remain in the water. Once I noticed them at the first pond, they seemed plentiful and continuously present at the other ponds.*

What is noticeable here is that there is some kind of overlap between discovering the whirligig and the water strider. Somehow, the initial acquisition of a search image for the beetle at the dock offered me an opportunity to develop a search image for the latter, that being a trajectory that involves shifting directions, i.e., a perceptual attention to a type of movement. Attention was limited to movement, rather than say color or size. The characteristic of the movements I saw was, in some ways, similar. We may say that there is a sensitizing of perception so that features of

a search image that applies to one insect may be extended and adopted for another.

But there was a further discovery that points to a concentration of attention and awareness once a search image is established. This occurred later at the rock pond.

*I watched the water striders at different ponds without intent or focused interest. After some time passed, I noticed that each of their four feet each made slight dimples on the water surface, which indicated to me that their weight was strong enough to create a depression and yet these flies were light enough not to break the surface of the water and fall through.*

Somehow, the discovery of the whirligig on a previous day permitted me to notice water striders at the rock ponds. But further to that, there was a concentration of attention upon the way the insect is in contact with its habitat, which here was the surface of the water.

There are other instances in my observations when I found that noticeable qualities of flora and fauna offered sensitizing developments for becoming aware of properties. At the bluffs I noticed red berries set against lichen, grass,

and other flora. And then for the first time, I discovered purple lichen. Seeing it, I realized that I had been previously unaware of this colour of lichen in the Churchill area on previous trips to various sites. But once seeing the purple lichen and with it still in view, I began to notice various insects crawling on the rocks and along the earth.

I would like to suggest that for observing insects there is a progressive gradient of sensitization, moving from one insect or plant to another, whereby qualities salient in one become a spring-board for noticing qualities in other plants and insects.

### Sharing a common world

From my reflections and interpretations of field observations, it appears that we share much with insects and birds in the employment of search images. Indeed, one of the major findings of my work here in Churchill is recognizing that discovery in collecting relies on non-cognitive dimensions of perception. From an ocular standpoint, we actually “see” insects even when we are unaware of their presence. I would suggest that the novice sees all that is present for the seasoned field entomologist even though, as a novice, he or she is unaware of the insects in his or her midst. It is only through small steps of that we come to discover what is before us. From my observations and interpretations, I cautiously propose that the following conditions are necessary to become visually aware of what is before us in entomological field research: 1) suspending search images that are inappropriate for entomological field research; 2) concentrating on a micro area of the environment; 3) suspending an intention to find the insect; 3) allowing ones attention to settle; 4) reflectively, becoming aware of how developing search images are at play.

### Relating field based research to the lectures

My discussion has been about how we come to notice insects in the field. It a process of

moving from entering the field as a naive observer who virtually sees no insects to an initiate who begins to discover what others are collecting.

There is yet another stage, a stage beyond the initiate that develops in order for the observer to become proficient in entomological field investigation. I learned about the possibility of this phase only after combining an understanding of Peter’s and Rob’s lectures to discussions in the field itself, namely a discussion between Peter and Michael at the Palsas that I experienced a shift in my relationship to the natural environment immediately around me.

What this revealed to me is that it was only in learning about the history of the region, the nature of the area’s flora, the previous and current climatic conditions, and the structure and behaviour of insects in the immediate physical context of the environment itself that *I was able to form an overall understanding of how insects and environments are interrelated together in a holistic manner.*

Again, I wish to emphasize that the information about the region and insects were not what allowed a shift, but an understanding that was permitted from a sense of my own presence within the natural world immediately surrounding me.

I was now able to appreciate not only being able to discover insects within my midst, but perhaps, effectively search for insects that were not yet part of my search images.

### References

- Polany, M. 1966. *The Tacit Dimension*, Routledge & Kegan Paul, Lt., London.
- White, R.E. 1983. *A Field Guide to the Beetles of North America*, New York, Houghton Mifflin Company

# Joint annual meeting - Final announcement!

## Joint Annual Meeting ESC/ESO 2008, Ottawa

### Réunion annuelle conjointe de la SEC/SEO 2008, Ottawa

This is the final printed reminder to all who are interested in attending the 2008 Joint Annual Meeting of the Entomological Societies of Ontario and Canada at the Crowne Plaza hotel, Ottawa, 19-22 October, 2008.

We look forward to seeing you in October.

Voici l'annonce finale pour tous ceux qui voudraient assister à la réunion annuelle conjointe des Sociétés entomologiques du Canada et de l'Ontario à l'hôtel Crowne Paza, Ottawa, le 19-22 octobre, 2008.

Nous espérons bien vous voir en octobre.

Sincerely / Sincèrement,

*John Huber*



### Biology and Biological Control of Established Invasive Plants in Canada

**18 October, Saturday - Brookfield Conference Room #1**

**Crowne Plaza Hotel, Ottawa - start at 8:00 AM**

This symposium is being held at the same site and one day before the start of the Joint Meeting of the Entomological Societies of Canada and Ontario (<http://www.canacoll.org/JAM2008/>). It is a research symposium. However, the talks will be targeted to a broad group interested in operational level programs. We are hopeful that research, field and policy people will attend and that links can be made between new research partners to improve the management of invasive plants.

The symposium will begin with introductory talks on: 1) aspects that make plants invasive in Canada, and 2) the background for invasive plant biocontrol in Canada, detailing some of the biocontrol success stories. Subsequent presentations will focus on four invasive plant species: garlic mustard (*Alliaria*), swallowworts (*Vincetoxicum*), knotweeds (*Fallopia*) and reed (*Phragmites*). Aspects of their invasion biology and ecology will be discussed, followed by updates on their respective biocontrol programs. The selection of these four species represents biocontrol programs at different stages of development.

Currently, there is no attendance fee. Pending attendance levels, however, alternative meeting room arrangements may be required. In this event, a small fee to cover room rental costs may be charged. For planning purposes, please send an email to Rob Bouchier ([bouchierR@agr.gc.ca](mailto:bouchierR@agr.gc.ca)) if you hope to attend.

For additional information, please contact Rob Bouchier ([bouchierR@agr.gc.ca](mailto:bouchierR@agr.gc.ca); 403-317-2298) or Sandy Smith ([s.smith.a@utoronto.ca](mailto:s.smith.a@utoronto.ca)). Additional information on the symposium is posted on the internet at [http://www.canacoll.org/JAM2008/html/inv\\_plants.html](http://www.canacoll.org/JAM2008/html/inv_plants.html).



### **Biology and Biological Control of Established Invasive Plants in Canada**

Ottawa, Ontario, 18 October 2008

### **Joint Meeting of the Entomological Society of Canada and the Entomological Society of Ontario**

Ottawa, Ontario, 19-22 October 2008

<http://www.canacoll.org/JAM2008/>

### **Joint Meeting of the Western Forum on Pest Management, Western Committee on Crop Pests & Western Committee on Plant Disease**

Lloydminster, Alberta/Saskatchewan, 22-24 October 2008

[http://www.westernforum.org/WFPM\\_meetings.htm](http://www.westernforum.org/WFPM_meetings.htm)

### **Annual Meeting of the Entomological Society of Alberta**

Edmonton, Alberta, 6-8 November 2008

<http://www.biology.ualberta.ca/courses.hp/esa/meet2008.htm>

### **Annual Meeting of the Entomological Society of America**

Reno, Nevada, 16-19 November 2008

<http://www.entsoc.org>

### **4<sup>th</sup> Biennial Conference of the International Biogeography Society**

Mérida, México, 8-12 January 2009

<http://www.biogeography.org/html/Meetings/index.html>

### **3<sup>rd</sup> International Symposium on Biological Control of Arthropods**

Christchurch, New Zealand, 8-13 February 2009

<http://www.isbca09.com/>

### **6<sup>th</sup> International IPM Symposium, 'Transcending Boundaries'**

Portland, Oregon, 24-26 March 2009

<http://www.ipmcenters.org/ipmsymposium09>

### **93<sup>rd</sup> Annual Meeting of the Pacific Branch, Entomological Society of America**

San Diego, California, 28 March - 1 April 2009

### **Joint Meeting of the Entomological Society of Canada and the Entomological Society of Manitoba**

Winnipeg, Manitoba, 18-21 October 2009





Dear Buggy,

**I**m in my last year of undergraduate and have decided grad school is for me. Since I'm writing to you its safe to assume I'm interested in entomology, but I'm clueless about how to go about finding a project, a school and a supervisor. Any advice?

Signed 'Clueless in Corner Brook'

Ah grad school, the great snooze button of life. I'm going to assume that you've mulled over the decision to enroll in graduate school, considered your options carefully, weighed the pros and cons and have thought up a way to explain to your parents and loved ones why, after four years of university, you want to go back for MORE school. I'll leave that topic for another day.

---

Chris MacQuarrie is a Postdoctoral Fellow with the Canadian Forest Service in Edmonton, Alberta, where he studies the ecology and population dynamics of invasive species.

Contact Chris with your questions or suggestions for future columns of 'Dear Buggy' (e-mail: [cjkmacquarrie@gmail.com](mailto:cjkmacquarrie@gmail.com), tel: (780) 435-7362), or post them to the ESC's student Facebook page at <https://www.facebook.com/group.php?gid=13552445022>

There is probably no 'right' way to go about finding a place to do a graduate degree. But consider this a chance to apply those research skills you've been developing to a real world problem: finding you a spot in grad school.

Start by asking yourself what kinds of scientific questions and types of research you are interested in; these may be as broad and general or specific and focused as you like. Are you interested in pest management? Biodiversity? Ecological processes? Do you harbour a fascination for the fauna of a particular region? What entomological questions get your blood flowing? Write these down.

Now ask yourself what is your goal in attending grad school. Do you want to be a professor or government researcher? Improve your odds of getting a technical job? Work for a NGO? Go to med school? Or is it pure intellectual curiosity? A hard and fast answer to this question isn't necessary, but it's a good idea to have a good reason as to why you are willing to commit your life to the questions you identified earlier.

With your list of questions and your goals in mind hit the internet and find out which scientists are actually doing the kind of research you're interested in. Depending on your questions, you may find a ton of potential supervisors, or just one who happens to work in your current university. Take note of the kinds of research this professor does and take the time to read a few of their recent papers. This will give you a feel for their current work and how they approach their field. With this information draft a letter of inquiry introducing yourself to your potential supervisor. I'd make this a short and sweet affair. Introduce yourself, outline your interests, explain why you selected them, and inquire if they are interested in taking on a new grad student (i.e., YOU!). At this point (if you should be so lucky) it might be a good idea to mention if you hold a scholarship, or would qualify for specific grants (again more research might be necessary here). Hopefully you receive a positive response, and if so that's great, congratulations!

Now that you have someone interested in you as a potential student your job isn't quite done. Remember, grad school will mean working under the supervision of one or possibly two or three supervisors for a good part of the next few years. Your success, and their's, will hinge on your working relationship. It's in your interest (and your potential supervisor's) to make sure that you are a good fit. If possible try and schedule a visit to their lab. If that's not logistically feasible ask (politely!) for a list of current and past graduate students who would be OK with you contacting them. When you speak with these students try to get a feel for how your supervisor runs their lab and see if you fit in with the lab culture.

So CICB I hope that doesn't seem like too much work! I also hope I haven't scared you off the thought of grad school. It might take a little bit of work to find a spot and to make sure you'll fit in, but a little bit of research at the start will provide you with a good head start in grad school. After that it's just three or four more years of low pay, long hours and Kraft dinner till you earn your degree – Good luck and Enjoy! -----

Now I can already hear some of you out there saying "... but Buggy, that's not how I got my grad school position." My advice to CICB is one of many potential ways to secure a spot in grad school. Here are some other suggestions;

**Subscribe to electronic mailing lists:** Open studentships are frequently posted to lists such as Entomo-L, Ecolog-L and Taxacom. These postings are typically looking for students to fill funded positions in specific research projects. Be prepared to supply a CV or resume, transcripts and a list of references.

**Get a job:** OK, that's probably easier to say than it is to do. Try and find a position on a field crew, as a summer student, interning or volunteering in a lab. This exposes you to research and researchers and if you're lucky your job might become your project. This is also a good route if your grades are less than 'stellar'. This is also a great way to secure those all important references.

**Attend a meeting:** Attend the Ent Soc Canada meeting or that of your regional society. All are advertised well in advance on <http://www.ESC-SEC.ca> and students usually pay a reduced fee. Read the posters and attend the talks, think up some good questions and then corner someone who looks interesting. There are usually a few job ads posted as well.

I've also assembled some resources below to help you in your search. I'd also appreciate receiving any other advice others may wish to pass along. Send your suggestions to [cjkmacquarrie@gmail.com](mailto:cjkmacquarrie@gmail.com) or post them in the Facebook group and I'll print them in a future column.

### List of resources

The Entomological Society of Canada publishes the Directory of Entomological Education in Canada. This publication lists the institutions and researchers who offer post-secondary training in entomology. See <http://www.esc-sec.ca/directed.html>.

The Entomological Society of America maintains a list of links to entomology departments and programs in the US. See <http://www.entsoc.org/resources/education/colleges.htm>.

The Evolution Directory. Not strictly entomological, but the author maintains an excellent list of grad student and other positions posted on various list servers and forums. See <http://evol.mcmaster.ca/brian/evoldir.html>.

Email list servers. Often overlooked by those more familiar with chat forums, IM and Facebook, these mass distribution lists are still popular. To avoid being bombarded by messages I suggest using a sacrificial email account or subscribing to the digest option, which delivers a single summary message once a day.

- Entomo-L <http://listserv.uoguelph.ca/archives/entomo-l.html>
- Ecolog-L <https://listserv.umd.edu/archives/ecolog-l.html>
- Taxacom [http://mailman.nhm.ku.edu/\\_mailman/listinfo/taxacom](http://mailman.nhm.ku.edu/_mailman/listinfo/taxacom)

## Death by... caterpillar?

### Doctors reveal case of Alberta woman who died after stepping on venomous caterpillars (posted 14 July CBC website)

**A**n Alberta woman who died of caterpillar-induced bleeding is at the centre of a teaching case published Monday in the Canadian Medical Association Journal by the team of Edmonton doctors who treated her.

The 22-year old woman died last year, ten days after stepping barefoot on five caterpillars while on a trip to northeastern Peru.

She immediately felt burning pain in her right foot which spread up to her thigh. The pain in her foot got worse when she walked on it. But the foot pain and an accompanying headache went away over the next 12 hours, so she didn't see a doctor.

When she returned to Canada, she was treated by doctors at the University of Alberta hospital. She had extensive bruising on her legs.

After searching through online databases, doctors realized the woman's symptoms may have been caused by venom from the caterpillars she stepped on. The venom from these particular caterpillars causes excessive bleeding in humans. Once her Canadian doctors determined what caused her illness, they contacted physicians in Brazil for advice.

Arrangements were made to get a South American antivenin treatment to Canada. However, it took 48 hours for the antivenin to get to Edmonton, and by the time it was given to the young woman it was too late.

The woman died from multi-organ failure three days after being admitted to hospital — and 10 days after she stepped on the caterpillars.

The report's authors advise that Canadian doctors can expect to see more exotic diseases now that adventure travel has become more popular.

They say doctors must quickly recognize and work with experienced clinicians to ensure patients get the specialized treatment they might need.

---

*Complete details of the case history are provided by Chan et al. (2008). Severe reactions in people can be induced by contact with the urticarial setae of caterpillars for about 100 species of Lepidoptera including members of Limacodidae, Lymantriidae, Megalopygidae, Saturniidae, and Thaumetopoeidae (Bowles and Swaby 2006).*

*Bowles, D.E., Swaby, J.A. 2006. Field Guide to Venomous and Medically Important Invertebrates Affecting Military Operations: Identification, Biology, Symptoms, Treatment. Accessed 11 August 2008 ([http://www.afpmb.org/pubs/Field\\_Guide/field\\_guide.htm](http://www.afpmb.org/pubs/Field_Guide/field_guide.htm))*

*Chan, K., Lee, A., Onell, R., Etches, W.B.M., Nahirniak, S., Bagshaw, S., Larratt, L.M. 2008. Caterpillar-induced bleeding syndrome in a returning traveller. CMAJ 179:158-161. (<http://www.cmaj.ca/cgi-redirect/179/2/158>)*

- Editor -



(C) Christian Autoite

Christian Autoite

## The student wing / L'aile étudiante



Mike Borkent

Chris Borkent



Jessica Smith

Greg Smith

**H**ello everyone. Well it is back to the office for data crunching now after a hopefully great field season. It is also time to start getting your talks and posters ready for the Joint Annual Meeting in Ottawa beginning on October 19th. The Graduate Student Symposium will be held at the JAM again this year, showcasing the work of five up-and-comers, so don't forget to attend that session and show your support for your fellow students. One of our favourite activities at the annual meeting is the Student Mixer taking place on Sunday evening prior to the general reception. This little party lets students get to meet each other without the pressure of making a big impression on that future PhD supervisor or department head.

As usual, the silent auction will be taking place and we would like to remind you to dig up some entomological treasures to donate. If you can't find any, ask your supervisor or other entomologists you may know to contribute. The auction is often comprised of large numbers of great entomology-related texts and books, but all bug-type material is gratefully accepted. Please contact Chris (email below) if you have anything you want to send by mail, or simply bring it along with you to the meeting and drop it off at the registration desk. A table will be setup for you to peruse the goods and the money raised will go into the ESC-SEC scholarship fund.

**B**onjour à tous. C'est maintenant le retour au bureau pour l'analyse des données après, espérons-le, une superbe saison de terrain. C'est également le temps de préparer vos présentations et affiches pour la réunion conjointe annuelle à Ottawa qui débute le 19 octobre. Le symposium des étudiants gradués se tiendra encore une fois cette année lors de la réunion annuelle, mettant en vedette le travail de cinq étudiants chercheurs, alors n'oubliez pas d'y assister et de montrer votre support à vos collègues étudiants. Une de nos activités favorites lors de la réunion annuelle est le cocktail étudiant qui a lieu le dimanche soir avant le banquet général. Cette petite soirée permet aux étudiants de se connaître sans la pression de faire bonne impression sur ce futur superviseur de doctorat ou directeur de département.

Comme à l'habitude, les enchères silencieuses auront lieu et nous aimerions vous rappeler de fouiller afin de trouver quelques trésors entomologiques à donner. Si vous ne pouvez en trouver, demander à votre superviseur ou à d'autres entomologistes que vous connaissez. L'enchère contient souvent un grand nombre de beaux ouvrages entomologiques, mais tout type de matériel entomologique est également accepté. Veuillez contacter Chris (voir courriel ci-dessous) si vous avez des items à envoyer par la poste, ou simplement à apporter avec vous lors de la réunion afin de les déposer au



Unfortunately this is the last year for us as co-chairs of the ESC-SEC student affairs committee and we are looking for a volunteer (just one) to pass the collecting net on to at the end of the year. If you are interested, please contact Greg ([grsmith@nrca.gc.ca](mailto:grsmith@nrca.gc.ca)) or Chris ([chris.borkent@mail.mcgill.ca](mailto:chris.borkent@mail.mcgill.ca)) to let us know. We can then give you more details about the responsibilities of the student chair.

We hope you all have a productive fall and we look forward to seeing everyone at the JAM next month.

Chris and Greg

bureau des inscriptions. Une table sera installée, vous permettant d'examiner les objets, et l'argent amassé ira dans le fonds des bourses ESC-SEC.

Malheureusement, il s'agit de notre dernière année en tant que co-présidents du comité des affaires étudiantes, et nous sommes à la recherche d'un volontaire (un seul) afin de lui passer le flambeau à la fin de l'année. Si vous êtes intéressé, veuillez contacter Greg ([grsmith@nrca.gc.ca](mailto:grsmith@nrca.gc.ca)) ou Chris ([chris.borkent@mail.mcgill.ca](mailto:chris.borkent@mail.mcgill.ca)) afin de nous le faire savoir. Nous pourrions vous donner plus de détails sur les responsabilités du président étudiant.

Nous vous souhaitons à tous un automne productif et espérons vous voir à la réunion conjointe annuelle le mois prochain.

Chris and Greg



*Gonatocerus ashmeadi*, a mymarid wasp used in biocontrol against the glassy-winged sharpshooter (Cicadellidae), which attack grapes in California

## Lab profile / Profil de labo

### **The Sperling Lab, Department of Biological Sciences, University of Alberta, Edmonton, AB**

The Sperling lab is part of the Department of Biological Sciences at the University of Alberta. We are closely associated with the Strickland Museum of Entomology, and are strong contributors to the Alberta Lepidopterists' Guild and other entomological groups. For more information, please see our webpage: [http://www.biology.ualberta.ca/faculty/felix\\_sperling/](http://www.biology.ualberta.ca/faculty/felix_sperling/)

The bottom line is that we think bugs are waaay cool – and exploring insect diversity is fun. Research in our lab includes studies of evolution ranging from the diversification of major insect lineages to the formation of species boundaries. Our work on arthropod biodiversity also allows basic training in taxonomy at a time when the numbers of people with such expertise are declining but their skills are more important than ever. In addition to extensive use of DNA sequences, we use morphological data and phylogenetic analysis, complemented by internet-accessible keys and databases. We contribute to faunal inventories that are designed to support conservation, agriculture and forestry through more responsible use of natural resources. Our work also focuses on processes like plant-insect coevolution, the historical biogeography of endangered communities, and the interaction of genomic architecture with speciation.

### **Marie Djernaes, PhD student**

Marie did her BSc and MSc at University of Copenhagen in Denmark. Her Master's thesis subject was a molecular phylogeny of cockroaches, but for her PhD she decided to switch to morphology. She is now working on the sternum V gland in caddisflies and basal moths, which produces pheromones and putative defensive substances. The first part of her study is describing the surprisingly large morphological variation in the gland structure, including some real oddities. The second part

traces evolutionary trends and pathways, correlating form and function and identifying characters useful at different phylogenetic levels. ([djernaes@ualberta.ca](mailto:djernaes@ualberta.ca))

### **Jason Dombroskie, PhD student**

Jason completed his undergraduate degree at the University of Guelph in Biological Sciences and worked for several years as a naturalist at Algonquin Park. Part of his PhD project deals with the evolution of the tribe Archipini (Tortricidae), specifically whether the loss of the costal fold facilitates the evolution of secondary sexual structures. He is also examining the phylogeography of the tortricids of montane ecoregions in Alberta and how the species assemblages relate to western, boreal, and prairie assemblages. Currently, he is nearing the first release of an interactive matrix-based key to the Lepidoptera of Canada to the subfamily and tribe level. ([dombrosk@ualberta.ca](mailto:dombrosk@ualberta.ca))



Jason sorting a night's catch of moths.

**Jessica Edwards, Undergraduate student**

Jessica is an undergrad student at the University of Alberta. She currently assists Marla with sorting and identifying Ichneumonidae as part of a boreal forest biodiversity survey. She plans to continue in entomology, and is particularly fascinated by parasitoid diversity and systematics. ([jmedward@ualberta.ca](mailto:jmedward@ualberta.ca))

**Wes Hunting, MSc student**

Wes has been interested in the taxonomy and systematics of ground beetles (Coleoptera: Carabidae) since he was an undergrad at Augustana Campus of the University of Alberta. He uses both morphological and molecular techniques to aid in revealing insect lineages, species boundaries, and evolutionary pathways. The female genital systems within the family Carabidae are also of interest to him for their potential usefulness in determination of relationships. Co-supervised by George Ball, he is currently working on a taxonomic study of the *Cymindis (Pinacodera) limbata* species group (Coleoptera: Carabidae, Lebiini). Like most entomologists, he loves to be in the field as much as possible. ([hunting@ualberta.ca](mailto:hunting@ualberta.ca))



Wes catching beetles at a mercury vapour light.

**Winnie Lam, Undergraduate student**

Winnie is currently an undergraduate (NSERC) summer student who plans to complete an honours research project on the historical diversity of Alberta tick species. She has a strong interest in museum collections and also spends time working at both the University of Alberta Museum of Zoology and the E.H. Strickland Entomological Museum. ([winniel@ualberta.ca](mailto:winniel@ualberta.ca))

**Sarah Leo, Undergraduate student**

Sarah was an NSERC summer student in the Sperling lab during summer 2007, with a project that used DNA sequences to estimate gene flow between the populations of *Halobates sericeus* water striders on the Pacific Ocean. She has also surveyed DNA variation in the moose tick, *Dermacentor albipictus*, which she will continue this fall as an honours project. Sarah currently works with the City of Edmonton Environmental Services Lab and is involved in the West Nile Virus monitoring project along with other pest control duties. ([ssleo@ualberta.ca](mailto:ssleo@ualberta.ca))

**Lisa Lumley, PhD student**

Lisa's research interests mainly focus on applying population genetics, molecular systematics, classical taxonomy, and chemical ecology to assist in developing species-specific management practices. Lisa started her graduate work in 2004 examining the systematics of the spruce budworm species complex (Lepidoptera: Tortricidae: *Choristoneura*). She is developing microsatellite markers for spruce budworm species, and has used a combination of molecular and morphological characters for distinguishing species within the complex. Her work is intended to contribute to more accurate identification of spruce budworm moths in forest management as well a better understanding of the evolutionary processes that drive speciation. ([lumley@ualberta.ca](mailto:lumley@ualberta.ca))

**Benjamin Proshek, MSc student**

Benjamin Proshek completed his BSc at Hillsdale College in Michigan, where he com-

pleted a thesis on species boundaries within the *Phyciodes tharos* (Pearly Crescent butterfly) complex. Since 2007, he has been working towards a MSc degree on the phylogeography and population structure of *Apodemia mormo*, the Mormon metalmark butterfly. This butterfly ranges across western North America, but three separate populations, in British Columbia, Saskatchewan, and central California, are federally listed. Despite this high level of conservation concern, very little is known about the relatedness of different populations within the species. This research allows Ben to take extensive field trips across the badlands of the West. ([proshek@ualberta.ca](mailto:proshek@ualberta.ca))

### Thomas Simonsen, Postdoctoral fellow

Thomas' research has been centered on phylogenetic and evolutionary aspects of Lepidoptera since his graduate work at the University of Copenhagen. Taxonomically, he focuses on the two butterfly families Papilionidae and Nymphalidae, the higher micro-moth family Pyralidae, and the primitive micro moths in the non-ditrysian grade. He is interested in the phylogenetic relationships and classification within these groups, and uses both molecular and morphological characters to establish phylogenies. He uses the resulting phylogenies to examine zoogeography, larval-host plant relationships, and evolution of adaptations to alpine/arctic environments. He is also interested in comparative structural morphology and histology within Lepidoptera. His current research is focused on the phylogeny and evolutionary aspects of the true swallowtail butterflies (subfamily Papilioninae), and the phylogeny, taxonomy and zoogeography of the Holarctic Nymphalidae genus *Boloria*. He has been funded for the past three years by fellowships provided by the Carlsberg Foundation – affectionately referred to in the lab as “Beer Money”. ([thomas.simonsen@ualberta.ca](mailto:thomas.simonsen@ualberta.ca))

### Marla Schwarzfeld, PhD student

Marla completed her BSc at the University of Victoria, where she did an undergraduate



Marla getting a real good look at some ichneumonids.

honours thesis on trunk and canopy dwelling spiders in partially cut forests in northern British Columbia. She worked for several years in Hawai'i, surveying parasitoid species diversity, and her PhD continues her interest in the diversity and systematics of Ichneumonidae. Her project includes an ecology component, assessing the diversity of ichneumonids under different harvesting regimes in Alberta's boreal forest at the EMEND field site. Since a major obstacle to the use of Ichneumonidae in biodiversity studies is the lack of user-friendly keys, or often any keys at all, she will also create an interactive key to the most common ichneumonids of Alberta's boreal forest. Finally, Marla will use morphological and molecular techniques to study the systematics of *Ophion*, a genus of large nocturnal ichneumonids. Despite their abundance, ease of collection, and large body size, *Ophion* are a very little-known group with only a small fraction of Canada's species described. ([schwarzf@ualberta.ca](mailto:schwarzf@ualberta.ca))



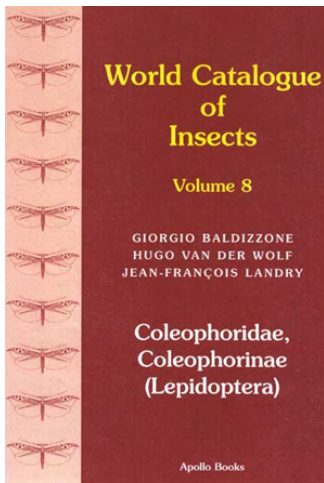
**Felix Sperling, Professor and Curator**

Felix received his undergrad and MSc degrees at the University of Alberta before moving to Cornell University for his PhD. His childhood fascination with butterflies led to a series of studies on swallowtail butterfly systematics for his graduate work, followed by a number of projects on DNA-based identification of diverse insect pest species complexes for his postdoctoral work at the University of Ottawa. He was an Assistant Professor at the University of California at Berkeley before taking the opportunity to return home to Alberta with his family. He is now a Professor at the University of Alberta and is proud of his numerous unruly students and postdocs, over a dozen of whom have already obtained permanent academic or research scientist positions around the world. ([felix.sperling@ualberta.ca](mailto:felix.sperling@ualberta.ca))



The Sperling lab (left to right). Top row: Thomas Simonsen, Marie Djernaes, Wes Hunting, Marla Schwarzfeld; Middle row: Ben Proshek, Felix Sperling, Winnie Lam; Bottom row: Jessica Edwards, Jason Dombroskie, Sarah Leo, Lisa Llumley.





*World Catalogue of Insects, vol. 8: Coleophoridae, Coleophorinae (Lepidoptera)*. 2006. Baldiszone G, van der Wolf H. & Landry J-F. Apollo Books, Stenstrup, Denmark. 215 pp. ISBN 87-88757-76-5, US\$72.00  
<http://www.apollobooks.com/WorldCat.htm>

Catalogs of organisms provide the jumping-off-point for research because they provide the current assessment of valid names within a category, usually a family group for large taxa. Within the series, content of individual volumes may vary. For the Coleophorinae, the authors give valid names followed by their synonyms. Justification and discussion of date and authorship of the family-group name and genus-group names is thorough and utilizes arguments based on the latest edition of the International Code of Zoological Nomenclature [1999]. All nomenclatural acts are given in a separate section. This information is not repeated in the body of the catalog. *Coleophora currucipennella* Zeller and *Coleophora discordella* Zeller, which are junior synonyms, are protected per the current code. Unavailable names, nomina nuda and incorrect spellings, with justification for the treatment of each name are given in Appendix 1. Taxa excluded from the Coleo-

phorinae and with new family or subfamily assignments are in Appendix 2. Users must be aware that this information is not included in the body of the catalog.

References comprise 58 pages of the text and form a highly significant part of the catalog. Each entry has been carefully cited, which alone will make the volume very useful.

Five genera with 1,342 species comprise the Coleophorinae. The very large genus *Coleophora* forms the majority of the subfamily with 1,326 species that occur mainly in the Holarctic Region. The relatively low knowledge of the world's fauna is indicated by a 25% increase in number of described species subsequent to the last catalog of 1988 and the authors' estimate that the Nearctic Region may be less than 50% described.

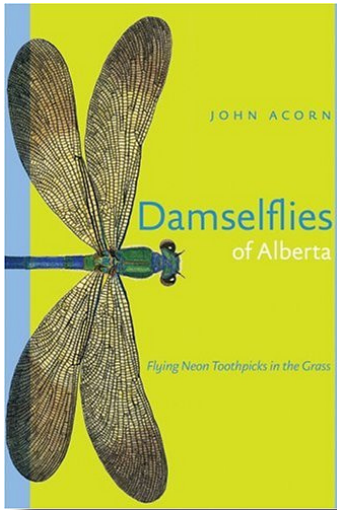
I congratulate the authors on a fine contribution to the literature on the Coleophorinae and the publisher for embarking on the venture to provide species-group catalogs for the insects of the world.

Ronald W. Hodges  
Collaborator, USDA, ARS  
Research Associate,  
Smithsonian Institution  
8253 Ridgetop Drive  
Eugene, Oregon 97405 USA  
June 27, 2008

---

*Damselflies of Alberta: Flying Neon Toothpicks in the Grass*. 2004. Acorn, J. University of Alberta Press, Edmonton, AB, Canada. 156 pp. ISBN 0-88864-419-1. CAN\$29.95, soft cover.

To accompany the tremendous rise in the popular and scientific interest in Odonata in North America over the last 10 to 15 years, a wide range of regional "popular" guides, as well as a number of more scientific treatises on the Odonata of North America (of tremendously variable quality) have appeared on the market. At first glance, one might think that John Acorn's *Damselflies of Alberta* is yet another of these popular, regional ID guides.



However, if one makes the effort to delve a little deeper, one will quickly discover this little gem of a book has several excellent features that place it several notches above the vast majority of these and make it useful in areas far exceeding its intended geographic scope.

This is an elegantly designed book, perfect-bound, printed on glossy, acid-free archival-type paper and illustrated in colour throughout. While one could argue that a few of the pictures were poorly edited (e.g., the very pixellated shot of *Coenagrion resolutum* heading the species description on page 78 and the too blue versions of some of the bluets, such as the shot of *Enallagma boreale* on page 86), the vast majority of the graphics, including the illustrations by the author himself, are artistically excellent and very useful to boot. Moreover, the format lends itself well to use in the field (6" x 9") and the abundant photographs, illustrations and keys (the vast majority of which are by the author) strongly enhance its utility in that regard as well.

As we plunge even further into the book, we discover what may well be its greatest strengths. These are to be found in the species accounts of Alberta's 22 species of Zygoptera and the introductory chapters of the

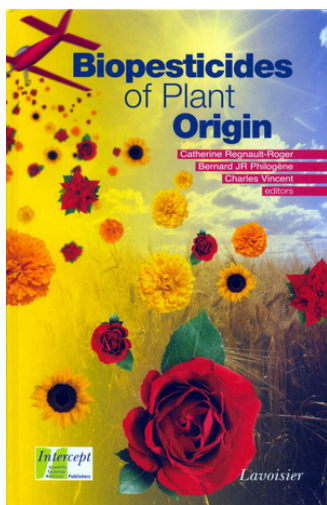
guide. The species account section naturally includes illustrations of the species, as well as descriptions with ID tips and decent range maps for each species, both within Alberta and throughout North America. However, unlike many such popular guides, Acorn's species accounts are very enticingly spiced with an abundance of well-researched (and sometimes quirky) natural history notes, scientific facts, interesting quotes and anecdotes. Indeed, these features should make it a well-read, used and sought-after book for a wide audience, including both amateur and professional naturalists, as well as field biologists and scientists, but also just "plain folks" with a general curiosity about the natural world. In addition, the six introductory chapters preceding the species accounts also nicely summarize the biology and ecology of these amazing creatures and give a good overview of the history of research on damselflies in Alberta. Like the rest of the book, they are very well-documented and engagingly well-written by an obviously passionate entomologist who is also an acknowledged modern-day expert in scientific popular writing and communication.

In summary, I believe many will find this book of interest. In nearly all respects, it is one of the best of its kind on the subject and should prove itself a very welcome addition to any nature enthusiast's library. While it is meant to be a popular guide, it should also prove of interest to a wider readership, both as a field guide and a synopsis on the behaviour of this fascinating group of insects. While this book could have been further strengthened by the use of an editor, particularly in the photographic department, I heartily recommend it!

As a footnote, since I reviewed this book and found it very pleasing, I was urged to seek out further titles by the author. While he is also a well-known TV personality (Acorn, the Nature Nut), he has also put out 11 books on natural history topics. In fact, this particular title is the second in a planned series of five on the Insects of Alberta. To date, three in the series have appeared. The first one came out in 2001 and discussed Tiger Beetles (*Tiger Beetles of*

*Alberta: Killers on the Clay and Stalkers on the Sand*) and is similarly excellent. More recently (in 2007), the third title (*Ladybugs of Alberta: Finding the Spots and Connecting the Dots*) was released and is also a very good read. I am certainly looking forward to the next titles in the series!

Denis Doucet  
Mount Allison University  
Sackville, New Brunswick  
July 5, 2008



***Biopesticides of Plant Origin.*** Regnault-Roger C, Philogène BJR, & Vincent C (eds). 2005. Lavoisier Publishing, Paris, France. xxi + 313 pp. ISBN 2-7430-0675-7, 100.00 €, hard cover.

This work seemed appropriate for someone in my position to review and especially timely with the increasingly strict regulation of pest control products, including recent and proposed bans on certain (e.g., “cosmetic”) uses, and the ongoing search for more environmentally-friendly alternatives. Originally published in French (as *Biopesticides d’origine végétale*) in 2002, there is a second edition of the original French version

due to be published later this year (2008), so those fluent in French may wish to wait for the updated version. Nonetheless, and for the rest of us, this version provides a wealth of information on a surprisingly wide variety of topics rather loosely allied under the overall theme of the title.

This compact volume contains 17 chapters (the last of which is actually an appendix but is also given a chapter number), each packed with information well organized into various sections and subsections for easy reading. Chapter 1 provides a brief historical overview of botanical pesticides, including such familiar examples as nicotine, rotenone, and pyrethrum as well as synthetic pyrethroids and azadirachtin. Chapters 2 to 4 focus on the discovery of new insecticides of plant origin. Chapter 2 provides examples from studies of aromatic plants, along with comments on screening methodologies and a discussion of the desirable qualities of compounds for use in pest control with minimal environmental impacts. Chapter 3 describes the relevant biochemistry of two plant families that have been used traditionally for their insecticidal properties, as well as for spices and medicines (Meliaceae and Piperaceae), and also the potential for novel discoveries in small or rare – and thus little known – plant families. Chapter 4 discusses the relative merits of extraction and purification of active compounds from plant sources versus synthesis of new compounds based on known structures, noting that the latter approach may yield a variety of similar compounds that can help to elucidate structure-activity relationships. Chapter 5 provides examples of natural plant compounds that act as synergists, compounds that have little or no direct activity of their own but enhance the effects of other compounds, for example by inhibiting enzymatic detoxification. Chapter 6 reviews the various sulphur compounds common in *Allium* species and in crucifers and outlines their activity not only as insecticides (mainly) but also as nematocides, acaricides, herbicides, fungicides, and bactericides. Chapter 7 covers phytoecdysteroids,

plant compounds structurally similar to the insect moulting hormone, and includes an overview of their occurrence, an example of their biosynthesis (in spinach), and a discussion of their activity in insects. Chapter 8 describes idioblast oil cells and their potential role in plant defence and provides an overview of experiments designed to isolate and identify the active compounds in those of avocado. Chapter 9 provides an interesting case study of two groups of plant volatiles traditionally used to protect stored grains and legume seeds from insect pests in parts of West Africa. Experiments demonstrating differential effects on a primary pest and a prevalent parasitoid species provide the basis for an integrated pest management strategy wherein use of the plant volatiles might be timed to maximize their impact on the pest and minimize their impact on the parasitoid, which itself has a significant impact on populations of the pest. Chapter 10 addresses the potential of allelochemicals as herbicides, first describing the processes involved in allelopathy and then discussing in some detail the activity of hydroxamic acids produced by various cereal crops. Chapter 11 describes polyphenols, their biosynthesis through plant secondary metabolism, and their role in resistance to plant pathogens. Chapter 12 addresses resistance to plant parasitic nematodes, describing the mechanisms of resistance and providing numerous examples of how resistant plants or plant wastes can be used to reduce nematode populations in agricultural soils. Chapter 13 provides an assessment of the potential impact on beneficial insects (the honey bee as a representative pollinator and a selection of insect parasitoids) of plant proteins expressed in transgenic plants, summarizing a number of experimental studies designed to detect potentially adverse effects on biology or behaviour. Chapter 14 presents the strategy of preventing crop pests from locating their host plants by designing molecules to interfere with insects' chemosensory abilities in various ways. Chapter 15 describes the utility of vegetable oils and monoterpenes, not as active ingredients but as formulants or adjuvants

that modify the physical properties of pesticide formulations and thereby enhance their activity through improved delivery. Chapter 16 provides a fitting conclusion, discussing practical issues surrounding the commercial development of botanical insecticides, including both economic and regulatory challenges as well as opportunities to address a growing need for alternative pest control products.

The book itself is of high quality and even includes an integrated bookmark. The text is well laid out, amply illustrated with chemical structures, tables, graphs, and flowcharts, and extensively referenced in each chapter. There are occasional typographical errors throughout the volume (but publications completely free of such errors seem to be quite rare) and I noticed a few missing or incorrectly cited references. In addition, here and there I found the terminology and/or sentence structure confusing or seemingly contradictory, quite probably owing to the fact that English is not the first language of many of the contributors. For the most part, however, these occurrences are minor and more quaint than disturbing (e.g., use of the expression "sensu largo" rather than the much more commonly used "sensu lato" and references to "the Canadian Great North" and to the desert locust, *Schistocerca gregaria*, as a "cricket") and do not detract greatly from the value of the information.

*Biopesticides of Plant Origin* is billed as being designed for researchers, academics, advanced undergraduate and graduate students in science, agronomy, and veterinary school, and decision-makers involved in agricultural development and environmental protection, as well as R&D principles in the agrochemical and crop protection industry. I would certainly agree that it contains much information that should be of value to all such individuals.

Dean Morewood  
Pest Management Regulatory Agency  
Ottawa, ON Canada K1A 0K9  
June 30, 2008



*Cerambycidae Sul-Americanos. Suplemento I.* Martins UR & Galileo MHM. 2004. Argania Editio, Barcelona (Spain). 147 pp. ISBN:84-931847-7-2. €134, hard cover.

Available from: [argania@entomopraxis.com](mailto:argania@entomopraxis.com). <http://www.entomopraxis.com/argania/>

The cerambycid fauna of South America, with more than 8,700 species and 1,500 genera known, is the most speciose in the world. The variety of climate regimes and habitats of the Neotropical Region supports a broad array of insect diversity which includes this beetle group.

While this volume is written in Portuguese, except the scientific names which are in Latin, I believe that biodiversity is also “language” (see Pimm, 2000). The book treats some of the more typical species of the tribes Oemini, Methiini, Dodecosini, Paraholopterini, Phylctenodini, Pleiarthrocerini and Ectenessini of the subfamily Cerambycinae. It begins with a short introduction, which includes the systematic position of Cerambycidae within Chrysomeloidea, their subfamilies and number of Neotropical species. Other short sections include brief insights on larva and adult behaviours (activity, food, oviposition) and habitats. This part of the book ends with a systematic catalogue, advising the reader, by means of an asterisk, which species are treated in the remainder which makes up the bulk of the book. Before the 127 remaining

pages, there are two more pages dedicated to references, one including a taxon index and another presenting photos of 16 typical plants from the principal host families.

Unfortunately the introduction does not explain “how” the remainder of the book works (see next comments). This large section contains two pages for each represented species -- the right one with a full photograph colour habitus (dorsal view, without clarifying the sex) and the left one with a distribution map (top), the name of the species, its length, morphological characteristics, biology (when known), general distribution, list of other described species within the genus and references. This leaves the reader wondering if the book is meant as a catalogue, a descriptive work, a host plant listing or a revision reference.

The book unfortunately does not give keys to the treated tribes, genera and species. To achieve these aims it is necessary to consult the previous books (also in Portuguese) of Martins (1997, 1998).

However, this volume does work as a field guide for the cerambycid species represented here (no new species are described and no nomenclatural changes are proposed), and could be used by non-cerambycid specialists as well. So, I can recommend the volume to readers outside South America who enjoy good cerambycid colour images of exotic fauna like the Neotropical species or even who simply appreciate insects for their aesthetic beauty. The book can also function as a nice complement to Martin’s works (op. cit.).

Martins, U.R. 1997. *Cerambycidae sul-americanos (Coleoptera)*. São Paulo, Sociedade Brasileira de Entomologia, vol. 1, IV+217 pp.

Martins, U.R. 1998. *Cerambycidae sul-americanos (Coleoptera)*. São Paulo, Sociedade Brasileira de Entomologia, vol. 2, VI+196 pp.

Pimm, S. 2000. Biodiversity is us. *Oikos* 90: 3-6.



Artur R. M. Serrano  
 Faculdade de Ciências da Universidade  
 de Lisboa  
 Departamento de Biologia Animal  
 Ed. C2, 3º Piso, Campo Grande  
 1749-016 Lisboa – Portugal  
 July 8, 2008



*Armored Scale Insect Pests of Trees and Shrubs*. 2005. Douglass R. Miller and John A. Davidson. Cornell University Press, Ithaca, NY. 256 pp., 118 line drawings, 939 colour images. ISBN: 978-0-8014-4279-7. US\$105.00.

[http://www.cornellpress.cornell.edu/cup\\_detail.taf?ti\\_id=4278](http://www.cornellpress.cornell.edu/cup_detail.taf?ti_id=4278)

**A**rmored Scale Insect Pests of Trees and Shrubs, by Douglass R. Miller and John A. Davidson (Cornell University Press), is an unlikely thing: a beautiful book about armored scale insects. Armored scales (Hemiptera: Diaspididae) are almost ubiquitous associates of woody plants, but they are generally small and cryptic. Even most entomologists fail to notice them. Sometimes their sheer abundance attracts attention, usually in a garden or orchard, at which point the observer is alarmed and appalled. To see armored scales,

it seems, is to hate them. Miller and Davidson's stated hope that their book will enable readers to "enjoy the diversity, adaptability, and splendor of this interesting group of unusual insects" is ambitious indeed.

The book covers the 110 species of armored scales that are pests in the United States, which is more than a third of the known US armored-scale fauna. Each species has 3-4 pages devoted to it: a page of photographs, mostly depicting different life stages in situ on the host plant; a full-page drawing of a cleared specimen, showing all the ducts, pores, setae, and other microscopic characters necessary for definitive identification; and 1-2 pages of text covering the common name, synonyms, field characters, a detailed description of microscopic characters, affinities, hosts, distribution, biology, economic importance, and references. But the best part of the book is the front matter. This includes an excellent 19-page précis on the biology and management of armored scales, a key to microscopic characters, and a key to field characters.

The keys in particular are an extraordinary achievement. These are all-new, avowedly "artificial" keys, designed to emphasize the most unambiguous and easily observed characters. The standard key to North American Diaspididae is that of Ferris (1942), which has served as the framework for every subsequent key. Ferris's key has been invaluable, but it starts off with a couple of head-scratchers intended to separate natural groups, which often necessitate guesswork and backtracking. Miller and Davidson's key to microscopic characters is much easier to use.

One might still wish for something like a LucID key that would allow the user to look at characters in any order, but for the present, the key in this book is the single best resource for identifying armored scale pests in the US. Because so many of these species are invasive and are abundant on several continents, it is also an extremely useful supplement to keys from other areas, containing as it does the best available drawings for some of the most abundant global pests.

The main goals of the book are to enable readers to identify armored scale insects and find out more about the species they have identified. In this it succeeds brilliantly. I wish I could say it makes identifying armored scales easy, but making the necessary microscope slide mounts is still a painstaking process. This hurdle, as well as what we might call the aesthetic limitations of scale insects themselves, puts a low ceiling on this book's likely readership. If you need to identify armored scale insects, or are fascinated with armored scale insect biology, you'll love this book. The drawings and photographs are excellent, and the format is large – it's a coffee table book about armored scale insects! If there were more than a few armored scale insect enthusiasts, we'd be lining up for this book. In the real world, I expect that libraries are the main market. Every university and museum library, and every major public library, ought to have a copy.

One thing you won't find is any mention of the more outré features of armored scale insect reproductive biology or genetics. Male armored scale insects are unique among insects in that, as embryos, they turn from diploid to haploid. Or at least most of them do. Some species (e.g., in the genera *Comstockiella*, *Gymnaspis*, *Lopholeucaspis*, and *Parlatoria*) retain an ancestral system, common to several families of scale insects, in which half of the chromosomes don't actually disappear but instead turn heterochromatic and form an inert blob called the chromocenter. These lost or de-activated chromosomes are always the ones that the male armored scale received from his father, which means that the genetics are tantamount to haplodiploidy, and that the mechanism depends upon genomic imprinting. And there are a number of related bizarre phenomena that challenge our understanding, including active polar bodies, specialized cells with a different genomic constitution from the rest of the insect, and highly modified sperm packed with dozens of microtubules. The excellent volume edited by Rosen (1990), now sadly out of print, is still the best source of

information about these deeper and stranger reaches of armored scale insect biology.

If armored scales are ever going to win a beauty contest, this book will be the one that clinches it for them. But they may be better contenders for championship in chromosome gymnastics or ballet, areas in which a number of fans and judges are already rooting for them (Haig 1993; Herrick and Seger 1999; Burt and Trivers 2006). Perhaps some future coffee-table book highlighting this aspect of armored scale biology could convey even more effectively the "splendor" of this group of insects.

- Burt, A., and R. Trivers. 2006. *Genes in Conflict: the Biology of Selfish Genetic Elements*. Harvard University Press, Cambridge, Massachusetts.
- Ferris, G. F. 1942. *Atlas of the scale insects of North America*. Series 4. Stanford University Press, Palo Alto.
- Haig, D. 1993. The evolution of unusual chromosomal systems in coccoids: extraordinary sex ratios revisited. *J. Evol. Biol.* 6:69-77.
- Herrick, G., and J. Seger. 1999. Imprinting and paternal genome elimination in insects. Pp. 41-71 in R. Ohlsson, ed. *Genomic imprinting: an interdisciplinary approach*. Springer-Verlag, Berlin.
- Rosen, D., ed. 1990. *Armored scale insects: their biology, natural enemies, and control*, Volume A. Elsevier, Amsterdam.

Benjamin B. Normark  
Dept. of Plant Soil and Insect Sciences  
University of Massachusetts Amherst  
Amherst, MA 01003  
July 20, 2008



***Grasshopper identification and control methods to protect crops and the environment.*** Johnson DL. 2008. Saskatchewan Pulse Growers (and Agriculture and Agri-Food Canada). 42 pp.

This little book provides a useful and concise summary of grasshopper pests affecting crops in western Canada, including their identification and management. In addition, the grasshoppers and close relatives that are found affecting rangeland, or that are not pests or are beneficial, are described and pictured. Johnson provides all the key elements that would be expected in educating the public about grasshoppers: the life cycle including differentiation of instars, the key characters to distinguish among species, profiles of the most important species, and management considerations including economic thresholds. About the only thing missing is information about natural enemies, though they are not very important. The illustrations are exceptionally useful, and with the aid of this publication it should be easy to identify the common pest species. The book is printed on very heavy paper stock and bound with a spiral binding, so it should prove durable and easy to use in the field.

The manual is also available on line at [http://www.saskpulse.com/media/pdfs/2008\\_Grass-](http://www.saskpulse.com/media/pdfs/2008_Grass-)

[hopper\\_Identification\\_Booklet.pdf](#)

John L. Capinera  
Entomology & Nematology Department  
University of Florida  
Gainesville, FL 32611-0620  
June 17, 2008



### Books available for review:

Löbl, I. & A. Smetana (eds). 2008. *Catalogue of Palaearctic Coleoptera. Vol. 5: Tenebrionoidea*. Apollo Books. Stenstrup, Denmark. 670 pages.

Brake, I. & G. Bächli. 2008. *World Catalogue of Insects. Vol. 9: Drosophilidae (Diptera)*. Apollo Books. Stenstrup, Denmark. 412 pages.

Please send correspondence regarding book reviews to the Chair of the Publications Committee.

Kenna MacKenzie, Chair  
ESC Publications Committee  
Agriculture and Agri-Food Canada  
32 Main St.  
Kentville, NS B4N 1J5 Canada  
Tel: (902) 679-5731 Fax: (902) 679-2311  
E-mail: [mackenziek@agr.gc.ca](mailto:mackenziek@agr.gc.ca)



**Edward Coulton Becker**  
1923 - 2008

**D**r. Ed Becker passed away on May 13, 2008 at the age of 85. He was a research scientist at Agriculture and Agri-Food Canada from 1952-1980, working as a taxonomist at the Canadian National Collection (CNC) of Insects, Arachnids and Nematodes in Ottawa. His area of expertise was the systematics of click beetles (Coleoptera: Elateridae), which include many Canadian crop pest species. During his life, he published 36 scientific articles, book chapters and reviews. Following retirement, he became an honorary research associate at the CNC and continued to come into work nearly every day for the past 28 years.

Ed was born on March 15, 1923 in St. Louis, Missouri to Coulton and Grace Becker and was the first of six children, and a twin. He spent his early years on the family farm near Williamsville MO. After high school, he attended the University of Missouri where he took three years of agricultural studies before joining the US Marine Corps. The war ended just as he was being shipped to Japan, but he was able to visit that country and saw the devastation the atom bomb had on Nagasaki.

After the war, Ed met Martha Mae Elliott at a church camp at Lake of the Ozarks and they were married in 1948. The newly married couple soon moved to Honduras, where Ed worked as an entomologist for the Standard Fruit Co. They returned and Ed attended the University of Illinois, earning his PhD in entomology in 1952 with a thesis on the taxonomy of *Agriotes* (Coleoptera: Elateridae). By good fortune, Agriculture Canada was looking for a taxonomist to work on click beetles at the CNC and he and Martha soon moved to Ottawa.

Among his 36 systematics publications are monographic revisions of the large and economically important click beetle genera *Agriotes* and *Athous* (Coleoptera: Elateridae) of North America. This work was central to controlling a major North American crop pest problem. Together, his work has been worldwide in scope, spans several beetle families, and includes descriptions of 53 new species and two new genera. Towards the end of his research career, Ed co-authored a series of major scientific articles with the Japanese scientist Hitoo Ôhira. Becker's systematic research was innovative, in that he wrote the most rigorous, detailed descriptions and keys for Elateridae to date and pioneered new unexplored morphological character systems.

In addition to his research, Ed was active in many entomological societies and organizations, working as treasurer of the Entomological Society of Canada (1961-1985), representative and governing board member of the Entomological Society of America (1982-1984), Editor of *The Coleopterists Bulletin* (1983-1990) and President of the Coleopterists Society (1971-1972). Perhaps his biggest contribution to entomology was through the CanaColl Foundation, a non-profit organization that Ed helped create and almost single-handedly nurtured for the past 36 years. The foundation promotes taxonomic research at the CNC by providing funds to visiting entomologists who curate the collection. The foundation currently has investments of \$475,000 and has awarded over \$200,000 in grants to nearly 300 researchers. In addition,

Ed wrote and distributed a quarterly newsletter for retired entomologists and their spouses for the past 18 years. For many years, he also visited public school classrooms to promote entomology, often with a tarantula named Carmen at his side. Ed was recognized for his work by receiving the Queen's Silver Jubilee Medal (1978), the Canada Commemorative Award (1984) and was made a Fellow of the Entomological Society of Canada (1974) and an Honorary Member of the Entomological Society of America (1997), at one time, the only person to be so honoured by both societies. His tireless efforts to promote entomology and the CNC have had far-reaching effects not only in Canada, but throughout the world. He was very well known in the entomological community, partly because of his friendly, social nature, but also because he attended every single ESC meeting for the past 49 years! Outside of entomology, Ed was a devoted family man who helped raise five daughters and was married for nearly 60 years. He was a Scout leader and was also deeply involved with his church, Rideau Park United, where he held numerous positions.

Ed enjoyed good health until quite recently, but in the last two months, he developed severe congestive heart disease. He died in Ottawa surrounded by family and is survived by his wife Martha and daughters Barbara, Marcia, Debra, Lynda and Patricia and three grandchildren. Ed's cheerful, positive attitude, sense of humour and love of bowties will be sadly missed.

Donations in Ed's memory can be made to the CanaColl Foundation, c/o Andy Bennett, 960 Carling Ave., Ottawa, ON, K1A 0C6.

Andy Bennett, CNC  
Agriculture and Agri-Food Canada,  
Hume Douglas, CFIA  
Ottawa, ON

---

*In recognition of his contributions to the Society, the ESC recently renamed the Conference Travel Award to the "Ed Becker Conference Travel Award"*



**Dr. Donald A. Chant**

**September 30, 1928 – December 23, 2007**

The entomological world lost an accomplished and enthusiastic champion in December 2007 with the sudden and unexpected – and untimely – death of Prof. Emeritus Dr. Donald A. Chant; OC, FRSC, FESC, LLD, BA, MA, PhD. He was only 79 years of age.

Don Chant was many things to many people, so evident upon a review of his CV or the notices and announcements that appeared in the *Globe & Mail* (Jan 2, 2008; pg. S6), the *University of Toronto Bulletin* (Feb. 26, 2008, pg. 9), and the *International Journal of Acarology* (2008), among others. His list of degrees, honours, awards, accomplishments, accolades, and published works alone are achievements in and of themselves.

Donald A. Chant, the person, was a husband, father, grandfather, uncle, brother, friend, colleague, and mentor to many, near and far. Dr. Donald A. Chant, the professional, was an enthusiastic, disciplined scientist with a penchant for acarology; a skilled and distinguished university professor and administrator, eminent researcher, and impassioned activist who led environmental stewardship charges



in both the academic and non-government worlds. He loved his family ... far and wide. He loved nature ... big and small. The person and the professional blended in all Don did.

His life's work in acarology – Don was Canada's pre-eminent authority on the Phytoseiidae – helped resolve the synonymies of phytoseiid mites and described many new taxa. When he began his research in the 1950s, approximately 20 species of phytoseiids were known; over 2,000 species are known to science today. An expert in natural alternatives to pesticides, Don's work has been crucial to the use of mites in biological control.

Don always said it best, *“Fortunately for us, other kinds of mites are predators of the plant-feeding mites and in the right circumstances can effectively control them. These predators are called Phytoseiids, which literally translated means ‘God’s little creatures that live on plants’, so named by Antonio Berlese of Florence, an early Italian acarologist. These predacious mites have been the objects of my research for the last 30 years, and I think I can safely say that I know more about them than anyone else does.”* Don was addressing the Moss Scholarship Winners at an Alumni Awards Banquet held at the University of Toronto “way back” on April 9, 1980. Almost three decades later, what Don said then is still applicable today, written, and, no doubt, spoken in his lively, informative, and challenging way.

Don *“...love[d] to talk, in fact, about zoology .... the thing that kept me sane in ... years of administration, the thing that has given me joy and excitement and interest, and far more professional satisfaction than anything else that has claimed my attention. I still get the same kick, the same sense of accomplishment, at having a research paper published as I did when I first appeared in print almost 30 years ago. Basically, my research since I received my Baccalaureate in 1950 has been in Entomology ... But the real excitement, the real fun, is in studying living mites – in learning about their basic biological traits, their habits, and their behaviour. Nature truly is a wonder to behold.”*

Again, what was spoken in 1980 still held true for him to the last.

In his later years, Don was also writing his “Memoirs”. With his usual balance of humility and pride, he explained why: *“First, I assume that at least some of my progeny and grand-progeny will be interested in the history of their family and will want to know where they came from. Another reason, I suppose, was that I wanted to lay out before me my own life. When I’m finished (if I ever am) I can hold the Memoirs in my hand and say to myself, ‘Well, that’s what I’ve done and that’s who I am, warts and all.’ Not the least reason for undertaking these rather disjointed Memoirs was an urge for tidying up the room before the lights are turned out.”*

Before “the lights [were] turned out”, here follows some of what Don's Memoirs shared about things entomological:

*“I discovered the science of entomology in my third year at UBC [1949] when I enrolled in the introductory course taught by Prof. G. J. Spencer, who made the greatest single impact on me during my years as a university student. As a youngster I had been interested in insects, of course, particularly when we summered in the Maritimes, collecting beetles, grass-hoppers and butterflies, killing them in a cyanide bottle, and pinning them in small museum boxes that my parents bought for me. But this was un-informed amateurism. It was not until Spencer came along that I succumbed to a full-bore, life-long fascination with insects. I came to understand how complex are their lives and how intricate their anatomy, fully rivalling our own. And the supply of them is endless – there are about one million known species of insects and it is estimated that this is but a small fraction of the actual number out there in nature. And their variety is limitless – they occupy every conceivable niche (save the marine environment) – from snow-capped peaks to tropical swamps, all apparently happily going about their affairs, with nary a thought for us, the ‘Rulers of the World’. Nonsense! Insects rule the world and always have since they evolved about 400 million*

years ago.”...

“...Under his tutelage I got the top mark in 4th year entomology, and won a book prize awarded by the Entomological Society of B.C. and presented at their annual meeting – my first scientific conference. I got two books on entomology, and have them yet.

When I was looking for a part-time job during the 1948-49 term, after I had decided that life as a halibut biologist was not for me, Prof. Spencer put me on to Jim McLeod, the Officer-in-Charge of the tiny CDA Entomology Laboratory located on the UBC campus. This began my professional career as an entomologist, and I’ve never looked back. “

A few years later, Don worked at the Entomology Research Institute, Canada Department of Agriculture in Belleville, Ontario, first as a Research Officer and then as Head of the General Entomology Section from 1956-60. It’s ironic that, among Don’s memoirs of this time, he doesn’t describe in great detail his own jobs or tasks or accomplishments, but rather, mostly the “flavour” of the Institute at the time:

“... The Entomology Research Institute was known locally as the “Bughouse.” It was pretty modern by my standards (shaped by East Malling and Summerland), built around 1950, and located in Belleville because that was the hometown of one of the bigwigs in Ottawa. There were about 30 professional staff and about the same support staff. The Director was Bryan Beirne, an affable and highly competent Irishman who studied predacious bugs. His second in command was Jim McLeod, who had come to Belleville when the Vancouver laboratory was closed, and who had guided my career to that point. Both were a pleasure to work with and I enjoyed our association.

The professional staff were a mixture of older scientists (who sometimes resented we young Turks) and staff of my age who had also just returned from Ph.D. studies in the US, Europe or England. The areas of research ranged from insect nutrition (how to rear predators and parasites) and population studies to using insects for weed control. The lab was closed

in the 1960s and the professional staff almost en masse left the federal government and moved to Simon Fraser University in Burnaby, B.C., where they established an Institute of Pestology (of all things!), which still thrives today. Bryan, of course, was the director, but Jim stayed behind in Belleville, thinking he was too old to move and unfamiliar with university ways, where he became Secretary to the Moira River Conservation Authority (a dam along the Moira is named after him). The Bughouse stood empty for years, then housed the offices of some social services, and then finally was renovated and turned into an old folk’s home.”

Then, Don goes on to describe his experience in Vineland ... “In 1959 Bryan Beirne and Jim McLeod brought to my attention that the separate Plant Pathology Research Laboratory in St. Catharines [Ontario] and the Entomology Research Laboratory in Vineland in [Ontario’s] Niagara Peninsula, hitherto separate entities, were going to be combined and the search was on for a Director of what would be called a Research Station. They urged me to apply, I did, and I was successful, at the age of 31. I think there were three factors underlying my success: favourable endorsements from Bryan and Jim, a respectable list of research publications, and the fact that I had some sort of financial experience by virtue of being President of our local Credit Union.

One of my missions on becoming Director of the new Research Station was to steer our research more towards the basic end of the spectrum so that we could better understand what was going on in the orchards and field crops and devise solutions to their pest problems that were more than hit-and-miss. After all, the provincial horticultural staff, which were located right next door in Vineland, were supposed to take care of applied aspects such as spray calendars and direct advice to growers.

I had always wanted to collect my kind of mites in the wilderness areas of Canada, both below and above the tree line. In 1963 I decided to start fulfilling this yen. I quickly

*decided that such expeditions would have to be by water since there are no roads in the places in which I was interested. I looked at maps of many parts of Canada and chose for the first such foray the Rupert River, rising in northern Quebec and emptying into James Bay about 150 miles away. I was not a skilled canoeist but from what I could discover it looked like the Rupert would be manageable. I signed up two colleagues from Ottawa, who also wanted to do some collecting, and one of my staff at St. C. My account of this adventure was published in 1964 in 'The Beaver', the Hudson Bay Company's magazine on northern activities.*

*During my years at St. C/Vineland, a group of young entomologists decided that we would resurrect the Entomological Society of Ontario, which had died of neglect a decade or so before. We were successful and the society still thrives today. The interesting thing about this is that several of those who were involved were at the University of Toronto and eventually ended up on my staff when I became Chair of Zoology there in 1967 – Bill Friend, for one. I attended several annual meetings of the Entomological Society of America during these years.”*

Between his “years at St. C/Vineland” and the University of Toronto, Don was Chairman of the Department of Biological Control at the University of California, Riverside (1964-67) where, among other things, he met one Vikram Prasad, now an enthusiastic and tireless acarologist in his own right, and the Founding Editor and Manager of *The International Journal of Acarology*. Through the IJA/Indira Publishing House, Don co-authored with his partner, Dr. James McMurtry, almost a dozen scientific papers on the Phytoseiidae, culminating in his life's work, a book entitled *Illustrated Keys and Diagnoses for the Genera and Subgenera of the Phytoseiidae of the World*. At the time of his death, Don was collaborating with Dr. Prasad to produce a series of books under the heading, *An Atlas of the Phytoseiidae of the World*. Whether the Atlas will see the light of day is yet to be determined. Even so, Don's productive and generous contribution to

entomology has had a global reach, and will continue to span the bridges of time.

Don had much left to say about mites. Yes, even more than is written in his over 140 refereed research papers, 11 books, and innumerable reports and briefs. He was a wealth of interesting and historical anecdotes, and philosophies about life and work. He is sorely missed by those who knew him personally, and those with whom he worked, many of whom stayed life-long friends. But he is sorely missed for what he still wanted to contribute toward the future scientific clarity and understanding of his “beloved mites”. In his 1980 speech, he said, “*Where do we go from here in our research? ... First, to extend our knowledge of the family of Phytoseiidae itself – how many major groupings are there in the family, what is their natural geographical distribution, what assumptions about their habits and behaviour can we make on the basis of their physical characteristics? Are there other species waiting to be discovered ...?*”

So much of his life's work answered those very questions. But, also in that speech, he gave the challenge: “*...much more research [is needed] on the biological characteristics of many more species. .... One could spend a lifetime and never know everything about even one species of these little animals, and so considerable effort must continue to be given to identifying the key characteristics.*”

The last words are Don's: “*Let me now end with stating another [reason], a very personal benefit of research in this area – the sheer joy, excitement, and intellectual stimulation of learning new facts about these fascinating creatures. Phytoseiid mites are like tigers in their miniature world, stalking their prey blindly, like mindless robots, through the jungle of hairs on an apple or bean leaf. If they were the size of a real tiger, they would have eliminated us eons ago. We would simply have been a footnote in the evolutionary history of the world. Their study has led to a very privileged life for me thus far – that of an academic with vast worlds of information to learn about in a field where almost every collection and*

*every experiment leads to new understanding. Who could ask for more?"*

A memorial reception celebrating Dr. Chant's life was held on May 20, 2008, at the University of Toronto's Massy College. There, his family provided everyone with a beautifully-produced full colour coil-bound booklet chock-full of Don's professional and personal accomplishments, accolades, vignettes, and pictures galore.

At the memorial event, it was announced that a graduate fellowship in Conservation, Ecology & Evolution is being established in Professor Chant's memory. Donations from family, friends, and colleagues will be matched under the GSEF program – a partnership between the University of Toronto and the Province of Ontario to encourage and support graduate students.

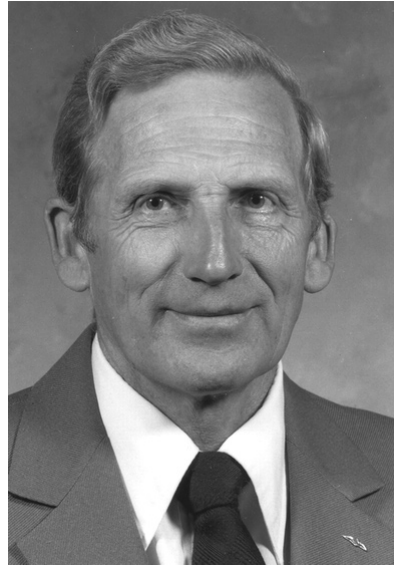
Memorial donations may be made in Don's name to the World Wildlife Fund Canada, 245 Eglinton Avenue East, Suite 410, Toronto, Ontario, M4P 3J1 ([www.wwf.ca](http://www.wwf.ca)) and/or the Donald A. Chant Fellowship in Conservation, Ecology & Evolution at the University of Toronto c/o Christie Darville, Faculty of Arts & Science, 100 St. George Street, Suite 2032, Toronto, ON, M5S 3G3. (416) 946-5192 / [cdarville@artsci.utoronto.ca](mailto:cdarville@artsci.utoronto.ca).

Condolences may be sent to Mrs. Merle Chant, R.R. #2, Madoc, Ontario, K0K 2K0.

Sherry L. Pettigrew, Second Wind Services  
Tottenham, Ontario

#### References:

- Chant, D.A. April 9, 1980. Alumni Awards Banquet Speech, Hart House, University of Toronto.
- Chant, family. May 20, 2008. A Celebration of the Life of Dr. Donald A. Chant. Madoc, Ontario.
- Prasad, V. 2008. Donald A. Chant (1928-2007) – A Personal Farewell. *International Journal of Acarology*. 34(3): 325-330.



**Dr. S. Cameron Jay**

**D**r S. Cameron ("Cam") Jay, Emeritus Professor of Entomology, died suddenly on 28 April 2008 at the age of 79 years.

Cam was born at Lauder, Manitoba, and attended school in Hamilton, Ontario. In 1949, he graduated with the highest standing from a teacher training course at Hamilton Normal School. The next six years were spent teaching school in Hamilton. While teaching, Cam took evening courses at McMaster University, and received a B.A. in English Literature, and the Director's award for highest standing. Notwithstanding this, he had sufficient spare time to meet and marry Doreen, his wife and partner of 56 years.

In 1955, Cam resigned from school teaching, and after a brief flirtation with Forest Entomology, began a bachelor's degree in agricultural entomology at the University of Manitoba. Those were heady days in the Department of Entomology, with such people as Reinhart Brust, Glen McLeod, Dieter Peshken, Ted Radcliffe, Dave Smith and Maurice Tauber among the student body. Cam graduated in 1958, this

time with the University Gold Medal for highest standing among B.S.A. graduates.

One summer near the end of his degree programme, he was assigned the penance of looking after the Department's apiary, a task which was particularly distasteful because Cam was frightened of bees! Mostly he watched through binoculars from a safe distance. However one day, he and Doreen set out to retrieve a swarm that had alighted on a tree branch; this bravery was founded on a textbook's statement that bees in swarms do not sting. Cam climbed the tree and tied a rope to the branch. Doreen, who was 8 months pregnant, held the rope, so that when Cam sawed through the branch it could be gently lowered to the ground. All went well until the sawing was complete. Then the rope broke, the branch and swarm crashed to the ground, the swarm flew up and landed beside Cam, and Doreen abandoned Cam to his fate and took refuge in the truck. The seconds of juxtaposition of Cam and the swarm on the tree branch were momentous. Would Cam suffer first stings, and then broken bones as he fell from his perch? Or had the bees read the book? Cam was startled to find that the latter was the case, and at that moment his fascination with bees began.

Cam and Doreen moved to Guelph, which was then an outpost of the University of Toronto. There, under the supervision of Maurice Smith, Cam completed a MSc on the life history of honey bees. In 1959, the Jays moved to Rothamsted, England, so that Cam could pursue PhD studies on honey bee biology. This research was directed by Drs. C. Butler and J.B. Free. In 1961, Cam and Doreen and their growing family returned to Manitoba, where Cam held a faculty position in the Department of Entomology until his retirement in 1991.

During his career in the Department, Cam's first priority was teaching. His lectures in the course "Introductory Entomology" provided such an exciting introduction to the world of insects that the course was a major source of undergraduate and graduate students for the Department. In addition, Cam taught introductory and advanced courses on social insects.

In 1980, as a result of nomination by his students, he was awarded the Olive Beatrice Stanton Award of the University of Manitoba for excellence in teaching.

Cam's achievements in research were also impressive, and ranged from work on fundamental aspects of bee biology through to studies directly applicable to beekeeping practice. Cam's largest efforts and biggest impacts were in the improved management of honey bees for honey production and crop pollination. Cam realized that studies on basic bee biology could be applied to help commercial beekeeping operations in North America. His early findings on growth and development of immature bees in their brood cells are very relevant to today's problems of utilization of brood by varroa mites. His discovery of the role of brood pheromones in suppressing worker ovary development provided a foundation for current pheromone research. His laboratory's basic studies of colony population growth were used to determine optimal population (package) size, the best timing of colony establishment to maximize honey production, and the factors affecting loss of bees when colonies are established or moved. These studies also showed how various management manipulations can affect queen loss, elucidated how to rear and time the introduction of queens for optimal success, and demonstrated how to winter colonies of bees on the Prairies. His studies of orientation of bees focused on how to reduce movement of bees between hives in commercial apiaries. This was a major contribution that reduced labour inputs for honey producers, increased honey production, and lowered transmission rates of parasites and pathogens. In addition to his studies of bee orientation in Canada, Cam studied the same processes in the southern hemisphere, during a sabbatical leave in New Zealand and Australia.

Cam's work on pollination with honey bees was equally diverse. In Canada, this focused on pollination of faba beans and canola, and he and his research associates developed pollination systems for the first commercial



hybrid canola seed production fields in western Canada. During sabbatical leaves, he worked on coconut pollination in Jamaica and kiwifruit pollination in New Zealand.

While Cam's research focus was the biology and management of honey bees, he also responded to industry requests to tackle bee diseases such as Nosema, and to assess effects of mosquito control programs on bee mortality. He also worked on other species of bees with important results. For example, one of Cam's first graduate students worked on native species of bumble bees and upon graduation, joined the faculty of the University of Toronto, where further research led to domestication of bumble bee species now used in commercial green house pollination. Cam also carried out a program that helped establish a viable leafcutting bee and alfalfa seed production industry in Manitoba.

Cam published over 75 refereed publications, and near the end of his academic career published in *Annual Review of Entomology* on one of his favourite research topics, the spatial management of honey bees on crops. In addition to his own research, he trained a total of 24 graduate students in research. Former students went on to research positions with Universities or Agriculture and Agri-Food Canada, and extension positions with several provincial governments.

Cam has had an enormous impact on Canadian beekeeping through his teaching and research and also through his extension efforts. Cam made a point of sharing his knowledge directly with beekeepers. He offered numerous courses for commercial beekeepers, and for 29 years, taught a course for hobby beekeepers. In the summer he was constantly on the 'phone to individual beekeepers to try to solve their problems and had close friendships with many of them. Again, his expertise was not restricted to Canada. He spent 15 months leading a C.I.D.A. apiculture development project in Kenya, and in that period radically changed and improved apiculture in Kenya through the introduction of the moveable frame hive. For his extension activities, he was recognised

through a University of Manitoba Outreach Award, and the beekeeping industry conferred numerous local, national and international awards, including the Bee Hive Award, Manitoba Beekeepers Association, Honorary Life Membership in the Manitoba Alfalfa Seed Producers Association, the J.I. Hambleton Award of the Eastern Apicultural Society of North America and the Fred Rathje Memorial Award for outstanding contributions to the Canadian Bee Industry. His achievements were also recognized by the University of Manitoba Alumni Association through a Jubilee Award. In 1999, the international beekeeping conference, Apimondia, conferred an Award of Excellence for "Outstanding contributions to Canadian Beekeeping Development".

Cam contributed to Canadian Entomology in many ways. While he was not a high-profile member of the Entomological Society of Canada, he served on many of its committees. He was an active member of the Entomological Society of Manitoba, and served as president in 1968–69. Similarly he has served the Canadian Association of Professional Apiculturists as both president and committee member. For his service to Canadian Entomology and Apiculture, he was elected a Fellow of the Entomological Society of Canada in 1985.

At least as important as the formal achievements was Cam's personality. As a Department Head and colleague, he was forever supportive and cognizant of the needs and aspirations of those around him, and took endless pains to reach the best decision for all concerned. His steady influence brought consensus on many contentious issues, and so he was much sought after as a chairperson of committees and conferences. The Jay home was a centre of hospitality and camaraderie for staff and students for many years.

Cam had a quirky sense of humour and an outlook on life which was a tonic to all around him. His classes, and colleagues, were treated to a continuous barrage of "jokes", most of them real "groaners". He was known to appear in the classroom bedecked in yellow striped sweater, and appropriately appendaged - the

only known specimen of *Apis mellifera jayensis*. Also, costumed as a skunk, he would “spray” passing cars, or invade the classes of colleagues complaining about “lectures that stink”. He loved to dress in an old santa suit and tour the neighbourhood by horse and cutter, visiting the local children. For years he rode an ancient bicycle, on which he sat rigidly upright. At various times, persons unknown “decorated” the bicycle, yet Cam always managed to preserve an air of dignity as he rode his steed to and from work amid a cloud of ribbons and flags.

Cam’s retirement was filled with activity. He and Doreen travelled widely in North America in their 5<sup>th</sup> wheeler. They operated a tree farm for many years. Cam volunteered with the Canadian Cancer Society, the Winnipeg Christmas Cheer Board, and Habitat for Humanity. The latter allowed him to indulge his penchant for building things, which extended to building an A-frame cottage, a hangar for his planes, a sun room for his house, and many minor projects.

Cam was devoted to Doreen, to their three daughters and son, and to his grandchildren. He marked his 30<sup>th</sup>, 40<sup>th</sup> and 50<sup>th</sup> wedding anniversaries by renting a road-side bill-board proclaiming his love for Doreen. Cam loved the outdoors, and shared canoeing, hiking, snowshoe or ski expeditions with his children and grandchildren, and with generations of boy scouts. Many gained their first introduction to nature during these trips, and remember them fondly, apart from the food — a gourmet cook Cam was not! Cam rebuilt a 1949 monoplane from a written-off wreck and flew it for 35 years. One of his early retirement projects was to fly to Alaska, but he turned back in the face of smoke from forest fires in Saskatchewan. More recently, he acquired an open-cockpit biplane which he flew from southern Ontario to Winnipeg — an epic journey lasting almost 3 weeks. Less epic were his “Flying Pizza” flights, in which he would circle an ice fishing hut in mid-winter until he was sure that it was occupied, and then land on the ice nearby, and ask the occupants if they had ordered pizza.

He had a specially-marked (empty) pizza box with him, and used this ploy to “break the ice” and strike up friendships in the most unlikely places.

Cam’s light-hearted and self-deprecating manner made it easy for all to forget that he had been an outstanding student, an inspiring teacher, a researcher who made profound differences in his field, and a dedicated supporter of apiculture and entomology.

To honour these accomplishments, the Department of Entomology has established a scholarship to be awarded to a graduate student doing research in apiculture, pollination biology or the study of social insects — the areas of Cam’s studies. Donations to the scholarship fund may be made on line at [https://umanitoba.ca/admin/dev\\_adv/howtogive/donation/index.html](https://umanitoba.ca/admin/dev_adv/howtogive/donation/index.html), or by emailing [Neil\\_Holliday@UManitoba.CA](mailto:Neil_Holliday@UManitoba.CA) to request a donation package. Please designate your donation for the Dr S. Cameron Jay Memorial Scholarship.

Neil Holliday  
University of Manitoba



R. De Clerck-Floate

Bumble bee on fireweed  
(*Epilobium augustifolium*)



Ronald Hodges

**Eugene G. Munroe**  
**'THE LEPIDOPTERIST'**  
**1919-2008**

In 2004, Eugene G. Munroe received the Karl Jordan medal from the Lepidopterists' Society. He was unable to attend, but he sent a videotaped message to the society as Karl Jordan had done in 1956 to the 10th International Congress of Entomology in Canada. In the video, Gene spoke about meeting Karl Jordan at the Natural History Museum at Tring, England, when he was just 17; Gene was probably one of the last living lepidopterists in 2004 to have spoken with Jordan. He talked at length about Jordan's accomplishments regarding the concept of geographical subspecies, which reduced the number of butterfly names, and of his founding of the International Congress of Entomology. This address to the Lepidopterists' Society via video spoke volumes about Gene's modesty and his preference to praise the work of others and/or talk about moths and butterflies. He had a great sense of humor that made working him a great joy. Ron Hodges told me a story about Gene cracking jokes in Latin that had Ron and Jack Franclemont in stitches. On a working trip to his home in

1988 (to make progress on the checklist of neotropical Chrysauginae with Vitor Becker) we worked long hours, but after dinner there would be lively discussions about lepidopterology. Eric Classey was also visiting at the time. One night around 11 pm the discussion became so loud and boisterous that his wife, Isobel, came down and announced that she was putting away the wine because we had much work to do the next day! Many who knew him have similar stories about Gene, for example, Bernard Landry's amusing story about Gene at a social event [Solis, M. A. 2000. *Tropical Lepidoptera*, 11:1-6]. Recently Jay Shaffer and I recounted a few humorous items about Gene in the *Pyraloid Planet* newsletter [2:2].

In 2000, I wrote a detailed account of Gene's life and professional career for a *festschrift* in *Tropical Lepidoptera* [11:1-6], so this obituary is an attempt to provide insight into Gene's personality and enthusiasm for research. Gene Munroe received his BSc in 1940 and a MSc in Entomology in 1941 from McGill University. In 1948 he received his PhD from Cornell University for his work on the biogeography of West Indian butterflies. Among ecologists, Gene is best known for this dissertation work, which focused on distribution patterns of Lepidoptera on island systems (e.g., Munroe 1948, 1953). In 1989, Brown and Lomolino [Ecology, 70: 1054-1957] wrote a note entitled "Independent Discovery of the Equilibrium Theory of Island Biogeography." They asserted that Gene independently discovered this theory and published it in his doctoral dissertation (1948) 15 years prior to MacArthur & Wilson [1963. *Evolution*, 17: 373-387; *The Theory of Island Biogeography*. Princeton University Press]. In evolutionary ecology this is one of few theories that withstood scrutiny and skepticism. Brown and Lomolino (*ibid.*) were curious to learn why Munroe's discovery was not recognized. In a letter to James Brown dated February 16, 1988, Gene wrote: "*Having competing interests and pressures I didn't write either* [1948, dissertation and 1953, abstract] *of these up, the second led to an invitation from Bob Usinger to spend the winter term of*

1959-60 at Berkeley leading a seminar in biogeography, in which my ideas were developed and exposed to graduate students. He encouraged me to write a book on biogeography, but I found difficulty in getting it together in the months that I was there."

Brown and Lomolino (*ibid.*) pointed out an important lesson for scientists: "It is not sufficient to have a good idea, it is even more important to develop and publicize it." In 1993, Wilkinson [Global Ecology and Biogeography Letters, 3: 65-66] wrote with reference to Munroe's work: "In promoting a new theory it may be important to stress the theoretical importance of the work in the title of the publication." But it was not all Gene's doing, Brown and Lomolino (*ibid.*) point out that in the 1940's "Biogeography was dominated by descriptive and taxonomic approaches." Also, by the 1960's ecologists were "more receptive to mathematical models," but such ideas require publication in a seminal paper, followed up rapidly with a more in-depth publication, and mathematical models should be accompanied by graphics so that an audience with minimal mathematical skills can grasp the concept. Despite the fact the Munroe received little recognition for his discovery, he continued to conduct biogeographic studies in insects. In 1957 he wrote a paper in Science about the comparison of closely related faunas, and in 1958a he wrote a paper entitled "The Geographic Distribution of the Scopariinae" in which he recognized that this species-rich group was morphologically conservative and characterized by endemic groups on island systems. He later wrote a chapter on insect zoogeography for the Annual Review of Entomology (Munroe 1965) and a chapter on the biogeography of insects (Peck and Munroe 1999). Scott Miller (pers. comm.) recently pointed out that Gene's paper about distribution patterns of Lepidoptera in the Pacific (Munroe 1996) demonstrates that he had a much greater knowledge of the biogeography of Lepidoptera in New Guinea, Micronesia, and the Pacific Islands than was ever published.

After finishing his PhD, Gene was hired as a Research Scientist in the Systematics Unit, later the Biosystematics Research Institute, of the Canada Department of Agriculture (now Agriculture and Agri-Food Canada) in 1950 (he retired in 1979). On February 9, 1951 Gene wrote to Hahn W. Capps, [USDA, curator of the Pyraloidea at the NMNH in Washington, D.C.): "When I finished my graduate work (on West Indian butterflies) in 1946, I was anxious to select some group of moths on which to work, as I felt that this would be both a more productive field and one more easily handled from the mechanical standpoint by a private worker than would almost any group of butterflies. ...It was obvious that the Pyralids, and particularly the Pyraustine end of the group were in need of the most fundamental reclassification; they also struck me as attractive insects to work on, and accordingly, after having sought the advice of Dr. Forbes and Mr. Franclemont, I decided to specialize in the family."

This did not sit well with Capps, and clouds gathered. On December 5, 1952 C.F. Muesebeck (USDA, Division of Insect Detection and Identification) wrote to G.P. Holland (Division of Entomology, Dept. of Agriculture, Canada): "Capps was working on the Pyraustinae long before Munroe started, but he generously offered to give up his studies on the Nearctic forms in favor of Munroe and to confine himself to the tropical fauna. Now, however, it appears that Munroe is simply taking over the whole field...." On February 9, 1951, Munroe had written to Capps: "...Nor do I think that a faunistic division (for instance, North vs. South America) is likely to be the best in practice. The material that I have examined suggests very strongly, however, that the Pyraustinae as conventionally understood will split into at least four major groups..." [Munroe suggested Capps work on the first group]. "As you know, there is a strong tradition here [Canada Agriculture] of work concentrated on the North American fauna. I have always felt that this will have to be revised as a long-term policy, for obvious reason that no stable classification,

even at the species level, can be erected on so rigidly defined a faunistic base.” In further correspondence with Capps, Gene appeared to retreat to work on the *Palpita illibalis* group (Gene’s group #4 above). Gene rapidly grasped that many groups in the Pyraloidea were not natural groups and that a worldwide study of this group was absolutely necessary. Considering the size in sheer number and diversity of the Pyraloidea, I am puzzled that the few workers in the world at the time would converge on the Pyraustinae,

On February 9, 1951, Munroe wrote to Capps: “I strongly feel that at least the types of named Old World genera ought to be studied as fully as possible, ...either in conjunction with or as a supplement to the New World revision.” Gene was ahead of his time with regards to type-imaging, although the technology wasn’t quite yet available to him and his colleagues who also felt this was extremely important to the field of systematics. Gene was the first to photograph type specimens of Pyraloidea from diverse museums worldwide and this allowed him to sort and place species correctly and ultimately allow him to develop more natural generic concepts. Early on the photographs were in black and white and often times they were of entire drawers of types. In 1953, Gene was a founding member of a “type-figuring subsection” committee at the meeting of the International Union of Biological Sciences held in Nice. Later [see 1955], he described the function of this committee and offered for sale the first 50 photos of type specimens at the Canadian National Collection [there was no internet for type specimen websites!].

Gene Munroe was the acknowledged authority on the Pyraloidea worldwide for many years. For nearly three decades, he was one of the few people publishing in the Pyraloidea. Gene’s contribution to the systematic knowledge of Pyraloidea includes over 170 research papers and to this day is unparalleled. His work was diverse, including type specimen catalogs and designations, faunistic and revisionary works, and new species descriptions. His faunistic work was global in scope. He wrote

a series of 12 papers entitled “Contributions to a study of the Pyraustinae [now Spilomelinae and Pyraustinae] of temperate East Asia” from 1968 to 1970 with A. Mutuura. His early work in the Pyraloidea focused primarily on solving taxonomic problems in North American genera and included many papers on Neotropical crambid genera too diverse to list here. Later he wrote comprehensive papers on the Odontiinae, Glaphyriinae, and Midilinae. For the *Moths of North America* (MONA) series he completed 5 fascicles in the Crambidae between 1972 and 1976, including the Pyraustini [now Pyraustinae], Scopariinae, Nymphulinae [=Acentropinae, and now in addition, the Musotiminae], Odontiinae, Glaphyriinae, and Evergestinae.

One of Gene’s greatest contributions was that he placed taxa in the correct subfamily, for example, his early paper on Hampson’s Schoenobiinae (Munroe 1958b). He once said that when he first started working in the Pyraloidea he would read the descriptions and realize that many of the generic concepts of Hampson and Meyrick did not make sense. At first he was uncertain about how to solve these problems, but he eventually realized that species catalogs would be the best venue. This is reflected in two very significant catalogs that include the *Pyraloidea of the Western Hemisphere: Check List of the Lepidoptera of America North of Mexico* (MONA) (Munroe 1983), and *Atlas of Neotropical Lepidoptera, Checklist: Part 2, Hyblaeoidea - Pyraloidea - Tortricoidea* (Munroe et al. 1995). The latter catalog is a monumental work that included many new combinations and synonymies, with over 200 notes that explained the changes. A smaller but equally significant contribution (Munroe 1989) detailed the changes in the classification and names of the Hawaiian fauna, where Gene used the two family designations, Crambidae and Pyralidae, for the first time since its proposal by Minet [1982, Les Pyraloidea et leurs principales division systématiques, Bull. Soc. Ent. Fr. 86: 262-180]. Gene summarized his broad knowledge about Crambidae in a chapter on the Pyraloidea with M.A. Solis (Munroe and



Solis 1999) for the Handbook of Zoology. His final work, published in 2007 with Jay Shaffer, was the "Crambidae of Aldabra Atoll," a small island in the Indian Ocean.

Gene was awarded the Queen's Jubilee Silver Medal by the Canadian Government in 1968 for his service as Principal Science Advisor and Head of Studies in the Science Secretariat, Privy Council Office. Gene participated in a broad array of the activities of numerous scientific societies. He served as a Member of the International Commission on Zoological Nomenclature from June 1961 to March 1975. He was a Fellow of the Royal Society of Canada, Emeritus Member of the Entomological Society of America, member of Sigma Xi and the Entomological Society of Washington. He was Honorary Member of the Ottawa Field-Naturalists' Club in recognition of outstanding contributions to Canadian Natural History or to the successful operation of the club. He was an Honorary Member of the Entomological Society of Canada, President from 1963-64, Editor of *The Canadian Entomologist* from 1958-1961, and awarded the society's Gold Medal in 1982. He was a Charter and Honorary Life Member of the Lepidopterists' Society and its President in 1958.

Gene was Editor-in-Chief of the *Moths of North America* (MONA) from 1976 to 1982. Gene was Managing Director of the Wedge Entomological Research Foundation from 1974 to 1984, and remained on the Board of Directors until 2000. He was also a Charter Member and served on the Board of Directors of the Association for Tropical Lepidoptera. In 1998, Gene received the Jacob Hübner Award, "In Recognition of Significant Contributions for the Advancement of Systematics of Lepidoptera," from the Association for Tropical Lepidoptera. In 2004, Gene received the Karl Jordan medal from The Lepidopterists' Society. Gene Munroe passed away May 31, 2008 at the age of 89 in Ontario, Canada.

M. Alma Solis  
Systematic Entomology Laboratory  
PSI, Agricultural Research Service,

US Dept. of Agriculture,  
c/o National Museum of Natural History,  
Washington, DC 20560-0168

**References:**

- Munroe, E. G. 1948. The geographical distribution of butterflies in the West Indies. Ph.D. thesis. Cornell University, Ithaca, New York.
- Munroe, E. G. 1953. The size of island faunas. Proceedings of the 7th Pacific Science Congress, Zoology, 4: 52-53.
- Munroe, E. G. 1955. Figures of Type Specimens. *Lepidopterists' News*, 9:140-141.
- Munroe, E. G. 1957. Comparison of closely related faunas. *Science*, 126: 437-439.
- Munroe, E. G. 1958a. The geographic distribution of the Scopariinae (Lepidoptera: Pyralidae). Proceedings of the 10th International Congress of Entomology, Geographical Distribution, 1: 831-837.
- Munroe, E. G. 1958b. Hampson's Schoenobiinae (Lepidoptera: Pyralidae). Proceedings of the 10th International Congress of Entomology, 1: 301-302.
- Munroe, E. G. 1965. Zoogeography of insects and allied groups. *Annual Review of Entomology*, 10: 325-344.
- Munroe, E. G. 1983. Pyralidae (except Crambinae). In Check List of the Lepidoptera of America North of Mexico. Edited by R. W. Hodges, T. Dominick, D. R. Davis, D. C. Ferguson, J. G. Franclemont, E. G. Munroe, and J. A. Powell. E. W. Classey and The Wedge Entomological Research Foundation, London. pp. 67-85.
- Munroe, E. G. 1989. Changes in classification and names of Hawaiian Pyraloidea since the publication of Insects of Hawaii, Volume 8, by E. C. Zimmerman (1958) (Lepidoptera). *Bishop Museum Occasional Papers*, 29: 199-212.
- Munroe, E. G., V. O. Becker, J. Shaffer, M. Shaffer, and M. A. Solis. 1995. Pyraloidea. In Atlas of Neotropical Lepidoptera. Checklist: Part 2. Hyblaeoidea - Pyraloidea - Tortricicoidea. Edited by J. B. Heppner, Association of Tropical Lepidoptera, Gaines-

ville. pp. 80-105.

- Munroe, E. G. 1996. Distributional patterns of Lepidoptera in the Pacific Islands. In *The Origin and Evolution of Pacific Island Biotas, New Guinea to Eastern Polynesia: Patterns and Processes*. Edited by A. Keast and S. E. Miller. Academic Publishers, Amsterdam. pp. 275-295.
- Peck, S. and E. Munroe. 1999. Biogeography and evolutionary history: wide-scale and long-term patterns in insects. In *Ecological Entomology*. Edited by C. B. Huffaker and A.P. Gutierrez. John Wiley & Sons, New York. pp. 231-261.
- Munroe, E. and M. A. Solis. 1999. Pyraloidea. In *Lepidoptera, Moths and Butterflies, Vol. 1, Arthropoda, Insect, Vol.4, Part 35. Handbook of Zoology*. Edited by N. Kristensen. Walter de Gruyter & Co., Berlin. pp. 233-256.
- Shaffer, J. and E. Munroe. 2007. Crambidae of Aldabra Atoll (Lepidoptera: Pyraloidea). *Tropical Lepidoptera*, 14: 1-109.

## Ed Becker's Personal Library at this year's ESC/ESO JAM

Please make a note that this years ESC/ ESO JAM silent auction will be different. In addition to the traditional items we will also be auctioning off the personal library of Ed Becker. With 28 years as a research scientist with Agriculture and Agri-Food Canada, Ed left behind an impressive collection of books, manuals and journals. Some of his effects are quite rare or have been out of print for years. The funds generated from the auction will be split among student scholarship and bursary funds as well as towards The CanaColl Foundation; three very worthy causes that will honour the memory of Ed Becker.

If you have any questions or additional items to donate to this years silent auction, please do not hesitate to contact either:

Nicole McKenzie or Crystal Vincent

Emails: [nicole\\_mckenzie@hc-sc.gc.ca](mailto:nicole_mckenzie@hc-sc.gc.ca),  
[cvincent@connect.carleton.ca](mailto:cvincent@connect.carleton.ca)

Tel: (613) 736-3393

### Entomological quotes

*"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"  
– unknown author, from Ancient Arabic*

## Mating in the crab spider *Misumena vatia*

by Robb Bennett & Brian Klinkenberg

Unique among the many wonders of the arthropod world are the always fascinating and often quite bizarre courtship and mating rituals of spiders (Araneae). These behaviours have evolved in response to the solitary predatory, often cannibalistic, nature of individual spiders. The behaviours are stereotypical at any particular taxonomic level and have been described in detail in various readily available texts (e.g., Bristowe 1958; Gertsch 1979; Preston-Mafham and Preston-Mafham 1984; Foelix 1996). The increasing ease of capturing and disseminating macrophotographic representations of often tiny living subjects has resulted in the accumulation of an incredible and diverse array of excellent images of spider behaviour, including courtship and mating.

Recently, we have been collaborating in the development of a British Columbia provincial spider information webpage posted on the E Fauna BC website (<http://www.efauna.bc.ca/>). In association with this, early in July 2008 one of us (BK) recorded images of the mating behaviour of the familiar Holarctic crab spider *Misumena vatia* (Clerck) (Thomisidae) near Winthrop, Washington just across the international border southeast of BC's Manning Provincial Park. An annotated selection of the images is presented here. Elapsed time between the first and last images was approximately 3 minutes. We thank Steve Marshall (University of Guelph) and Jeff Cumming

---

Robb Bennett ([robb.bennett@gov.bc.ca](mailto:robb.bennett@gov.bc.ca)) is a research scientist with the BC Ministry of Forests, Saanichton, BC V8M 1W4. Brian Klinkenberg ([brian@geog.ubc.ca](mailto:brian@geog.ubc.ca)) is a professor in the Department of Geography, University of British Columbia, Vancouver BC V6T 1Z2.

(Canadian National Collection of Insects and Arachnids) for identifying the hapless fly prey item.



**Fig. 1.** The roving male is moving to the common false asphodel (*Tofieldia pusilla* (Michx.) Pers.) flower head occupied by the female (out-of-focus in lower left and feeding upon an empidid fly, a species of *Rhizophomyia* Meigen). The male is probably following a sex pheromone trail associated with dragline silk laid down by the female. At this stage, Brian had been observing the male's activities and had not yet noticed the female.



**Figure 2.** The now clearly visible female (with her empidid prey) is immobile and continues to feed while the male clammers across the dorsal surface of her abdomen.



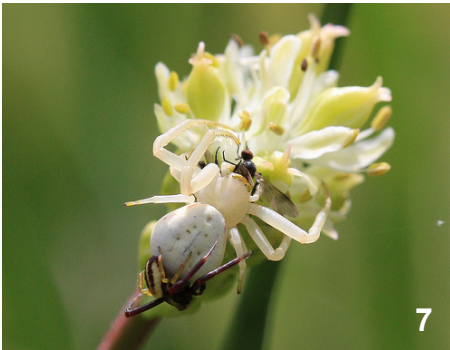
**Figures 3 and 4.** The male has quickly positioned himself venter-to-venter on the female's abdomen (slightly biased to her left side) and is busy engaging his left pedipalp (the male's first leg-like appendage, modified for mating) and transferring sperm from the pedipalp to the female's epigynum (external genital opening). The pedipalp is not visible in either of these images.



**Figure 5.** Finished with initial mating using his left pedipalp, the male quickly moves across the female's abdomen to reposition himself ventrally and engage his right pedipalp.



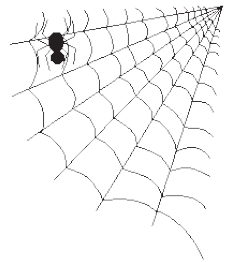
**Figure 6.** Impassively observed by the dead eyes of the fed-upon empidid, the male's right pedipalp can be clearly seen engaged with the female's epigynum and transferring sperm as indicated by the swollen pedipalpal membrane (white arrow).



**Figure 7.** The male has now finished initial sperm transfer from both left and right pedipalps and is again travelling across the abdomen of the female to reposition himself. Presumably the entire process would now be repeated several times, as is typical for misumenine crab spiders. However, sodden knees and other priorities led Brian to break off his observations at this point.

**References**

Bristowe, W.S. 1958. *The world of spiders.* Collins Press, London.  
Foelix, R.F. 1996. *Biology of spiders,* 2<sup>nd</sup> ed. Oxford University Press, Oxford.  
Gertsch, W.J. 1979. *American spiders,* 2<sup>nd</sup> ed. Van Nostrand Reinhold, New York.  
Preston-Mafham, R., and Preston-Mafham, K. 1984. *Spiders of the world.* Blandford Press, New York.



**Dear researchers in integrated pest management,**

The 2007 edition of the Pest Management Research Report (PMRR) is now available for download from the Canadian Phytopathological Society website at [http://www.cps-scp.ca/PMRR/Pest\\_Management-reports.htm](http://www.cps-scp.ca/PMRR/Pest_Management-reports.htm). Andrea Labaj and I would like to thank the authors for their contributions and the section editors for their assistance in creating this publication.

Sincerely,  
Olivia D’Souza

**Chers Chercheurs en lutte intégrée des ravageurs,**

Le Rapport de Recherches sur la lutte dirigée (RRLD) pour la saison 2007 est maintenant disponible pour le téléchargement à partir du site Internet de la Société Canadienne de Phytopathologie à [http://www.cps-scp.ca/PMRR/Pest\\_Management-reports.htm](http://www.cps-scp.ca/PMRR/Pest_Management-reports.htm). Andrea Labaj et moi voudrions remercier les auteurs de leurs contributions et les réviseurs pour leur assistance dans la création de cette publication.

Sincèrement,  
Olivia D’Souza



## Survey Report

The Scientific Committee met in Ottawa on 24–25 April 2008. A more detailed account of the meeting appears in the *Newsletter of the Biological Survey of Canada (Terrestrial Arthropods)* 27(2), 2008, which is also on the BSC web site at <http://www.biology.ualberta.ca/bsc/english/newsletters.htm>.

## Long-term future of the Biological Survey of Canada

Roger Baird, Director, Collection Services, Canadian Museum of Nature explained that the Museum would need to alter the manner in which they would be able to support the operations of the Biological Survey. Due to fiscal restraints, the CMN's support to the BSC in 2009/2010 will be reduced to approximately one-quarter of its current support. There is no financial commitment beyond March 2010. Dr. Andrew Smith's term of employment will finish in March 2009. The CMN remains committed to in-kind support with such things as office space. Much of the Committee meeting was therefore devoted to discussing the direction and actions that the BSC needs to take to sustain its organization.

There may be an opportunity to form some sort of partnership with the Federal Biodiversity Information Partnership (FBIP). Funding for specific BSC projects such as the northern insect project will also be sought. A longer-term strategy might involve the concept of broadening taxonomically to have a wider appeal especially when fund raising. It may take some time and experimentation to determine a final alternative model. Given the immediate constraint the Committee also discussed some short-term strategies for ensuring the continuity of operations.

## Scientific projects and priorities

### 1. Grasslands

All chapters for the first grasslands volume, *Arthropods of Canadian Grasslands: Ecology and Interactions in Grassland Habitats*, have been revised and the volume will be ready to go to press in the near future. Chapters for the second volume dealing with altered or changing grasslands are in process. Planning for Volume 3, the focus of which is to be native landscapes and species diversities for grassland habitats is set to begin. An editor is being sought for Volume 3. The issue of the relationship between the planned BSC publication and the EMAN prairie ecozone species assessment publication needs to be explored.

### 2. Insects of the arctic

Plans and fundraising for the large collaborative project to recreate the last northern insect survey done more than 50 years ago will begin soon. Chris Buddle offered to coordinate requests for taxa from an IPY project called Arctic WOLVES (Arctic wildlife observations linking vulnerable ecosystems). The Biological Survey has submitted its name as a collaborator with the Polar Barcode of Life Initiative (PolarBOLI).

### 3. Canadian Journal of Arthropod Identification

Three new issues have been published: *CJAI* (04) - Photographic Key to the Adult Female Mosquitoes (Diptera: Culicidae) of Canada, *CJAI* (05) - Identification Atlas of the Vespidae (Hymenoptera, Aculeata) of the northeastern Nearctic region, and *CJAI* (06) - The Bee Flies (Diptera: Bombyliidae) of Ontario, with a Key to the Species of Eastern Canada. The Committee supported the step to make the journal compliant with the standards for the International Code of Zoological Nomenclature and accept descriptions of new taxa. Dave Cheung has developed a template and simple instructions for making an interactive key using PowerPoint. This useful tool is

now available online as part of the instructions to authors.

Discussions have been ongoing with John Pickering concerning possible synergies between the *CJAI* and the “Discover Life” and “Global Mapper” initiatives that he has been developing over the last decade. These discussions will continue.

#### **4. Terrestrial arthropods of Newfoundland and Labrador**

There has been good progress in collecting, especially for beetles and planned collecting of Lepidoptera. Some work on the Microgastriinae has begun. Some smaller publications are planned for the near future. David Langor and Greg Pohl will undertake a survey in Labrador including the Torngat mountains. Next year will be the 60<sup>th</sup> anniversary of the Fenno-Scandinavian expeditions that went through Newfoundland in 1949 and 1951. Dave Langor is exploring the possibility of replicating the collecting from that expedition.

#### **5. Forest arthropods**

Volume 4 of the *Arthropods of Canadian Forests Newsletter* should soon be issued. The project database that resides on the BSC web site continues to be updated. The 2005 symposium proceedings are due to be published in the July issue of *The Canadian Entomologist*. Work on the Cerambycidae of Canada and Alaska is progressing well with the keys essentially finished. Distribution maps should be finished this year and most of the collections in Canada have been databased. Colour photographs of all the species have been taken by Klaus Bolte.

#### **6. Invasions and reductions**

The final package of peer-reviewed, revised manuscripts from the proceedings of the symposium on Ecological Impacts of Non-Native Insects and Fungi on Terrestrial Ecosystems held at the 2006 Joint Annual Meeting was submitted to the journal *Biological Invasions* in March 2008.

There has been some significant progress on the coccinellid project. Most of the Ontario

and Quebec material in the CNC has been databased and data from other researchers is becoming available.

At the Canadian Forest Service, they have catalogued over 1900 non-native species of terrestrial arthropods in Canada. A web site (<http://www.exoticpests.gc.ca/>) on Forest Invasive Alien Species in Canada will have more content added in the near future. Various papers are in press or in progress. Funding has been received to database some university collections. A new initiative dealing with introduced Coleoptera in Eastern Canada including Quebec and the Maritime provinces has begun. At Agriculture and Agri-Food Canada, initiatives include a list of invasive alien species that are relevant to agriculture, keys and revisions of pests and biocontrol agents, and 12 projects that deal with invasive alien species.

#### **7. BioBlitzes**

The 2008 BioBlitz at Bruce Peninsula National Park will be held 19-23 June. This BioBlitz will be an opportunity to add to the existing species list compiled over many years by Steve Marshall. Previous BioBlitzes, such as the one held at Waterton Lakes National Park, continue to yield data, and the collecting permits for Waterton Lakes National Park and Gros Morne National Park have been renewed.

#### **8. Curation Blitz**

A curation blitz is being planned to coincide with ESC/ESO joint annual meeting in Ottawa in October 2008. One of the possibilities being discussed is to visit the collections at the Canadian Museum of Nature. Another possibility is to have people bring material to Ottawa and set up an event to have experts to help with identifications.

#### **9. Faunal analysis**

There has been little progress on this project. A new subcommittee has agreed to review this project and report at the Fall meeting.

#### **10. Collecting locality database**

The first version of the database of common and historical collecting localities within

Canada is now done and has been posted on the BSC web site. Users of this database are invited to submit corrections, additions, notations, or alterations.

### 11. Endangered species

A long-standing proposal for a publication dealing with endangered species in Canada will be deferred indefinitely. Steve Marshall argued that the goal of this topic would be better served to continue to add reviews to the *Canadian Journal of Arthropod Identification*. Such accessible reviews are a prerequisite to an arthropod species being considered under species at risk legislation.

### 12. Biodiversity sampling brief

Because of the availability of good reference material, it was decided that it was unnecessary to prepare a revision of the Survey's 1994 biodiversity brief on planning a study and recommended sampling techniques. However, a reference list giving the various new sources for techniques is in process and will be posted on the BSC web site.

### 13. Brief on the importance of insect collecting

Greg Pohl is working on a BSC brief on the importance of insect collecting. This brief had its genesis when, as President of the Alberta Lepidopterists' Guild, he was asked to respond to a local naturalists group trying to mount a campaign against insect collecting of all kinds.

## Liaison and exchange of information

### 1. Canadian Museum of Nature

Roger Baird, Director, Collection Services reported on the rehabilitation of the Victoria Memorial Museum Building which is on track for a May 2010 reopening. The CMN and its colleagues in the Alliance of Natural History Museums of Canada continue to work on a collections development strategy and communications initiatives. The Alliance is also seeking to broaden its membership. The Council of

Canadian Academies has agreed to investigate the "State and Trends in Biodiversity Science in Canada: Are we Equipped to Understand the Challenges of our Biodiversity Resources?" The results could have major implications for the science conducted in natural history museums and in the academic community in the future.

The CMN was one of 17 federal organizations directed to undertake a strategic review of its programs and spending in 2007. As a result it appears that 5% of the Museum's total expenditures will have to be reallocated. In addition, the 2008 federal budget reduced the CMN's appropriations.

### 2. Entomological Society of Canada

Terry Shore, President of the Entomological Society of Canada, reported that the current focus for the Society has been its financial situation, and in particular to develop a strategy to stop the financial losses from *The Canadian Entomologist*.

### 3. Agriculture and Agri-Food Canada

Jean-François Landry reported that Agriculture and Agri-Food Canada will be starting a strategic review in 2008. The Invertebrate Biodiversity Team, which essentially encompasses all systematic entomologists at the CNC, just entered the second year of a 4-year project funded by AAFC. There will be six summer students working in the CNC this summer, to do a general inventory of the CNC. The last (and only) time the CNC holdings were assessed in a comprehensive manner was in the late 1970s and the results were compiled in the now widely cited and used *Canada and its Insect Fauna*. The main goal for the summer of 2008 is to tally the number of genera and species represented. The collection survey will continue over the next two to three years and will eventually add more detailed information such as geographic representation plus estimated or actual specimen counts. A comprehensive Collections Policy was developed to ensure the long-term preservation and value of the CNC holdings and to address a requirement of the 2003 Auditor General's report on

National Collections. Also being developed are additional policy components on Electronic Data Entry and Destructive Sampling to embrace new uses for the collections.

#### 4. Federal Biodiversity Information Partnership

Geoff Munro, Chair of the Board of the Federal Biodiversity Information Partnership (FBIP), provided an overview of that organization and their attempt to position the FBIP initiative as a deliverable under the federal Science and Technology Strategy.

#### 5. Alberta Biodiversity Monitoring Institute

Tyler Cobb, Curator of Invertebrates Zoology at the Royal Alberta Museum and Project Manager for the Alberta Biodiversity Monitoring project, provided an overview of the Alberta Biodiversity Monitoring Institute and its relationship with the Royal Alberta Museum. Further details can be found on their web site ([www.abmi.ca](http://www.abmi.ca)). In general, the goal is to look at the spatial and temporal variation in the abundance and diversity of a range of focal taxa in order to inform policy decision making surrounding natural resource and land use management.

#### Other matters

The Committee briefly discussed other matters such as the Canadian University Biodiversity Consortium, the BSC web site, the BSC newsletter, general developments in databasing, the BSC scholarship, a BSC symposium at the ESC-ESO joint annual meeting, BSC publicity, arthropods of the Gulf of St. Lawrence Islands, some regional developments and general operations of the Survey secretariat. The annual meeting of the Biological Survey Foundation was also held.



Fred Beaulieu

A not too timid male of a *Polyphylla* species, in Summerland, British Columbia.

### But the net was just fine...

I am currently trapping cabbage seedpod weevils at various heights and want to know their maximum flight height. Using a radio-controlled model plane seemed to be a solution but the necessary modifications were more complex than time allowed. Someone mentioned that airplanes have accurate altimeters. Just swing a net out of the plane. Was this practical? Was this legal? Of course, certified aircraft are too fast for this sort of thing (more on this later).

The only pilot to return my calls happily turned me down, though he did recommend someone who recommended someone who knew a guy who might be interested. After once again explaining myself for ten minutes (I now realize this is some sort of standard time for pilots to process ridiculous ideas) I was invited to see the aircraft. It was yellow and older and larger than expected with the lower surface of one wing covered in what looked very much like dried blood. Being in close proximity to the plane was too much for the pilot to bear and he immediately buried himself in tinkering. I asked, "So...what's with the wing?" He looked up just long enough to reply, "Blood". I felt justified in needing some clarification, "...from the last entomologist?" He lifted his head again and replied, "Nope...bird". He agreed to take me up.

The day of the flight arrived and I was led to a white plane. Apparently, Old Yellow had some mechanical issues and this one was a loaner. I was the cutoff man for startup. This meant that if the pilot was drawn into the hand cranked propeller, I was to turn the engine off. Bird, you say? The motor misfired and sputtered out. He'd forgotten something but all was now as it should be. This routine was repeated three times and ended with securing an unsecured cowling to the rest of the plane. I glimpsed a tall, black-robed fellow with an arcane harvest implement chuckling into his sleeve. We bounced down the grass strip and were airborne.



Adam Blake



We located the field and started our dive. Dive?! It would be the first of many. Tora! Tora! Tora! We'd caught the weevils unawares! Previous tests of the modified net indicated that 60 mph was about as fast as you could go before holding and retrieving became difficult. This was explained to all concerned before takeoff. The very small (imagine sharing a really noisy lawn chair) cockpit meant cutting the net handle down to avoid embarrassing prods of the pilot or instruments. It also meant there was less net to hold. I thrust it out the roughly net-width-on-the-diagonal window. It almost left my hands and took every bit of strength I had to hold steady and get back in the plane. The first pass was at 90 mph. After explaining that this might be a bit fast, we continued passes at increasing altitudes until no more insects were caught. The next two days were spent nursing an upset stomach and fuzzy head and reconsidering the wisdom of this idea.

Jim Tansey  
Department of Agricultural, Food and Nutritional Science  
University of Alberta, Edmonton, AB

---

### ESC Election Results!

Congratulations are in order to Peter Mason and Michèle Roy, following results of the recent election for new members of the ESC Executive.

Peter has been elected Second Vice-President. Michèle has been elected Director-at-Large.

We thank everyone who let their names stand for nomination to these two positions.

Rick West, ESC Secretary

### Congratulations Peter!

Peter Harris was awarded an honorary membership by the International Organization for Biological Control (IOBC), for his past, current and future contributions to the field of biological control. This recognition was awarded on July 7, 2008 in Durban, South Africa on the occasion of IOBC's 50<sup>th</sup> Anniversary.

---

*Peter gave the Heritage Lecture at the 2007 meeting of the Entomological Society of Canada. It was printed in the December 2007 issue of the Bulletin. - Editor*



Jeff Skvington

Wasp-mimicking syrphid fly (*Sphiximorpha willistoni*)

(continued from p. 156)

As submissions accumulate, a layout of the *Bulletin* is prepared using Adobe In Design software. Printing requirements require each issue to have a total page number evenly divisible by 4. This requirement typically generates 'white' spaces that we fill with your photographs, short announcements, jokes or quotes. As the draft issue nears completion, it is emailed to contributors for any final changes.

Once the final draft of the *Bulletin* is complete, two versions are prepared. One has colour images on the inside pages and 'hotlinks' for email addresses and URLs. It ultimately appears as a PDF on the ESC's website. The second has only greyscale images on the inside pages and is used to produce the paper version of the *Bulletin*. Some 800 paper copies are mailed out to libraries and members that have requested them.

We try to have the *Bulletin* available for readers in the month of the issue's release – in this case, September. We normally meet this goal for the PDF version. Delivery of the paper version usually lags by several weeks due to printing and shipping delays.

However, none of this is possible without your submissions. So... help us perform the magic. Send us your article, poem, or photograph for that next issue of the *Bulletin*, ....because there is always one in preparation!

(suite de la page 156)

sion possède des images couleurs à l'intérieur et des liens vers les adresses courriel ou les pages Internet. Elle apparaîtra ultimement en tant que PDF sur le site Internet de la SEC. La seconde version possède des images en tons de gris sur les pages intérieures et est utilisée pour la version papier du *Bulletin*. Quelques 800 copies imprimées sont envoyées dans les bibliothèques et aux membres qui le demandent.

Nous essayons de rendre le *Bulletin* disponible pour les lecteurs durant le mois de sa publication – dans le cas présent, septembre. Nous atteignons généralement cet objectif pour la version PDF. La livraison de la version papier prend généralement quelques semaines de plus à cause des délais d'impression et de livraison.

Cependant, tout ceci ne serait possible sans vos soumissions. Alors... aidez-nous à faire la magie. Envoyez-nous vos articles, poèmes ou photographies pour le prochain numéro du *Bulletin*... parce qu'il y en a toujours un en préparation!

Et... voilà!



# Officers of Affiliated Societies, 2007-2008

## Dirigeants des sociétés associées, 2007-2008

### Entomological Society of British Columbia

President John McLean  
President-Elect Sheila Fitzpatrick  
Past President Richard Ring  
Editor (Journal) Hugh Barclay  
Editor (Boreus) Jenny Heron  
Sec.-Treasurer Lorraine Maclauchlan  
BC Ministry of Forests & Range  
515 Columbia St., Kamloops, BC V2C 2T7  
Tel: (250) 828-4197  
E-mail: [lorraine.maclauchlan@gov.bc.ca](mailto:lorraine.maclauchlan@gov.bc.ca)  
<http://www.sfu.ca/biology/esbc/>

### Entomological Society of Alberta

President Rosemarie De Clerck-Floate  
Vice-President Brian Van Hezewijk  
Past President Jeff Battigelli  
Editor (Proceedings) Greg Pohl  
Editor (Website) Alec McClay  
Treasurer Lisa Lumley  
Secretary Ken Fry  
Olds College  
4500 - 50 Steet, Olds, AB T4H 1R6  
Tel: (403) 556-8261  
E-mail: [kfry@oldscollege.ca](mailto:kfry@oldscollege.ca)  
<http://www.biology.ualberta.ca/courses.hp/esa/esa.htm>

### Entomological Society of Saskatchewan

President Bryan Sorauer  
President-Elect To be announced  
Past President Julie Soroka  
Treasurer Dwayne Hegedus  
Newsletter Editor Brian Galka  
Secretary Larry Grenkow  
Agriculture and Agri-Food Canada  
107 Science Place, Saskatoon, SK S7N 0X7  
Tel: (306) 956-7293  
E-mail: [grenkowl@agr.gc.ca](mailto:grenkowl@agr.gc.ca)  
<http://www.usask.ca/biology/ess/>

### Entomological Society of Manitoba

President Désirée Vanderwel  
President-Elect Richard Westwood  
Past President Blaine Timlick  
Treasurer Ian Wise  
Newsletter Editors Manhood Iranpour  
Patricia MacKay  
Editor (Proceedings) Terry Galloway  
Member-at-Large John Gavloski  
Secretary David Ostermann

Manitoba Agriculture  
204-545 University Cres., Winnipeg, MB R3T 5S6  
Tel: (204) 945-3861, Fax: (204) 945-4327  
E-mail: [david.ostermann@agr.mb.ca](mailto:david.ostermann@agr.mb.ca)  
<http://home.cc.umanitoba.ca/esm/>

### Entomological Society of Ontario

President Rebecca Hallett  
President-Elect Cynthia Scott-Dupree  
Past President Blair Helson  
Treasurer Kevin Barber  
Editor (Journal) Miriam Richards  
Secretary David Hunt  
Agriculture and Agri-Food Canada  
2585 County Rd. 20, Harrow, ON N0R 1G0  
Tel: (519) 738-1230  
E-mail: [Huntd@agr.gc.ca](mailto:Huntd@agr.gc.ca)  
<http://www.entsocont.com>

### Société d'entomologie du Québec

Présidente Josée Boisclair  
Président sortant Daniel Cormier  
Vice-président Timothy Work  
Trésorière Annie-Ève Gagnon  
Rédactrice (Antennae) Christine Jean  
Secrétaire Geneviève Labrie  
572 rue Notre-Dame  
Granby, QC J2G 3M4  
E-mail: [secretariat@seq.qc.ca](mailto:secretariat@seq.qc.ca)  
<http://www.seq.qc.ca/>

### Acadian Entomological Society

President Carolyn Parsons  
Vice-President Peggy Dixon  
Past President Kenna MacKenzie  
Journal Editor Don Ostaff  
Member-at-Large Rick West  
Webmaster Rick West  
Treasurer/Secretary Janet Coombes  
Agriculture and Agri-Food Canada  
Box 39088, St. John's, NL, A1E 5Y7  
Tel: (709) 772-5640  
E-mail: [coombesj@agr.gc.ca](mailto:coombesj@agr.gc.ca)  
<http://www.acadianes.org/index.html>

*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: Kevin Floate  
Assistant Editor: Frédéric 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  
[www.esc-sec.ca/](http://www.esc-sec.ca/)  
[entsoc.can@bellnet.ca](mailto:entsoc.can@bellnet.ca)

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

Send correspondence to:  
Kevin Floate  
*Bulletin* Editor  
Lethbridge Research Centre  
Agriculture and Agri-Food Canada  
5403 - 1st Ave. S., Lethbridge, AB T1J 4B1  
Telephone: (403) 317-2242  
Fax: (403) 382-3156  
E-mail: [floatek@agr.gc.ca](mailto:floatek@agr.gc.ca)

ISSN: 0071-0741  
Customer Account No. 3975533  
Publications Mail Agreement No. 40033986  
Printed in Canada  
Contents copyrighted 2008 by the Entomological Society of Canada

**Submission deadline for the  
next issue: 31 October 2008**

## ***Bulletin de la Société d'entomologie du Canada***

Rédacteur : Kevin Floate  
Rédacteur adjoint : Frédéric Beaulieu

Le *Bulletin de la Société d'entomologie du Canada*, publié depuis 1969, présente trimestriellement des informations entomologiques, des opportunités, 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  
[www.esc-sec.ca/](http://www.esc-sec.ca/)  
[entsoc.can@bellnet.ca](mailto:entsoc.can@bellnet.ca)

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

Envoyer vos soumissions à :  
Kevin Floate  
Rédacteur du *Bulletin*  
Lethbridge Research Centre  
Agriculture et Agroalimentaire Canada  
5403 - 1st Ave. S., Lethbridge, AB T1J 4B1  
Téléphone : (403) 317-2242  
Télécopieur : (403) 382-3156  
courriel : [floatek@agr.gc.ca](mailto:floatek@agr.gc.ca)

ISSN: 0071-0741  
Numéro de client : 3975533  
Numéro de convention : 40033986  
Imprimé au Canada  
Droits d'auteur 2008 Société d'entomologie du Canada

**Date de tombée pour  
le prochain numéro :  
31 octobre 2008**

# The Buzz / Bourdonnements

By Kevin Floate, Editor / Rédacteur



## and... Voila!

**H**ow is the *Bulletin* magically produced every three months?

It starts with the printed reminder of submission deadlines, which appears on the second last page of each issue. Deadlines are January 31 (March issue), April 30 (June issue), July 31 (September issue), and October 31 (December issue).

I then send an email, 4-5 weeks prior to the deadline, asking members of the Executive Council, Regional Directors, Student Representatives and Trustees, regular column contributors, and committee Chairs for their submissions. A reminder is sent about 1 week before the deadline.

Official announcements from the Governing Board, 'Up Front' and 'The Buzz' are translated into French. Additional items are received from ESC members or scrounged from various sources by your trusty *Bulletin* Editor and Assistant Editor (e.g., See 'Death by caterpillar...?' on p. 115). We also rely heavily on you to send us submissions for the 'Lab Profile', 'Book Reviews', 'Entomologists at Work', and 'Special Feature'.

(continued on p. 153)

## Et... Voilà!

**C**omment le *Bulletin* est-il produit magiquement tous les trois mois?

Le tout commence avec le rappel des dates limites de soumission qui apparaissent à l'avant-dernière page de chaque numéro. Les dates limites sont le 31 janvier (numéro de mars), le 30 avril (numéro de juin), le 31 juillet (numéro de septembre) et le 31 octobre (numéro de décembre).

J'envoie par la suite un courriel, 4 à 5 semaines avant la date limite, demandant aux membres du conseil exécutif, aux directeurs régionaux, aux représentants étudiants, aux fiduciaires, aux contributeurs réguliers et aux présidents des comités leurs soumissions. Un rappel est envoyé environ une semaine avant la date limite.

Les annonces officielles du conseil d'administration, 'l'Avant-propos' et les 'Bourdonnements' sont traduits en français. Les articles additionnels sont reçus des membres de la SEC ou empruntés de différentes sources par votre rédacteur et votre rédacteur adjoint du *Bulletin* (voir par exemple 'Death by caterpillar...?' p. 115). Nous nous fions également en grande partie sur vos soumissions pour les sections 'Profil de labo', 'Critiques de livres', 'Entomologistes au boulot' et 'Article spécial'.

Alors que les soumissions s'accumulent, la mise en page du *Bulletin* est préparée en utilisant le logiciel Adobe In Design. Les restrictions d'impression requièrent que chaque numéro ait un nombre total de pages divisible par 4. Cette restriction génère typiquement des espaces blancs qui seront remplis avec vos photographies, courtes annonces, blagues ou citations. Lorsque le brouillon est presque terminé, il est envoyé aux contributeurs pour tout changement final.

Une fois le brouillon final du *Bulletin* complété, deux versions sont préparées. Une ver-

(continue à la page 153)



# Entomological Society of Canada, 2007-2008 Société d'entomologie du Canada, 2007-2008

## Executive Council / Conseil exécutif

### President / Président

Terry Shore  
Pacific Forestry Centre  
506 West Burnside Rd  
Victoria, BC V8Z 1M5  
Tel: (250) 363-0600, Fax: (250) 363-0775  
E-mail: [tshore@pfc.cfs.nrcan.gc.ca](mailto:tshore@pfc.cfs.nrcan.gc.ca)

### First Vice-President / Premier vice-président

Paul Fields  
Agriculture and Agri-Food Canada  
195 Dafoe Rd., Winnipeg, MB R3T 2M9  
Tel: (204) 983-1468, Fax: (204) 983-4604  
E-mail: [pfields@agr.gc.ca](mailto:pfields@agr.gc.ca)

### Second Vice-President / Second vice-président

Maya Evenden  
CW 405 Biological Sciences Centre  
University of Alberta  
Edmonton, AB T6G 2E9  
Tel: (780) 492-1873, Fax: (780) 492-7150  
E-mail: [mevenden@ualberta.ca](mailto:mevenden@ualberta.ca)

### Past President / Président sortant

Peggy Dixon  
Atlantic Cool Climate Crop Research Centre  
Agriculture and Agri-Food Canada  
308 Brookfield Rd.  
St. John's, NL A1E 5Y7  
Tel: (709) 772-4763, Fax: (709) 772-6064  
E-mail: [dixonpl@agr.gc.ca](mailto:dixonpl@agr.gc.ca)

### Directors-at-Large / Conseillers

Sheila Fitzpatrick (2008), Chris Buddle (2009),  
Gaétan Moreau (2010)

---

### Regional Directors / Directeurs régionaux

Bill Riel (ESBC), Lloyd Dossdall (ESA),  
Christel Olivier (ESS), Patricia MacKay (ESM),  
David Hunt (ESO), Sophie Rochefort (SEQ),  
Kenna MacKenzie (AES).

### Student Representatives /

### Représentants des étudiants

Chris Borkent  
McGill University  
E-mail: [chris.borkent@mail.mcgill.ca](mailto:chris.borkent@mail.mcgill.ca)  
Greg Smith  
University of Northern British Columbia  
E-mail: [gregsmith@telus.net](mailto:gregsmith@telus.net)

## Trustees / Fiduciaires

### Treasurer / Trésorier

Patrice Bouchard  
Entomological Society of Canada  
393 Winston Ave., Ottawa, ON K2A 1Y8  
Tel: (613) 759-7510, Fax: (613) 759-1924  
E-mail: [bouchardpb@agr.gc.ca](mailto:bouchardpb@agr.gc.ca)

### Secretary / Secrétaire

Rick West  
31 Drover's Heights  
Portugal Cove-St. Philips, NL A1M 3G6  
Tel: (709) 895-2734, Fax: (709) 895-2734  
E-mail: [reely.west@nl.rogers.com](mailto:reely.west@nl.rogers.com)

### Bulletin Editor / Rédacteur du Bulletin

Kevin Floate  
Agriculture and Agri-Food Canada  
5403 - 1st Ave. S., Lethbridge, AB T1J 4B1  
Tel: (403) 317-2242, Fax: (403) 382-3156  
E-mail: [floatek@agr.gc.ca](mailto:floatek@agr.gc.ca)

### Ass. Bulletin Editor / Rédacteur adj. du Bulletin

Fred Beaulieu  
Agriculture and Agri-Food Canada  
K.W. Neatby Building,  
960 Carling Avenue, Ottawa, ON K1A 0C6  
Tel: (613) 759-1789, Fax: (613) 759-1927  
E-mail: [beaulieuf@agr.gc.ca](mailto:beaulieuf@agr.gc.ca)

### Webmaster / Webmestre

Rick West  
Tel: (709) 895-2734, Fax: (709) 895-2734  
E-mail: [reely.west@nl.rogers.com](mailto:reely.west@nl.rogers.com), [www.esc-sec.ca/](http://www.esc-sec.ca/)

### The Canadian Entomologist

### Editor-in-Chief / Rédacteur en chef

Robb Bennett  
Tel: (250) 652-6593, Fax: (250) 652-4204  
E-mail: [robb.bennett@gov.bc.ca](mailto:robb.bennett@gov.bc.ca)

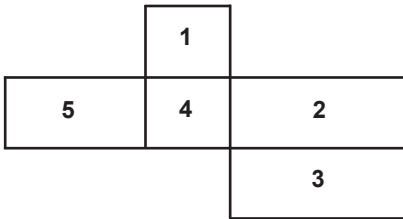
### Division Editors / Rédacteurs de division

G. Boiteau, E-mail: [BoiteauG@agr.gc.ca](mailto:BoiteauG@agr.gc.ca)  
C. Buddle, E-mail: [chris.buddle@mcgill.ca](mailto:chris.buddle@mcgill.ca)  
Y. Pelletier, E-mail: [PelletierY@agr.gc.ca](mailto:PelletierY@agr.gc.ca)  
T. Wheeler, E-mail: [terry.wheeler@mcgill.ca](mailto:terry.wheeler@mcgill.ca)

---

### Head Office / Siège social

Entomological Society of Canada  
393 Winston Ave., Ottawa, ON K2A 1Y8  
Tel: (613) 725-2619, Fax: (613) 725-9349  
E-mail: [entsoc.can@bellnet.ca](mailto:entsoc.can@bellnet.ca), [www.esc-sec.ca/](http://www.esc-sec.ca/)



[www.esc-sec.ca/](http://www.esc-sec.ca/)

Return Undeliverable Canadian Address to:  
 Entomological Society of Canada  
 Société d'entomologie du Canada  
 393 Winston Avenue  
 Ottawa, Ontario, Canada K2A 1Y8  
 E-mail: [entsoc.can@bellnet.ca](mailto:entsoc.can@bellnet.ca)

Publications Mail Agreement No. 40033986  
 Date of issue: September 2008

ISSN: 0071-0741

## Images

**On the spine:** *Silusa californica* Bernhauer (Staphylinidae, Aleocharinae), originally described from Pasadena, California, represents a fairly common pattern of distribution being transcontinental in Canada and ranging south along Rockies. Photo: K. Bolte

**Beneath the title:** *Aphodius distinctus* (Müller) is a European species of dung beetle (Scarabaeidae) that is common throughout North America. Photo: H. Goulet & C. Boudreault

### Photos on front cover:

1. Reared from seed cones of western red cedar, *Thuja plicata* Don ex D. Don (Cupressaceae), this male *Eurytoma* sp. (Eurytomidae) is either a parasitoid associated with the red cedar cone midge, *Mayetiola thujae* (Hedlin) (Cecidomyiidae) or a spermatophage. Photo: D. Manastyrski

2. *Spilomyia alcimus* (Syrphidae) on Hoptree *Ptelea trifoliata*. Wheatley, Essex County, Ontario, June 2, 2007. Photo: J. Lucier

3. Bob Lamb collecting in Riding Mountain National Park, Manitoba, during the Biological Survey of Canada's 2007 BioBlitz. Photo: P. MacKay

4. Immature *Xysticus* sp. (Thomisidae) on a daisy in a garden at the foot of Mt. Bowman, British Columbia, July 2005. Photo: J. Bovee

5. Bright red galls of the agamic generation of *Trigonaspidius quercusforticorne* (Walsh) (Cynipidae) on new twigs of bur oak (*Quercus macrocarpa*) at Souris, MB. Photo: S. Digweed

**Back cover:** Leafcutting bee, probably *Megachile* sp. (Megachilidae) taken on Pender Island, BC, July 2007. Photo: B. Roitberg

Français à l'intérieur de la couverture avant