

Bulletin

Entomological Society of Canada
Société d'entomologie du Canada

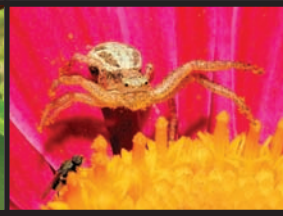
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Images

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

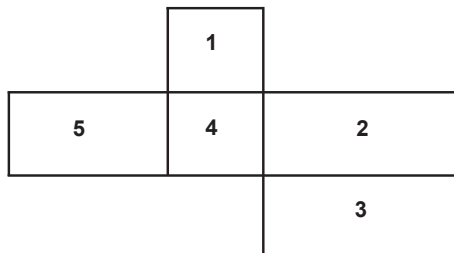
2. *Spilomyia alcimus* (Syrphidae) sur le ptéleá *Ptelea trifoliata*. Wheatley, comté d'Essex, Ontario, 2 juin, 2007. Photo : J. Lucier

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





We live in amazing times! Think of it. In Canada, we have enough resources to have hundreds of people across the country whose job is to think all day about insects. These minute animals, are sometimes a nuisance, sometimes a boon, largely they are just ignored by most Canadians. Yes, there is a chronic lack of funding for new entomology positions. Yes, we could all use more funding for our work. Yes, sometimes it is difficult to attend to meetings. An example is Natural Resources Canada's petty rule not to allow any more than three of their employees at a given meeting. But let us not forget what a great jobs we have as researchers, teachers and students! We have a front row seat to discovering the amazing world of insects.

The Entomological Society of Canada (ESC) does a tremendous job of making this happen. I always come away from the annual meeting with a few good ideas I can use in my research, some new contacts and just the enjoyment of seeing new ideas. A great example is the presentation by Phillip Careless and colleagues. They had the ingenious idea to use a predatory wasp, *Cerceris fumipennis* to monitor Emerald Ash Borer.

The ESC is an active and vibrant society. Our meetings are well attended. The *Bulletin*

Quelle époque incroyable que la nôtre! Non, mais, pensez-y. Au Canada nous avons suffisamment de ressources pour avoir des centaines de personnes dans toutes les régions dont la tâche est de penser toute la journée aux insectes. La plupart du temps, la majorité des Canadiens ignorent ces petites bestioles, parfois nuisibles, parfois bénéfiques. C'est vrai qu'il manque toujours de fonds pour de nouveaux postes en entomologie. Nous aimerions tous des fonds supplémentaires pour appuyer notre travail. Parfois il est difficile d'assister aux congrès; par exemple, à cause du règlement à Ressources naturelles Canada qui interdit à plus de trois de ses employés d'assister à un même congrès. Mais, n'oublions pas combien nos emplois sont enviables, en tant que chercheurs, enseignants ou étudiants. Nous avons des billets de première rangée au spectacle étonnant du monde des insectes.

La Société d'entomologie du Canada (SEC) accomplit sa tâche de façon admirable. Je rentre toujours du congrès annuel muni de quelques idées pour ma recherche, quelques nouveaux contacts et avec le plaisir d'avoir vu de nouvelles idées. Un bon exemple est la présentation de Phillip Careless et ses collègues. Ils ont eu l'idée brillante d'utiliser une guêpe prédatrice, *Cerceris fumipennis*, pour localiser l'agrile du frêne.

La Société d'entomologie du Canada est une association active et dynamique. Nos congrès sont très populaires et les présentations portent sur une grande variété de domaines de recherche. Entre les congrès, le *Bulletin* nous tient au courant des activités des membres dans tout le pays. *The Canadian Entomologist (TCE)* est une publication respectée qui présente le travail d'entomologistes du Canada et d'au-delà. Notre page Web vient d'être mise à jour pour diffuser de l'information sur la Société aux membres et au grand public.

Cependant, la Société fait face à certains défis. En 2006, elle avait un déficit de 19 000\$. Les coûts de mise en page, d'impression et

keeps us up to date on members across Canada between meetings. *The Canadian Entomologist (TCE)* is a highly regarded publication, publishing work of entomologists from Canada and around the world. Our webpage has been recently updated, and provides information about the Society to the public-at-large and to members.

However there are some challenges facing the Society. In 2006, our society ran a deficit of \$19,000. Our costs for layout, printing and mailing our Society publications increase 3 to 5% each year. But membership dues have not increased since 1988, and the membership dues cover only a small part of the cost to produce our publications.

In response to this financial crisis, members at this year's Annual General Meeting voted that members would bear the cost of postage for *TCE* and *Bulletin* if they want to receive a printed copy of the publication. This change is vital for the long term financial viability of the Society. Electronic access to these publications will remain free for members.

There are several benefits to being a member:

- Free electronic access to *TCE*.
- New this summer, free electronic access to all back issues of *TCE* and the *Memoirs*.
- Hard copies of *TCE* and *Bulletin* for the cost of postage.
- Reduced page charges for publishing in *TCE*.
- Reduced conference fees at the annual meeting.
- Members-only section on web site; members list, publications.
- Being part of the only professional society that promotes entomology across Canada.

If you are a member of the ESC, I encourage you to renew your membership this December. If you are not a member, I think this is a great time to become one.

I invite you to share your stories about what you have discovered in the last few months in your life as entomologist, on our web page, in the *Bulletin* or as a scientific paper in *TCE*.

d'expédition de ses publications augmentent de 3 à 5 % par an. Les frais d'adhésion ne couvrent qu'une partie du coût des publications, et les frais n'ont pas augmenté depuis 1988.

À la suite de cette crise financière, les membres présents à l'assemblée générale de cette année ont voté pour que les membres assument les frais d'expédition postale de *TCE* et du *Bulletin* s'ils tiennent à en recevoir une copie papier. Ce changement est essentiel pour la survie financière à long terme de la Société. L'accès en ligne demeure gratuit pour les membres.

Il y a plusieurs avantages à être membre :

- Accès en ligne gratuit à *TCE*.
- Cet été, accès en ligne gratuit aux archives de *TCE* et aux *Memoirs*.
- Copies papier de *TCE* et du *Bulletin* au coût des frais d'expédition par la poste.
- Réduction sur les frais de publication dans *TCE*.
- Réduction sur les frais d'inscription de la réunion annuelle.
- Section du site Web exclusif aux membres; liste des membres, publications.
- Faire partie de la seule société professionnelle qui fait la promotion de l'entomologie à l'échelle du Canada.

Si vous êtes un membre de la SEC, j'espère que vous renouvelerez votre abonnement ce décembre. Si vous n'êtes pas un membre, je pense que c'est un moment propice pour le devenir.

Je vous invite à partager vos découvertes récentes en tant qu'entomologiste, soit par notre site Web, dans le *Bulletin* ou par un article scientifique dans *TCE*.



Steve Marshall

A *Neophylax* caddisfly (Uenoidea)



The Painted Lady and the Striking Crimson Lord

Several years ago, *Moth Balls* dealt with the subject of scientific names and astutely pointed out that one of the main reasons scientific names were required was because of a lack of universality of common names: *Bulletin, Ent. Soc. Can.* 36(4):154-155. In their defence, it has been noted that for some species, the common name is more stable than the scientific name which changes whenever an annoying taxonomist proposes different hypotheses of relationship or synonymy. In 1903, in an effort to standardize common names, the American Association of Economic Entomologists (AAEE) formed a Committee on Nomenclature of Common Names, and in 1908, published their first list containing 142 common names. Since the merge of AAEE with the Entomological Society of America in 1953, the list has been kept and updated by ESA and now contains over 2000

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names: http://www.entsoc.org/Pubs/Common_Names/index.htm. The Entomological Society of Canada maintains a similar list in both official languages: <http://www.esc-sec.ca/commonnames.html>. Should you wish to publish a paper on a common species of insect, it behooves you to verify that you are using the correct common name. In fact, it is mandatory to use an approved common name should you wish to publish in any of the journals of the ESA or ESC. Should you wish to propose a common name or modify an existing one, there are instructions and forms on both websites to allow you to do so.

So what makes a good common name? The ESC guidelines suggest: “A common name should be simple, short, and should refer to characteristic or notable features of the insect, its habits, or habitat.” This seems to be the pinnacle of rational advice. But allow me to add another important recommendation. In perusing the entomological literature, I have found that there are some common names that are perhaps not as appropriate today as when they were originally proposed. In an effort to avoid offending others in the entomological world, *Moth Balls* presents a list of names no longer considered suitable and the new, more politically correct terms that should replace them.

1) Stink bug

As the cliché goes, beauty is in the eye of the beholder, or in the case of pentatomids, the nose of the besmeller. This author will not pretend to like the scent of the average alarmed pentatomid. However, I will defend their right to be named in a non-prejudicial manner, and I agree that the term “stink bug” is defamatory. From this point forward, pentatomids should be referred to as “aromatic shield bugs”, although it is still recommended that whatever you call them, your nostrils should be positioned a reasonable distance from their scent glands at all times.

2) Stick insect

Phasmatodean self-help groups have long expressed their dislike for the word “stick” because it perpetuates the body image problems that have plagued the thinner members of the order since time immemorial. Henceforth, slender individuals of the order Phasmatodea should be referred to as “laterally challenged insects”. Alternatively, the term “cleverly camouflaged petiole insects” is acceptable.

3) General policy on common name gender neutrality

It is the recommendation of this column to attempt to maintain gender equality in all common names. Originally it was suggested that names perceived to be sexist should be completely changed to gender neutral forms. For example, all ladybird beetles, regardless of sex, could be called spheroid, spotted fire beetles. However, it was eventually decided that a more positive approach to the issue of gender equality was to propose separate, gender-appropriate names for each sex. Below is a table showing the recommended male and female common names for some previously inappropriately named insects.

Note that the recommendation for changing the name “painted lady” for males was withdrawn following recognition that it is perfectly acceptable nowadays to be a male painted lady and changing the name to “the striking crimson lord” is both unnecessary and slightly pathetic. Finally, there is one recommendation to change a name completely for both males and females. From now on, all corixids should be called “submariner bugs” as opposed to “water boatmen”. It was pointed out that the term “water boatman” must clearly have been

coined by a man because it is not only sexist, but completely inaccurate.

4) Fly (pl. flies)

For decades, the Pterygota defence league (composed primarily of Coleopterists, Lepidopterists and Hymenopterists) has taken issue with the restriction of the term “fly” to describe insects with their hind wings modified into halteres. Especially irksome to them was use of the perceived elitist term “true flies”. In order to create good will within the pterygote taxonomic community, the word “fly” should now be applied to any flight-capable insect. This recommendation should be hailed by all fanciers of beetle flies, butterfly flies and wasp flies. The group previously referred to as “true flies” should now be called “knob-winged insects”. This name was arrived at as a compromise following rejection of the term: “filth-siphoning, scum-feeding, blood-sucking pests that give all insects a bad name”. Sadly, the latter name is simply too long. A concern was raised that the term knob-winged insects did not adequately differentiate Diptera from Strepsiptera, but the final decision regarding this issue, was “who really cares”?

5) Assassin bugs

In the kinder, more sensitive world of the 21st century, even the strongest require equal protection from prejudice. This is most well-illustrated by a recent study showing that juvenile reduviids were three times more likely to enter a life of crime than their non-criminally named relatives. Whereas it was originally proposed to change the name to the less commonly used “cone nose bugs”, this decision was hastily rejected following several

Inappropriate Name	New Female Name	New Male Name
ladybird beetle	ladybird beetle	manly spotted aphid killer
damsel fly	damsel fly	macho lightning winged death fly
damsel bug	damsel bug	massive raptorially-legged impaler
painted lady	painted lady	painted lady

disturbing phone calls that objected to the name, and a suspicious accident that befell one of the proponents of the name change. It has now been decided that the term “contract bugs” will be used instead. *Moth Balls* sincerely and unreservedly apologizes for any inconvenience that this name change may cause.

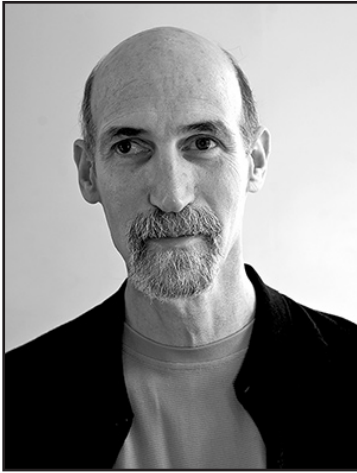
Join me next time when *Moth Balls* drops a few more politically correct ento-names.



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

Gold medal address / Allocution du médaillé d'or

by Bernie Roiberg



I want to thank the Awards Committee for honouring me and members of my lab (past and present) with this Gold Medal. I have been truly blessed with a bevy of excellent students and post docs who have gone on to very successful careers of their own. I have also been fortunate to have spent the bulk of my career at Simon Fraser University where intellectual growth is encouraged. In particular, I want to note my interactions with Larry Dill, Manfred Mackauer, Gerhard Gries and most recently Carl Lowenberger and of, course, my longtime friend and colleague, Thelma Finlayson. In addition, I have benefited from many collaborations outside of SFU. I want to make special note of my partnerships with Marc Mangel, Thomas Hoffmeister, Dave Gillespie and Woody Foster and a number of

Bernie Roitberg is a Full Professor in the Department of Biological Sciences at Simon Fraser University in Burnaby, BC. He received the 2008 ESC's Gold Medal Award in recognition of his outstanding scientific achievements in the area of insect population and behavioral ecology, as well as his service to the ESC. Details of these achievements appear on page 170.

others for whom space does not allow me to mention by name. Further, I want to note that I received excellent graduate supervision during my MSc (Judy Myers) and PhD (the late Ron Prokopy) studies. They gave me lots of room to explore new ideas but were always there to bail me out when my naïveté got me into hot water. Judy and Ron were great inspirations in my life and I feel very fortunate to have worked with them. And, last but not least, I want to thank my family (especially partner Carol and daughter Gabi) for all their patience and support; apparently, it's not easy having an entomologist in the family. To quote my daughter, "How many families sit around the dinner table and talk about sexual selection and extra oral digestion?" – rhetorical.

My talk today is a little sermon. The title of this sermon is: Think Broad, Focus Sharp. And so, sisters and brothers and all you sinners, I want to begin this sermon with a statement: I contend that no one should ever have to apologize for studying an organism or group of organisms because they find it interesting. And yet these are difficult times for those of us who study biology at the organismal level and where we are constantly being nudged to move away from "ology" kinds of pursuits to more lucrative endeavours. My response to such pressure is to say, "That is ridiculous", and to point out just a few of the very important contributions that entomologists have made and continue to make to our understanding of scientific principles. My four examples include: Theodosius Dobzhansky, population geneticist – focal organism, fruit flies; William Hamilton, evolutionary biologist (inclusive fitness, altruistic behavior, social structures) – focal organisms, haplo-diploid arthropods; E.O. Wilson, ecologist, sociobiologist – focal organisms, ants; Vincent Dethier, physiologist – will always be associated with two of his best known books *The Hungry Fly* and *To Know A Fly*. One could add many more names to this list; e.g., Miriam Rothschild, Paul Ehrlich, Mae Berenbaum, Bill Wellington and Buzz Holling to name just a few. The key point to

note is that all of these important contributors to science had/have at least one thing in common: they read and thought very broadly but then they used their intimate knowledge of particular arthropod systems to ground-truth important concepts, to put them in context, to make them relevant. These are terribly important contributions and they continue to be made today by entomologists and other kinds of “ologists”.

I want to divert from my talk very briefly to make sure that my message is not misunderstood. By no means I am suggesting that entomologists should reject the wonderful modern tools that have become available to us through great advances in fields such as information technology and molecular biology. In fact, I say that entomologists should embrace such tools to help us understand how our world works. Where the problem comes in is when one worships these tools as special entities unto themselves – this is where the sinners and idolators must be so very careful not to be drawn over to the “dark side”.

I want to return to my main text by looking at a few major issues or concerns that we humans have about ourselves and to show how entomologists can speak to these problems. I realize that I am speaking to the converted (a time honored tradition in Ottawa) but, if nothing else, I can provide you the audience with ammunition to fight back the next time that your administrators hit on you to move away from your entomological pursuits.

Concern # 1 - Senescence

Senescence can be simply defined as a mortality rate that increases with age. This is a phenomenon that has been recognized for sometime and was formalized almost 200 years ago by Benjamin Gompertz, a self trained mathematician and the first actuary for the Alliance Assurance Co. of Britain. Here is one version of the Gompertz Law of Human Mortality:

$$M_x = M_0 e^{\gamma x} \quad (1)$$

where: M_x = mortality rate at age x , M_0

= baseline mortality rate associated with a particular environment, γ = parameter that describes the strength of the aging effect.

The Gompertz model has been accepted as a general model of senescence for many organisms but it is a difficult model to rigorously test. For example, suppose we wished to test the Gompertz prediction that for some cohort of humans that some 118-year-old is less likely to live long enough to celebrate her 119th birthday than would a 114-year-old to celebrate her 115th birthday. We are likely to face a problem of sample size; i.e., the number of individuals still alive when very old is vanishingly small. To overcome this problem, Jim Carey and other entomologists have reared tens of thousands of fruit flies (true fruit flies and otherwise) and followed aging cohorts to determine whether they fit the Gompertz predictions. The short answer is that there is often a poor match between Gompertz theory and lab results. There are several possible reasons for this including fundamental differences between the way that arthropods age and that characterization in the Gompertz model but most importantly, studying these arthropod systems has caused us to reevaluate some of our basic assumptions about aging in living systems. Finally, I want to close with an observation that the Gompertz term that I described as a gamma constant is unlikely to take a single value and in fact is far more dynamic than is assumed. This makes the story of senescence far more complicated than first described, a virtual gold mine for entomologists interested in this topic.

Concern # 2 - Senescence Behavior

Simply put, senescence behavior theory asks: How should you behave as you approach the end of your life? This question is of considerable interest to psychologists and gerontologists (and entomologists too).

Can arthropods help explain The Grumpy Old Man Syndrome? Maybe or maybe not but they do offer important insights into this concern. Several years ago, Marc Mangel (theoretician extraordinaire) and I developed

behavior theory for parasitoid wasps that were approaching the end of their lives. The theory can also be called The Singles Bar Effect. Simply put, the theory says that parasitoids should become less and less choosy about where they lay their eggs as they approach the end of their lives – analogously, a patron at a singles bar should become less choosy about potential mates as the bar approaches closing time. During such times, there simply isn't the luxury to continue to search for the perfect host or mate, respectively. We tested this idea with *Leptopilina heterotoma* (Figitidae: Hymenoptera) wasps (Figure 1) by telling half of our young, healthy individuals that they were going to die soon by manipulating barometric pressure, i.e. we “told” the wasps that a big storm was on the way. And, just as the theory predicted, parasitoids that were told that their expectation of life had greatly decreased, expressed a dramatic reduction in choosiness (Roitberg et al. 1993). Figure 2 shows that wasps that were placed in chambers with dropping barometric pressure (DB) and at sites with poor availability of hosts (DG) laid by far the most eggs in low-quality hosts when they encountered them whereas those under steady barometric pressure (SB) and at a good site (SG) were by far the most choosy and laid the fewest eggs into low-quality hosts. We can conclude that wasps know the theory and apply it appropriately. It is gratifying for me to report that these kinds of studies on arthropods are now being referenced in the psychological literature.

Concern # 3 - Weight Management

Most if not all-living organisms maintain energy reserves (often in the form of carbohydrates and lipids). If one surveys the animal kingdom they would find dramatic variance across (and within) species in terms of the relative size of such reserves. For example, migratory birds may build considerable reserves. Of late, evolutionary biologists have questioned the cost of developing and maintaining these stores. For example, obese individuals may be more susceptible to predation

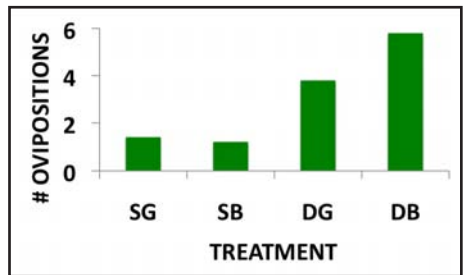


Figure 1. *Leptopilina heterotoma* (top panel). **Figure 2.** Effect of environment and host quality on host choice (bottom panel); modified from Roitberg et al. 1993. Nature.

if such individuals experience concomitant loss in escape speed and agility. The difficulty with testing these ideas on vertebrates is that mass gain often is associated with other physiological changes (e.g., fat migratory birds often differ in many aspects from their skinny conspecific non-migrators). In our lab, we have been working with *Anopheles gambiae*, the African malaria mosquito. Females in this species can nearly double their mass in just a few minutes while imbibing a blood meal (Figure 3). Our studies show that obese, engorged females are highly susceptible to both defensive hosts and off-host predators. In Figure 4, the top panel shows that escape velocity declines dramatically with mass and the bottom panel shows examples of escape paths from defensive hosts; obese mosquito escape in straight-line flights making them very susceptible to defensive hosts. On the other hand, anaotogenous mosquitoes require



Figure 3. Blood-fed *Anopheles gambiae* (top panel).

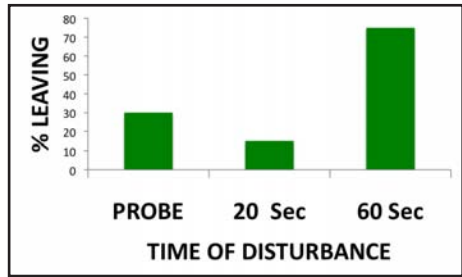


Figure 5. Effect of body mass on host leaving decisions for *Aedes aegypti*.

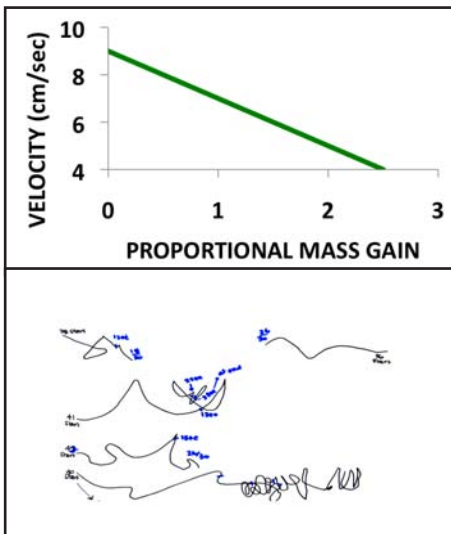


Figure 4. Effect of blood-engorgement by *Anopheles gambiae* on mass (top panel) and escape (bottom panel); modified from Roitbert et al. 2003. Behavioral Ecology.

blood to produce offspring. This puts them into an evolutionary dilemma; i.e., there are both significant costs and benefits from blood feeding. This dilemma was foretold and very well articulated nearly three decades ago by the punk rock band The Clash in their album *Combat Rock*. Some of you might remember this famous song, “Should I Stay Or Should

I Go?”. This Clash insight suggests that the mosquito faces a classic problem from economics that occurs when the marginal returns from feeding vary from the marginal cost. Our analysis of this problem suggests that host-leaving decisions by mosquitoes should be blood meal mass dependent and a follow up experiment using artificial feeders strongly supports this prediction. Figure 5 shows some results from such experiments with *Aedes aegypti*. Notice that females are more likely to abandon hosts the heavier that they are but also during the probing phase, a very dangerous part of the blood seeking and feeding process. What these experiments provide us is an essential piece of information that allows us to predict the distribution of blood meal sizes and biting frequency as a function of several environmental and physiological variables such as energy and bloodmeal state. These two variables are critical for predicting magnitude of malaria and for assessing impact of intervention tactics.

Concern # 4 - Brain and Behaviour

The question here is: What is it about the form of our brain that causes us to express particular forms of behaviour? This is a question that is currently of great interest to philosophers, neurobiologists, psychologists, and, of course, entomologists.

Neurobiologists who study the brains of bees have made great progress at answering the aforementioned question. The key here is

to approach the problem in an interdisciplinary manner, in this case, drawing on concepts and methods from ecology, behavior and neurobiology. Thus, such multi-skilled researchers have challenged bee brains with highly relevant questions such as when and where to housekeep and then determined how these bee brains solve these problems. I suggest that kinds of approaches have tremendous potential to teach us about how we solve everyday problems.

Conclusion

I have argued that organismal-level scientists such as entomologists have an important role to play in our rapidly evolving, highly technological world. Arthropods face many

of the same problems that we do, senescence, obesity, behaviour disorders to name just a few (and I didn't even talk about our work on arthropod suicide, siblicide, cheating, irritability, tolerance, tooth decay and more) so it makes sense to study how arthropods solve these problems to give some insight into ourselves. Knowing how these organisms differ from us also can give great insights into our inner workings. So, in closing, I urge entomologists to continue to explore insects as individuals to help us unravel the mysteries of life. In doing so, I believe that we can be both profound and productive; all we have to do is follow my little recipe – one part broad thoughts with an equal measure of sharp focus.

Call for Submissions!

Pest Management Research Report – Insect Pests and Plant Diseases

The Pest Management Research Report (PMRR) is published annually to facilitate the rapid exchange of information on Integrated Pest Management (IPM) among persons involved in research and advisory services on IPM of plant diseases and insect pests in the agri-food sector of Canada. These reports aid the development of recommendations for insect and disease management programs throughout Canada. They report on all aspects of pest management, including cultivar and management responses, and are available to support the registration of pest control products. Past issues of PMRR, since 1991, can be downloaded at: <http://www.cps-scp.ca/publications.htm>.

The deadline for submissions to the 2008 issue of PMRR is **25 January 2009**. For further information, please contact either of:

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Meeting announcements / Réunions futures

3rd International Symposium on Biological Control of Arthropods

Christchurch, New Zealand , 8-13 February 2009

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

6th International IPM Symposium, `Transcending Boundaries`

Portland, Oregon, 24-26 March 2009

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

93rd Annual Meeting of the Pacific Branch, Entomological Society of America

San Diego, California, 29 March - 1 April 2009

http://groups.ucanr.org/_2009_PBESA/

1st International Entomophagous Insects Conference

Minneapolis, Minnesota, 27-31 July 2009

www.cce.umn.edu/entomophagous

Joint Meeting of the Entomological Societies of Canada and Manitoba

Winnipeg, Manitoba, 18-21 October 2009

<http://home.cc.umanitoba.ca/~fieldspg/ESC2009.html>

57th Annual Meeting of the Entomological Society of America

Indianapolis, Indiana, 13-16 December 2009

<http://www.entsoc.org/am/fm/2009/index.htm>



Dear Buggy / Cher Bibitte

by Chris MacQuarrie



This month's column is a bit different, as there is no actual question from one of my beloved readers. Instead, my idea for this column originated in a conversation I had with a colleague at the Entomological Society of Canada meeting in Ottawa this fall. We were discussing the value of volunteer service to one's department, university, or professional organization while in graduate school. My colleague had recently started their degree and expressed concern that volunteering could take too much time away from their studies. While the ultimate goal of graduate school is to complete a thesis, I believe that it is also a time to learn those 'other' skills, particularly how to deal with people and work in a group. During my time as a graduate student, I learned a great deal from my volunteer experiences, thus the role that service plays in a graduate student's education is one close to my heart.

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, tel: (780) 435-7362), or post them to the ESC's student Facebook page at <https://www.facebook.com/group.php?gid=13552445022>

So I decided to make it the topic of this issue's column. Therefore, this month's question is: What is the value of volunteer service while in graduate school?

Without argument, service on committees can be boring, painful and dull. Often, time in meetings is spent dealing with minutia or listening to uninteresting people drone on about topics they know nothing about (or should, but still don't). Moreover, at the end of a meeting, or even a year of service, we feel that nothing has been accomplished. I would suspect that this is the mental image that most graduate students form when that inevitable email arrives from the departmental secretary pleading for a graduate student to serve on the "Faculty Care and Feeding committee" or to represent the department at the "University Renewal Retreat and Pancake Breakfast". In this light I suspect even the most tedious laboratory experiment seems like a day at the beach. However, as one veteran of committee meetings once expressed to me, meetings and committee service (especially those who see academia, or government work in the future), can't be avoided, so you might as well do something. By volunteering you at least get to choose your poison.

Is volunteering just an experience to be tolerated, or is there some other value? I could make a case using the obvious reasons: the line-item on your CV, increased visibility in your department, school or field, some kind of remuneration or opportunity for travel. These things are important and will serve you well in the future. For example, do you really want to spend 5 years toiling away and then have some future employer phone a colleague in your department and have them respond "Who? Never heard of him". These reasons though should be apparent to anyone who's taken even a passing interest in developing a career post grad-school. What I'm really interested in are those intangibles, those life-skills that you will make use of no matter where you end up. I'll attempt to illustrate this point with two examples.

How do you run a meeting? I mean, to call a meeting is simple, you send an email, post a flyer or drop a memo in someone's mailbox, (or nowadays I suppose we'd create an event on Facebook). But how do you run a meeting? Deal with prickly colleagues? Cut off that blowhard who likes to hear themselves talk, but do it politely? Do you know how to do these things? I don't (or didn't), or at least not well. I've had the privilege of sitting in on well-run meetings that were a joy to behold, but I've also been dragged to others that had me wanting to claw my eyes out. Permit me a brief digression; I loved serving on my Graduate Student Association and I think graduate students are great, but 50 grad students in a room is like a meeting of the overachiever's society where everyone is trying for A's in participation. Whoever said "Brevity is the soul of wit" knew what they were talking about. Deep breath. OK. Anyway, from those well-run meetings I've learned how a good moderator keeps things moving towards a goal without getting distracted. Thus, I've had the good fortune of seeing amazing things accomplished in short periods of time, while respecting the opinions of all involved. If you know (or think you know) how to accomplish this, you're on your way to greatness as a leader of nations. I suspect though that you don't. Isn't it worth some of your time, while you're learning anyway, to observe a master? Or at least, learn what not to do?

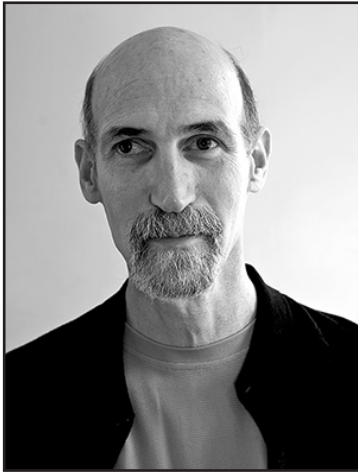
Someone once said that nothing great was ever accomplished by committee. This may or may not be true; I think the data probably comes down on both side of that conclusion. But great things can be accomplished when well-minded people work together towards a specific goal. In fact most of you probably have benefited from some kind of committee work, whether you know about it or not. Perhaps your university has a graduate-student or teaching assistant union that negotiates a living wage on your behalf. You may have a graduate student society that maintains a social club that you use. Or maybe like me you belong to a society that organizes a meeting, produces a journal,

a newsletter or a 'Bulletin' full of helpful tidbits and witty columns. My point is that you extract some benefit from the volunteer work of others. I would argue that there is an obligation upon each of us to give back. If we can also influence the direction that our particular group goes at the same time, that's all the better. Someone else once said that decisions are made by those that show up. And anyway, who doesn't like to be in charge?

My final point is a caveat. It should be obvious I'm in favour of giving some of your time in graduate school to service. I think it teaches us how to manage our time and deal with the 'political' side of our business. However, it is easy to fall into the trap, and I'm guilty of this myself, of agreeing to do too much. As with any endeavour that will distract you from your thesis, make sure your supervisor is aware of what you're doing and is OK with you giving up your time. Second, beware of what I call "tent-pole syndrome". Often when we have volunteered and gained a position of some responsibility we get the feeling that if we leave the whole endeavour will come crashing down. Keep this in mind, most organizations were doing just fine before you got there and will continue to do just fine after you leave. Always remember, as a graduate student your priority should always be your research. In your off-hours though, consider how you spend your time and decide if you might benefit (and benefit others) by giving some of your time to volunteer.

[Agree? Disagree? Have a story about the value or cost of volunteering as a graduate student? Write me at cjkmacquarrie@gmail.com or send your correspondence anonymously via the Bulletin's Editor and I'll print what I receive in this space. As always your questions are invited. Send them to the above email address or post them in the discussion section on the Entomological Society of Canada student Facebook group; see <http://www.facebook.com/groups.php?ref=sb#/group.php?gid=13552445022>

– Chris]



**Gold Medal Award
Bernie Roitberg**

The 2008 recipient of the Entomological Society of Canada's Gold Medal for Outstanding Achievement in Canadian entomology is Dr. Bernard Roitberg. This award is presented in recognition of his extensive and innovative work on behavioural ecology and his service to the Entomological Society of Canada.

Bernie Roitberg did his undergraduate training at Simon Fraser University, where he learned the basics of entomology from John Borden (ESC Gold Medal 1988), Thelma Finlayson and others of the 'Belleville alumnus'. He completed a M.Sc. in 1977 from the Department of Zoology and the Institute of Animal Resource Ecology at the University of British Columbia under the guidance of Judy Myers (ESC Gold Medal 2004). He went on to do his Ph.D. in the Department of Entomology at the University of Massachusetts, Amherst, with Ron Prokopy. Since 1982, Bernie has been a member of the Department of Biological Sciences at Simon Fraser University in Burnaby, British Columbia and is currently a full professor.

Over his 30-year career as an ecologist and entomologist, Bernie has made extensive advances in our knowledge of the behavior and evolutionary ecology of insects and their natural enemies. He has been fascinated by the behaviors of insects regarding prey choice and the complementary prey defences. He has worked on a diverse range of insects, with an emphasis on the *Rhagoletis* fruit flies, aphids and their parasitoids and more recently on anopheline mosquitoes. With these and other experimental systems, combined with mathematical modeling, Bernie has developed and demonstrated many novel ideas that do much to advance our understanding of insects. These novel ideas have made applied contributions to the IPM, and biological control of insects. Some examples of these follow:

- His studies on the behavioral ecology of a malaria vector, *Anopheles gambiae*, focused on aspects of resource location generally disregarded in studies of mosquitoes and malaria. Bernie and his graduate students linked human host location with the behaviors and trade-offs associated with the mosquitoes filling other resource needs, such as nectar for flight energy and oviposition sites, with strategies used by the mosquito for evading attack. From there, they developed a model that places these foraging behaviors in the context of payoffs for malaria mitigation strategies such as house spraying and bednets.

- The role of alarm pheromones in the biology and ecology of aphids has been a recurring theme in Bernie's lab. This has led to a greater understanding of the role of disturbance in fitness, and pest management of aphids. A paper on adaptive suicide in aphids laid the foundations for an understanding of the evolution of altruistic behaviors in colonial organisms.

- Bernie and collaborators Thomas Hoffmeister and the late Ronald Prokopy have been leaders in development of theory and experiments on oviposition pheromones and foraging in tephritid fruit flies. This work has led to the development of control practices for insects such as apple maggots.

- Bernie and collaborators have also developed theory and carried out experiments on state and frequency dependent games to show how game theory is necessary to understand a variety of phenomena from decay rates in marking pheromones to aggregation at resources to siblicide.

- Through experiments on theory related to the impact of behavior on predator-prey dynamics in agricultural settings, Bernie and collaborators have been able to explain conditions under which host discrimination is likely to impact host population dynamics. This work has led to a demonstration of how phenotypic plasticity can be exploited by biocontrol practitioners.

During his career Bernie has been an author or co-author on over 149 peer reviewed papers, chapters and other contributions. He has mentored 21 Masters of Pest Management students, 13 MSc's, 8 PhD's and 7 postdoctoral fellows. Eighteen of his former students and post docs hold faculty positions in Canada, the USA and Israel. In addition he has inspired countless undergraduates in biology, ecology and pest management, and has been unstinting in his interactions with his many friends, colleagues and collaborators.

Bernie has served as a member and chair of the NSERC ecology and evolution grants committee. Despite his heavy laboratory and teaching load, he found time to serve the ESC first as a Director (1988 – 1991) and then as president of the Society (2001 – 2002). Also he served as president of the Entomological Society of British Columbia (1986 – 1987). He has been on the editorial board of *The Canadian Entomologist*, *American Naturalist* and *Entomological Research*. He is an honorary scientist with the Korean Rural Development Agency, and a recipient of the Entomological Society of Canada's Hewitt award. His numerous invitations to present seminars and keynote addresses give evidence that Bernie is truly one of Canada's international science stars.

Bernie's outstanding scientific achievements in the area of insect population and behavioral ecology, as well as his service to the ESC,

makes him a most worthy recipient of the 2008 ESC Gold Medal.

La Médaille d'or Bernie Roitberg

Le récipiendaire de la Médaille d'or de la Société d'entomologie du Canada de 2008, pour une contribution exceptionnelle à l'entomologie canadienne, est le Dr. Bernard Roitberg. Ce prix est attribué en reconnaissance de son travail considérable et innovateur en écologie comportementale et pour son service à la Société d'entomologie du Canada.

Bernie Roitberg a reçu sa formation de premier cycle à l'Université Simon Fraser, où il a appris les bases de l'entomologie par John Borden (Médaille d'or de la SEC 1988), Thelma Finlayson et les autres alumni de Belleville. Il a complété sa maîtrise en 1977 au département de zoologie et au Institute of Animal Resource Ecology de l'Université de la Colombie-Britannique sous la supervision de Judy Myers (Médaille d'or de la SEC 2004). Il a fait son doctorat au département d'entomologie de l'Université du Massachusetts, Amherst, avec Ron Prokopy. Depuis 1982, Bernie est un membre du département des sciences biologiques de l'Université Simon Fraser à Burnaby, Colombie-Britannique, où il est présentement professeur.

Durant ses 30 années de carrière en tant qu'écologiste et entomologiste, Bernie a fait des progrès notables sur notre connaissance du comportement, de l'écologie comportementale et de l'évolution des insectes et de leurs ennemis naturels. Il est fasciné par les comportements des insectes concernant les choix des proies et les défenses complémentaires des proies. Il a travaillé sur différents insectes, avec une emphase sur les mouches à fruits du genre *Rhagoletis*, les pucerons et leurs parasitoïdes ainsi que, plus récemment, sur les moustiques anophèles. Avec ces espèces et d'autres systèmes expérimentaux, combinés avec des modèles mathématiques, Bernie a développé et démontré de nombreuses idées nouvelles qui

ont contribué à l'avancement de notre compréhension des insectes. Ces idées nouvelles ont apportées des contributions appliquées à la lutte intégrée et au contrôle biologique des insectes. Voici quelques exemples.

- Ses études sur l'écologie comportementale du vecteur de la malaria, *Anopheles gambiae*, se sont concentrées sur des aspects de localisation des ressources, généralement ignorés dans les études sur les moustiques et la malaria. Bernie et ses étudiants gradués ont relié la localisation des hôtes humains ainsi que les comportements et les compromis associés avec d'autres besoins des moustiques, tels que le nectar pour l'énergie du vol et les sites de pontes, avec les stratégies utilisées par le moustique pour éviter les attaques. Un modèle plaçant ces comportements d'exploitation dans le contexte des coûts/bénéfices pour les stratégies de mitigation de la malaria, telle que l'arrosage des maisons et les filets pour lits, a été développé.

- Le rôle des phéromones d'alarme pour la biologie et l'écologie des pucerons est un thème récurrent dans le labo de Bernie. Ceci a mené à une meilleure compréhension du rôle du dérangement dans la valeur adaptative, et la gestion des pucerons. Un article sur le suicide adaptatif chez les pucerons a bâti les fondations pour une compréhension de l'évolution des comportements altruistes chez les organismes coloniaux.

- Bernie et ses collaborateurs, Thomas Hoffmeister et le regretté Ronald Prokopy ont été des meneurs dans le développement de théories et d'expériences sur les phéromones de pontes et la recherche de partenaires chez les mouches à fruits tephritides. Ce travail a mené au développement de pratiques de lutte contre les insectes tels que les mouches de la pomme.

- Bernie et ses collaborateurs ont également développé une théorie et mené des expériences sur les jeux dépendants de l'état et de la fréquence afin de montrer comment la théorie des jeux est nécessaire afin de comprendre une variété de phénomènes comme le taux de dégradation des phéromones de marquage, le comportement d'agrégation autour des res-

sources, et le comportement fratricide.

- Par des expériences sur la théorie reliée à l'impact du comportement sur les dynamiques prédateurs-proies en milieu agricole, Bernie et ses collaborateurs ont su expliquer les conditions sous lesquelles la discrimination des hôtes a probablement un impact sur la dynamique de population de l'hôte. Ce travail a mené à une démonstration de comment la plasticité phénotypique peut être exploitée par les utilisateurs du contrôle biologique.

Durant sa carrière, Bernie a été auteur et co-auteur de plus de 137 articles révisés par des pairs, chapitres et autres contributions. Il a dirigé 21 étudiants à la maîtrise en gestion des ravageurs, 13 maîtrises, 8 doctorats et 7 postdoctorats. Dix-huit de ses anciens étudiants et postdocs occupent des postes au Canada, aux É.-U. et en Israël. De plus, il a inspiré un nombre incalculable d'étudiants de premier cycle en biologie, écologie et gestion des ravageurs, et a été généreux dans ses interactions avec ses nombreux amis, collègues et collaborateurs.

Bernie a servi en tant que membre et président du comité des subventions en écologie et évolution au CRNSG. Malgré son laboratoire bien occupé et sa charge d'enseignement, il a trouvé du temps pour servir la SEC d'abord en tant que directeur (1988-1991), puis en tant que président de la Société (2001-2002). Il a également été président de la Société d'entomologie de Colombie-Britannique (1986-1987). Il a été sur le comité éditorial de *The Canadian Entomologist* et *American Naturalist*. Il est un scientifique honoraire à l'agence de développement rural coréenne, et récipiendaire du prix Hewitt de la Société d'entomologie du Canada. Ses nombreuses invitations à présenter des séminaires et des conférences mettent en évidence le fait que Bernie est réellement une des stars internationales de la science au Canada.

Les contributions scientifiques exceptionnelles de Bernie dans le domaine des populations d'insectes et de l'écologie comportementale, ainsi que ses services pour la SEC, font de lui un récipiendaire des plus méritants pour la Médaille d'or de la SEC.

Nominees Sought for Gold Medal and The C. Gordon Hewitt Award

Members of the Society are invited to nominate individuals whom they regard as eligible for these awards. Nominations shall be made only by Members of the Society; they shall be signed by the nominator and by at least one seconder who shall also be a member of the Society.

Nominators should include: (1) the name and address of the nominee(s); (2) a statement of relevant achievements (3-5 pages) which may include but is not limited to, the following: outline of research areas, particularly major contributions; numbers of articles in refereed journals, books, book chapters, patents; editorial activities; teaching history, numbers of graduate students, teaching awards; value of grants; involvement in ESC; active involvement and/or memberships in other Societies; entomological extension/community involvement; organizing of symposia, meetings; (3) a current curriculum vitae; and (4) the name of the nominator and at least one seconder. Such documentation should stress the particular achievement or achievements to be considered and not merely the general competences of the nominee. Other seconders may merely state their support, without documentation in a letter of endorsement of the nomination. The Committee shall not prepare the documentation nor conduct research connected with it. **Nominees for the C. Gordon Hewitt Award must be less than 40 years of age throughout the calendar year** in which the award is both announced and awarded.

Nominations should be sent to the ESC office in an envelope marked "Confidential" postmarked no later than **28 February 2009** or emailed to the Chair of the Achievement Awards Committee (mevenden@ualberta.ca).

Nominations pour la Médaille d'or et le Prix C. Gordon Hewitt

La Société invite les membres à lui faire parvenir les noms des personnes qu'ils considèrent éligibles à ces deux prix. Seuls les membres de la Société peuvent présenter des candidatures. Chaque mise en candidature doit porter la signature du présentateur et d'au moins une autre personne appuyant la proposition.

Les mises en candidatures doivent inclure : (1) le nom et l'adresse du (des) candidat(s); (2) les accomplissements pertinents (3-5 pages) qui peuvent inclure, mais ne se limitent pas à : un résumé des sujets de recherche, en particulier les contributions majeures du candidat; le nombre d'articles dans des revues avec réviseurs, de livres, de chapitres de livres, de brevets; les activités éditoriales; l'historique en enseignement, le nombre d'étudiants gradués, les prix d'enseignement; la valeur des subventions; l'implication dans la SEC; l'implication active et/ou l'adhésion à d'autres sociétés; la vulgarisation et l'implication dans la communauté; l'organisation de symposia et réunions; (3) un curriculum vitae à jour; et (4) le nom du présentateur et d'au moins une personne appuyant la proposition. L'emphase doit être mise sur les accomplissements pertinents et non seulement sur les compétences générales du candidat. D'autres personnes appuyant la candidature peuvent simplement énoncer leur appui dans une lettre, sans documentation autre. Le comité de sélection ne doit pas avoir à préparer la documentation ou effectuer une recherche sur le candidat. **Le candidat désigné pour le prix C. Gordon Hewitt doit être âgé de moins de 40 ans pour toute la durée de l'année** au cours de laquelle le prix est annoncé et décerné.

Les candidatures doivent être envoyés au bureau de la SEC dans une enveloppe cachetée identifiée "Confidentiel" au plus tard le **28 février 2009**, le cachet de la poste faisant foi, ou envoyé électroniquement au président du Comité des prix d'excellence (mevenden@ualberta.ca).

The student wing / L'aile étudiante



Mike Borkent

Chris Borkent



Jessica Smith

Greg Smith

Well, the winter winds are once again blowing as we all sit in our labs processing the summer's data. Judging from the great turn out at the JAM in Ottawa there is a large number of interesting research projects being worked on out there. Thanks to all of you who came and gave talks or posters, it certainly showcased the diversity and high quality of entomological research we have in Canada. Thanks also to the JAM Organizing committee for putting together a great conference and for their financial support to the speakers in the Graduate Student Symposium (see abstracts below). It was once again a science- and fun-filled meeting.

The silent auction was a huge success this year raising \$2011.25 for the ESC scholarship fund and \$865.75 for the CanaColl foundation. A big thank you to all who donated items as well as everyone who bought them. A special thank you to the Becker family who generously donated Ed Becker's library, with profits being shared between the ESC and CanaColl. We also wanted to thank all those who volunteered to organize things at the silent auction tables. There were a lot of items to deal with, so thank you for all your hard work!

Unfortunately this is our last time writing as chairs of the Student Affairs committee. We have really enjoyed representing you over the last three years and hope that we have man-

aged to adequately represent student interests within the society. We will be passing the collecting net on to Aynsley Thielman from Brock University (athielman@brocku.ca). We are sure she will enjoy the position and we look forward to seeing what new directions she will take.

Good luck to all of you with your research!

Chris and Greg



B. Rollberg

The painted lady, *Vanessa cardui*

Graduate Student Symposium

Joint Annual Meeting of the
Entomological Society of Canada and
the Entomological Society of Ontario,
20 October 2008, Ottawa, Ontario

Organizers: Chris Borkent and Greg
Smith

Integrative taxonomy and systematics of the sweat bee subgenus *Dialictus* (Halictidae: *Lasioglossum*)

Jason Gibbs

Biology Department, York University,
Toronto, ON, M3J 1P3

Bees are of great economic and ecological importance as the most significant animal pollinators of the world's food crops and wildflowers. Bees are also ideal candidates for bio-monitoring; they are ecologically important and highly susceptible to extinction. Currently, lack of taxonomic expertise is hampering efforts to conserve bees and to understand both their biology and the important ecosystem services they provide. An integrative taxonomic approach that combines morphology and DNA barcoding can help resolve these taxonomic impediments. *Dialictus* are the most difficult taxonomic problem among North American bees. My primary goal is to use integrative approaches to resolve *Dialictus* taxonomy and provide identification tools that can be used by the biological community. I will provide both traditional dichotomous keys and abundantly illustrated online guides at national and regional scales. There are currently no keys for Canadian *Dialictus*. DNA barcodes for each species are being generated as part of new global campaign to barcode the bees of the world. These barcodes will provide an alternate means of identification and are aiding in recognition of cryptic species (36) and false synonymies (4) and association of dimorphic sexes (20). I have also sought to apply my expertise to explore the evolution

of *Dialictus* social behaviour. *Dialictus* display a wide array of social systems; solitary, communal, semisocial, eusocial and socially parasitic species are known. By building on my integrative taxonomic studies I have found for the first time that social parasitism has arisen more than once in this group.

Rapid spread of the bacterial endosymbiont *Cardinium* in the aphelinid parasitoid wasp *Encarsia pergandiella*

Leanne Harris¹, Suzanne E. Kelly², Martha S. Hunter², and Steve J. Perlman¹

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A large and diverse number of insects harbor maternally inherited symbionts. These symbionts often have important ecological roles in their insect hosts. One class of these symbionts manipulates its host's reproduction in order to increase its transmission. *Wolbachia* is the most well-known of these reproductive manipulators, occurring in at least 20% of all insect species. *Wolbachia* and a lesser known bacterium, *Cardinium*, are the only two bacteria known to cause cytoplasmic incompatibility (CI). In CI, uninfected females produce few or no progeny when mated to infected males. In some cases, CI has resulted in the rapid spread of a symbiont within a population, which could have important applications, for example, in introducing beneficial genes into a population. We examined CI induced by *Cardinium* in the parasitic wasp *Encarsia pergandiella*.

Little is known about how CI invades in a novel population. We used population cages with varying initial infection frequencies to test a model of CI invasion. The model predicts the infection will not spread when the starting infection frequency is below a critical invasion threshold. Infection frequencies in each cage were monitored for nine generations using diagnostic PCR. *Cardinium* was found to spread rapidly in all populations, even in cases where the initial infection frequency was well below

the predicted invasion threshold frequency. The discrepancy between the modeled and actual results is best explained by a cryptic fitness benefit to the infection.

Male age can be an important factor in the level of CI induced by *Wolbachia*. We tested the effect of male age on the level of incompatibility induced by *Cardinium* in *E. pergandiella*. We measured the number of viable pupae produced by uninfected females crossed to young, old, or very old males of known infection status. Male age was found to have a negligible effect on CI strength.

Host specificity of a candidate biological control agent for leek moth

Jenner, W.H.^{1,2}, Kuhlmann, U.², Cappuccino, N. I., Mason, P.G.³

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Leek moth, *Acrolepiopsis assectella* (Zeller) (Lepidoptera: Acrolepiidae), is an alien pest of cultivated *Allium* species in eastern Ontario and western Quebec. Following field surveys in Europe, the pupal parasitoid *Diadromus pulchellus* Wesmael (Hymenoptera: Ichneumonidae) was deemed the strongest candidate agent. Host range tests were conducted to evaluate the agent's host specificity as well as to examine how the results of such tests can be influenced by changing the physiological and informational state of the agent. In previous oviposition trials with the target host (leek moth), parasitoid age and nutritional status had been found to affect a parasitoid's "motivation to oviposit", measured as the number of hosts killed and offspring produced over a 24-hour period. Specifically, 3-day-old and sugar-fed females showed higher attack rates than 10-day-old and sugar-starved females, respectively. During subsequent host specificity trials with non-target hosts, 3- and 10-day-old parasitoids were used to determine whether

agent age could affect host range expression. Based on the previous experiments with leek moth hosts, younger parasitoids were anticipated to be more likely to attack non-targets. In no-choice tests with 12 non-target species, parasitoid progeny were reared from only those host species most closely related to leek moth and there was no effect of age on the probability of attack. A series of choice tests was then conducted, in which older parasitoids were more likely than younger parasitoids to attack the non-target hosts. Two important points to raise are that the age effect was only detected in one of three choice test designs and that it was contrary to our expectations. Hence, while parasitoid state may influence host range expression during laboratory tests, it may be difficult to predict the magnitude and direction of the effect based on observations of the parasitoid with its target host.

Ballooning propensity and multiple spatial scales diversity patterns of canopy and understorey spiders in north-temperate hardwood forests

Maxim Larrivé and Christopher M. Buddle
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Dispersal capacity is intimately linked to local and metacommunity diversity patterns. It is an essential component of patch-dynamics (colonization-competition trade-offs), species-sorting (niche availability), mass-effects, and neutrality paradigms of metacommunity. Spiders are generalist predators that disperse passively through the air or cursorially at different rates. They represent an excellent model community to test importance of metacommunity paradigms across space. Spiders frequently disperse through ballooning, a passive aerial dispersal process. Ballooning frequency is influenced by life history traits and habitat conditions. Ballooning propensity is influenced by life history traits such as body size, feeding behaviour, phylogenetic background, abundance, and habitat specificity. Habitat availability and stability also impact

the adaptive fitness of ballooning in spiders. We measured the ballooning propensity of foliage spiders in a controlled laboratory setting. Spiders were sampled in the canopy and understorey of a north-temperate hardwood forest. Small size (< 2.4 mm) web-building spiders had the highest ballooning propensity in north-temperate hardwood forests. We use these life history traits along with information from the literature to create subsets of species with high and limited dispersal capacity to investigate the influence of dispersal capacity on diversity patterns at multiple spatial scales (tree, stand, and site) in north-temperate hardwood forests. We used a hierarchically nested design in space to investigate diversity patterns of local communities from limited and high dispersal capacity species subsets through nested-multivariate ANOVA, additive diversity partitioning and species-abundance distribution curves. Similar results for both dispersal capacity subsets at the tree and stand spatial scales indicate that not dispersal capacity but species-sorting processes are the drivers of local community spider diversity at these spatial scales. Departure from lognormal distributions and higher than random β -diversity show that dispersal capacity influences site and regional spatial scale diversity patterns through patch-dynamics and mass-effects.

The mystery of *Choristoneura* – meshing mitochondrial DNA, microsatellite markers, morphometrics, and multivariate methods

Lisa Lumley and Felix Sperling
Department of Biological Sciences, University of Alberta, Edmonton, AB, T6G 2E9

The taxonomy and relationships of species within the spruce budworm complex remain unresolved in spite of the enormous economic importance of this group. Species are separated mainly by host plant associations, pheromone attraction, length of larval diapause, phenology, and habitat associations rather than by diagnosable molecular or morphological characters. We are addressing this problem by integrating several approaches.

A survey of mitochondrial DNA for all spe-

cies across North America has uncovered five main lineages. Only *C. fumiferana* is distinct while the remaining species each include at least two mtDNA lineages. For our morphometrics work, we are currently focusing on populations within Alberta and British Columbia. Based on geographical range, host plant, pheromone attraction, length of diapause, and morphology we have identified specimens from these populations as *C. fumiferana*, *C. biennis*, *C. occidentalis*, *C. pinus*, and *C. lambertiana*. Linear discriminant analysis separates known species based on morphometric measurements of forewing characters and allows us to assign unknown specimens to species.

We have also developed eight microsatellite markers. These markers amplify in all species within the complex and offer resolution at the population level. We will use them for a population in Cypress Hills, AB where we have found four mtDNA lineages, much variation in larval head colouration and adult forewing colouration, two pheromone attraction types, phenological differences between the two pheromone types, and phenological differences in forewing colouration. Combining morphometrics and mtDNA suggests two or three species in Cypress Hills are hybridizing. Being highly polymorphic, microsatellite markers will assist in testing hypotheses of hybridization between species.

Through molecular markers, morphometrics, and multivariate analysis we are developing an integrative approach to species delimitation. We hope that explicit attention to evaluating the integrity of species genomes will help to resolve the conundrum of *Choristoneura*.



Max Larivière

A salticid spider on the watch

Entomological Society of Canada Awards and Scholarships

Students, don't miss the upcoming deadlines for the 2009 roster of awards (below). Please also check the ESC website in the new year for updated application forms and conditions.

Postgraduate Awards

Two postgraduate awards of \$2,000 will be available to assist students beginning study and research leading to a post-graduate degree in entomology (normally one to a MSc, and one to a PhD student). The postgraduate awards will be made on the basis of high scholastic achievement. **Deadline: 16 February 2009**

Research-Travel Scholarship

Up to two scholarships of a maximum of \$2,000 each will be awarded to help students increase the scope of their graduate training. Applications will be judged on scientific merit. **Deadline: 16 February 2009.**

Student Conference Travel Awards

One or more awards of \$500 each to be awarded as financial assistance for travel by student ESC members to the 2009 annual meeting in Winnipeg (18 - 21 October). To be eligible, students must present a paper or poster at the annual meeting. Applications will be judged on academic merit. **Deadline:** same as deadline for abstracts for the annual meeting, so keep watching for information on both the meeting and award deadline in the *Bulletin* or on the ESC website, www.esc-sec.ca.

Special

Keith Kevan scholarship in systematics

\$1,000 is available for awarding to a deserving postgraduate student studying arthropod systematics. The award will be made on the basis of high scholastic achievement and excellence in faunistics. **Deadline: 16 February 2009**

John H. Borden Scholarship

One scholarship of \$1,000 will be awarded yearly to a postgraduate student at a Canadian institution for innovative research in Integrated Pest Management with an entomological emphasis. The scholarship will be made on the basis of high scholastic achievement. **Deadline: 16 February 2009**

See www.esc-sec.ca/studentawards.html for complete award details, or contact the incoming Chair of the ESC Student Awards Committee, Judith Myers (Dept. Zoology, University of British Columbia, 6270 University Bld. Vancouver, BC V6T 1Z4, myers@zoology.ubc.ca)

Prix et bourses d'études de la Société d'entomologie du Canada

Étudiants, notez les changements de dates pour la plupart des prix et bourses annoncées pour 2009. Veuillez aussi vous assurer de consulter le site Internet de la SEC durant la nouvelle année pour les formulaires et les conditions mis à jour.

Bourses pour étudiants gradués

La Société d'Entomologie du Canada offre deux bourses d'une valeur de 2000\$ chacune pour aider des étudiants qui débudent des études graduées et des recherches en vue de l'obtention d'un diplôme d'études supérieures en entomologie (normalement une bourse à un(e) étudiant(e) à la maîtrise et l'autre à un(e) étudiant(e) au doctorat). Les bourses seront accordées aux étudiant(e)s en raison des seuls critères de réussite académique. **Date limite : 16 février 2009.**

Subventions de recherche-voyage au niveau des études supérieures

Deux subventions de recherche-voyage pouvant atteindre 2000\$ sont offertes pour aider les étudiant(e)s à élargir le champ de leur formation supérieure. Les bourses seront accordées aux étudiant(e)s en raison des seuls critères de réussite académique. **Date limite : 16 février 2009.**

Bourse étudiante de voyage pour assister à la réunion annuelle de la SEC

Une ou plusieurs bourses de 500\$ chacune seront offertes pour aider les étudiant(e)s, membres de la Société, à assister à la réunion annuelle de 2009 à Winnipeg (18 - 21 octobre). Pour être admissible, les étudiant(e)s doivent faire une présentation orale ou présenter une affiche lors de la réunion annuelle. Les bourses seront accordées aux étudiant(e)s en raison des seuls critères de réussite académique. **Date limite :** la même que celle de soumission d'un résumé (vérifier le *Bulletin* ou le site Internet de la Société pour plus d'information, www.esc-sec.ca).

Special

Bourse Keith Kevan en systématique

La Société d'entomologie du Canada offre une bourse d'étude de 1000 \$ pour aider les étudiant(e)s postdiplômé(e)s qui entreprennent des études en taxonomie des insectes. Cette bourse sera accordée, les années impaires, selon des critères d'excellence académique et de la prééminence en taxonomie des insectes. **Date limite : 16 février 2009.**

Bourse John H. Borden

Une bourse d'une valeur de 1000\$ sera offerte chaque année à un étudiant(e) gradué(e) dans une institution canadienne pour ses recherches innovatrices en lutte intégrée ayant une emphase entomologique. La bourse sera attribuée en raison des seuls critères de réussite académique. **Date limite : 16 février 2009.**

Consultez www.esc-sec.ca/studentawards.html pour plus de détails ou contactez la présidente du comité des prix aux étudiants et étudiantes, Judith Myers (Dept. Zoology, University of British Columbia, 6270 University Bld. Vancouver, CB V6T 1Z4, myers@zoology.ubc.ca).



Galls the size of potatoes!

by Emily Barnewell

This spring I spent three months working in Belgrade, Serbia, studying the gall-forming weevil, *Rhinusa pilosa* on yellow toadflax, *Linaria vulgaris*. Yellow toadflax is an introduced weed commonly found all across Canada.

The first obvious question you might have is “Where is Serbia”? I too had this same question, at first confusing Serbia, Siberia and Syria, which are all very different places. Serbia is in Eastern Europe, a former state of Yugoslavia, which is bordered by Hungary to the North, Romania and Bulgaria to the east, Macedonia and Albania to the south and a stone’s throw away from the Adriatic Sea to the west.

The second question you might have is “Why Serbia”? Serbia has the plants, the bugs and the expertise. My Serbian mentor, Ivo Tosevski, has been working as a research scientist with CABI-Switzerland developing biocontrol agents for over 20 years. CABI is a non-profit international organization that tries

Emily Barnewell is a MSc student in the Department of Biology, at the University of Lethbridge. She is supervised by Rosemarie DeClerck-Floate, and is one of a growing number of Canadian students taking advantage of opportunities to study in other countries.

to make the world a better place.

A third question you might ask was how I ended up in Serbia. Well, that all goes back to February, when I read a notice in the December 2007 issue of the *Bulletin* that Rose De Clerck-Floate, from Agriculture and Agri-Food Canada, was looking for an MSc student to study insect-plant interactions on a potential biocontrol agent. I was pretty excited about this announcement because I had worked two co-op summers as an invasive plant technician compiling weed inventories and organizing biocontrol releases on the west coast of British Columbia. By mid-March I was on a plane to Serbia.

Life in Serbia is obviously different than life in Canada but not as much as one would think. The streets are safe with little violence and no visible drug problems. The public transport system is old but efficient and slightly overcrowded. The buildings are a mix of communist style concrete monstrosities some with more bullet holes than others. There are always subtle but constant reminders that this was a battle field less than 10 years ago. With the sanctions being lifted in 2000, the market economy is growing and international investment can be seen with downtown Belgrade boasting three McDonalds.

My co-workers spoke fluent English so I did not have to worry about speaking Serbian in the lab. In the market and on the streets it’s a bit different. In the market, often the vendors are little old ladies with scarves tied on their heads saying “Isvolite” – or welcome, getting the attention of shoppers passing by with their shopping bags. I was lucky enough to find a young woman who spoke a little English and she made my shopping experience much more fun. The store signs can be found in Cyrillic or Latin alphabet and some smatterings of English like “mini market”, “Coca-Cola”, and “Hotel Mr. President”.

The food was wonderful. Most of the produce that you buy in the market is organic and grown locally. I was just in time for tomato, strawberry and cherry season. Sadly, I just missed the watermelon season. The national

dishes are meat laden with influences from Greek and Turkey giving the food a spicy flavor.

The national drink is undoubtedly rakia or brandy. The normal variety is concocted from plums and made by someone's relative in the country, encased in an unsuspecting plastic water bottle. It is strong and burns going down but an excellent way to start a meal. After rakia, there is a tie between beer and coffee. The beer is light and the two main brands are deer

(Jelen) and lion (Lav). The coffee comes from Turkey, brewed in a special urn and the procedure varies depending on what region of Serbia you come from and each way is the proper way of course! In my lab, we mostly drank instant Nescafé so it was a welcome relief to come back to Canada and drink drip coffee but I will certainly miss the Turkish style.

Most importantly, the people in Serbia made my stay there very enjoyable. I can't begin to thank all the Serbians I met for their hospitality and generosity.

Jailed forester returns from India (continued from p. 213)

The Czech Foreign Affairs Ministry said last week that local authorities consider the case closed. Officials at the Justice Ministry said they would await action from Indian authorities before taking any further steps in the case.

From the start, both men have called the case a misunderstanding. Although park rangers confiscated 200 live beetles and more than 200 butterflies, moths and larvae estimated by authorities to be worth 7,000 rupees, as well as a specialized insect collection device, from the cottage where the two men were staying prior to their arrest, both Kučera and Švácha maintain they were unaware that they had entered national park territory. Among the confiscated insects were larvae of the long-horned beetle, of which Švácha is arguably one of the world's foremost experts.

Some officials have speculated that political unrest in the Darjeeling region may have also had an impact on the case. At the time, the region's hillside inhabitants, the Gorkhas, were renewing a decades-old fight for autonomy from local government. In September, Czech Ambassador to India Hynek Kmoníček stated charges against Kučera and Švácha were not presented in a formal or timely manner – despite this being standard legal practice in the region – because of a local police strike.

Neither Kučera nor Švácha have been able to comprehend the reason behind the difference in sentencing. Kučera only notes that court documents listed him as being Švácha's accomplice, which may have resulted in an additional charge.

"The charges were listed the same for both of us," Kučera said. "I hadn't done anything differently than Švácha, so the judgment was extremely unfair. ... I felt really frustrated. It was complete nonsense, and on top of that, it was supported by forged evidence."

Švácha speculated Indian courts may have been more lenient towards him because he is a professional entomologist, whereas Kučera's trade is forestry. The language barrier may have been another problem.

"The situation just became more and more complicated and unpleasant for us," he said. He went on to congratulate Kučera on his escape. "If you want my personal opinion, it was a good job. To play fair only makes sense if the other party does the same, which wasn't the case in our situation."

- Nad'a Černá contributed to this report. -

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The Canadian Entomologist: Changes to the Editorial Board and the Complainer's Boogie Woogie revisited

First, the simple stuff. In keeping with the editorial objectives outlined in the December 2006 issue of the *Bulletin* (Volume 38(4)), several changes have recently been made to the Editorial Board of *The Canadian Entomologist*. Brad Sinclair has accepted my request that he become Editor for Division 2, Systematics and Morphology. Former Division 2 Editor Terry Wheeler found the workload to be in conflict with his regular teaching and research duties and has stepped down to resume his earlier position as an Associate Editor. Other areas of the Editorial Board have been strengthened through the addition of Pat Bouchard, Staffan Lindgren, Kenna MacKenzie, and Jon Sweeney as Associate Editors. I thank Brad, Pat, Staffan, Kenna, and Jon for their ready acceptance of my requests, and I am grateful to Terry for being willing to continue to make his considerable systematics and biodiversity expertise available to *The Canadian Entomologist*.

Now – to revisit the Complainer's Boogie Woogie (*Bulletin*, Volume 39(4), December 2007). In spite of my warning that “complaints about *TCE* content will no longer be considered unless accompanied by a manuscript submission”, I have continued to receive complaints unaccompanied by manuscripts. Most recently, at the Joint Annual Meeting of the Entomological Societies of Canada and Ontario held in Ottawa in October 2008, various complaints following two general themes were presented to me:

1. “You aren't publishing enough (OR are publishing too many) papers on such-and-such a topic”, and
2. “The impact factor is too low for me to consider publishing in *TCE*.”

A further stab came during the Heritage Lecture. In reference to a wonderful piece of published entomological prose authored by a deservedly esteemed coleopterist, Stewart Peck implied that such inspired phrasing would never be published in the pages of *The Canadian Entomologist*.

My response to these complaints (including Stewart's comment) is to evoke the famous corollary to The Complainer's Boogie Woogie. Adapted from a Walter Jacobs lyric, the corollary states:

*“It's all your fault, baby
You didn't do a thing that you should...”*

The not-so-subtle implication here is, of course, unless you are submitting manuscripts and being an active participant in the process of directed improvements to *The Canadian Entomologist*, you are not just PART of the problem, you ARE the problem.

The Editorial Board doesn't dictate the thematic content of *The Canadian Entomologist* – you, as authors, do. Impact factor!?! – aside from wondering how a fuzzy pseudo-metric based on circular reasoning and irrational calculation became the standard by which a

supposedly logically minded scientific community measures publication quality, how can I do anything about *TCE*'s impact factor without high quality submissions? And, to those of you who think your skills of entomological literary production are comparable to (or better than!) those referred to in the recent Heritage Lecture, when are you going to submit a manuscript and put some of your efforts to the test of review?

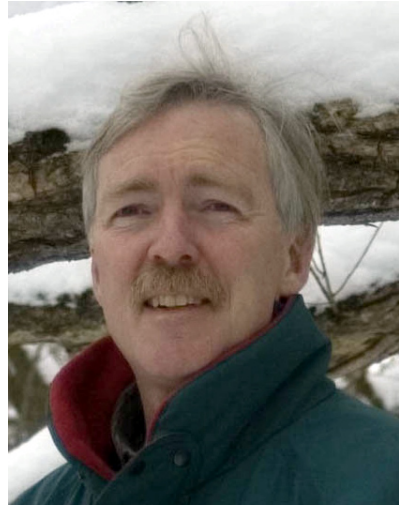
The Editorial Board of *TCE* is continually improving its level of service to authors. Review of well prepared manuscripts is now often completed within two or three weeks of manuscript receipt and, thankfully, unduly delayed reviews have become relatively rare. Within the constraints inherent with a staff of volunteers, the Editorial Board does an admirable job of manuscript processing. And, combined with the consummate professional polishing of accepted manuscripts by the production staff of NRC Press, *The Canadian Entomologist* deservedly enjoys a reputation as a top notch internationally respected scientific periodical.

Manuscripts that meet the guidelines published in *TCE*'s "Instructions to Authors" are welcomed 24 hours a day throughout the year. What are you waiting for?

Robb Bennett, Editor-in-Chief
The Canadian Entomologist



Mating requires some stretching in *Stylogaster neglecta* flies.



The Canadian Journal of Arthropod Identification and cost-effective identification of North American arthropods

"... in the ideal world any insect should be as readily identifiable as lady beetles and butterflies are today. Identification costs would be uniformly low if, for example, there was a central web site with links to user-friendly, richly illustrated, authoritative, regional keys for all adequately known insects. Instead of asking what it should cost to have individual insect species identified again and again, we should be addressing the costs of developing the tools needed to make those individual identifications simple and accurate."

(Marshall, 2003: http://www.biology.ualberta.ca/bsc/news22_1/opinionpage.htm)

Although most of the World's arthropod species remain undescribed and thus unidentifiable, generations of arthropod taxonomists have done a relatively thorough job of documenting the North American fauna. Most arthropod species of at least eastern North America, and virtually all North American members of larger and better known

arthropod taxa, have been formally described and named. Despite this relatively advanced state of taxonomic knowledge, most North American arthropods remain functionally unidentifiable except by specialists equipped with libraries, reference collections, and specialized tools. This gap between the completion of a taxonomic infrastructure and its translation into a generally available form is a historical artifact reflecting the cost and difficulty of generating widely accessible identification tools in a pre-digital era. Up until very recently relatively few taxonomists were in a position to produce and reproduce adequate images of all the taxa and characters included in their descriptions and keys. Furthermore, relatively few of those taxonomists able to assemble adequate image libraries could afford to publish them. Inclusion of even a few color images in printed publications was (and is) prohibitively expensive and would in any case be available only to a relatively select readership.

This situation has changed abruptly over the past few years. Digital photography, even of small structures and specimens, is easy to master and relatively inexpensive. More importantly, the Web now provides a vehicle for efficient, swift and inexpensive distribution of image-rich products to a much wider audience than could ever be reached with print publications. Newly published taxonomies, especially those appearing in digitally distributed journals, such as *Zootaxa*, promise to be much more accessible and user-friendly than paper taxonomic publications of the past. In fact, just as no taxonomic revision of the past few decades was complete without the inclusion of a dichotomous key, no major taxonomic treatment today should be considered complete without the inclusion of, or parallel web posting of, a comprehensively illustrated digital key. *CJAI* welcomes the publication of such keys based on new taxonomic work, but relatively few newly published taxonomies deal primarily with the well-known North American fauna. The important task of rendering the North American arthropod fauna identifiable demands a return to past taxonomies, and

those with the necessary specialized taxonomic expertise now face both a responsibility and a great opportunity to “complete” that past taxonomic work by making previously named species accessible through web publication of reviews including photographically enhanced digital keys.

The papers published in *CJAI* so far demonstrate that this approach can remove the “taxonomic impediment” to the identification of most previously described species, while at the same time flagging and circumscribing problems that still need to be resolved, such as cryptic species complexes or undescribed species. Most, if not all, taxonomists have invested large parts of their professional lives familiarizing themselves with their chosen taxa, and most can easily identify species that fall into their areas of expertise. This expertise can now be easily translated into identification tools for others, and every North American arthropod taxonomist should be availing themselves of this opportunity.

The *Canadian Journal of Arthropod Identification* is a fully refereed journal and it is now developing into a significant source of expert-authored taxonomic reviews and associated digital identification tools. It is becoming a cost-effective and universally available tool for rapid arthropod identification, meeting user demand while providing authors with a unique opportunity to contribute to a growing body of digital identification tools by sharing their regional taxonomic expertise. We need your help to make the *CJAI* a major source of authoritative reviews and keys to a wide range of arthropods from North America and beyond.

Steve Marshall, Editor-in-Chief
*Canadian Journal of
Arthropod Identification*

This editorial originally was published on the CJAI website, in October 2008. It is reprinted here with the permission of the author.



A web-based journal devoted to the publication of works that contribute significantly to the recognition and documentation of Canada's arthropod fauna.

[Instructions to Authors](#)

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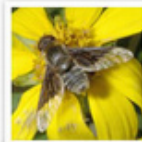
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Recent Issues



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of the World: Key to
Genera**
CJAI 07
J.M. Webb and W.P. McCafferty



**The Bee Flies of Ontario, with a
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CJAI 06
J. H. Kits, S. A. Marshall,
and N. L. Evenhuis



**Identification Atlas of the
Vespidae of the Northeastern
Nearctic Region**
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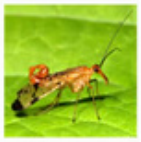
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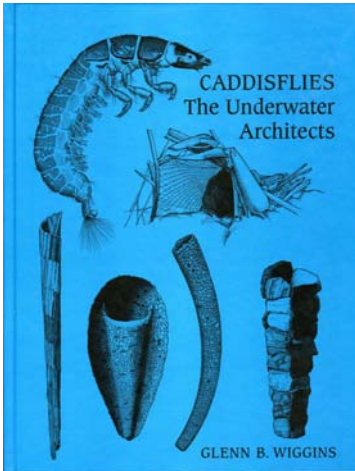


Mecoptera of Ontario
CJAI 01
D.K.B. Cheung, S. A. Marshall,
and D. W. Webb



Biological Survey of Canada
Commission biologique du Canada

Homepage for the CJAI showing content as of 1 December 2008 (www.biology.ualberta.ca/bsc/ejournal/ejournal.html).



Caddisflies: The Underwater Architects.

Wiggins, G.B. 2005. NRC Press (co-published with The University of Toronto Press and the Royal Ontario Museum). Ottawa, ON. 293 pp. ISBN-13 9780802037145. (Hardcover) CAN \$125, Other Countries US \$125.

<http://pubs.nrc-cnrc.gc.ca/eng/books/books/9780802037145.html>

Perhaps your relatives or friends ask you “What is it you study?” or “Why is it important?” Eventually one tries to bring it all together: explain what one has been doing, why it has been interesting, and why it is important. I’m not certain that Glenn Wiggins faced such a decision when writing this book, but reading *Caddisflies: the Underwater Architects* impresses one with his devotion and fascination towards his favorite animals. For over 50 years, Wiggins’ detailed and meticulous field work, observations and collections have evidenced many fascinating insights into the ecology and evolutionary history of caddisflies.

This book has two main objectives: 1) provide users of his magnificent taxonomic treatment of the larval stages of North American caddisflies (1977, 1996) with an ecological as well as evolutionary and biogeographical com-

panion-piece, and a taxonomic resource for other life stages; and 2) (ostensibly) logically and convincingly argue for a particular phylogenetic hypothesis regarding the systematic placement of the “Spicipalpia” families.

The book begins with a review of the different types of larval building behaviors. These serve not only for larval and/or pupal protection, but, for many species, to assist with respiration and in food-gathering. The functional utility and constraints posed by hydraulics and benthic habitat structure of these silken, vegetative and/or mineral structures are compared amongst the major caddisfly groups. The chapter dealing with freshwater communities places caddisflies within an ecological (and theoretical) context, particularly with regards to functional feeding groups, trophic categories, and the landscape. Years of observation by the author has evidenced much useful information that is presented in a fresh and interesting manner. Especially fascinating are his treatments of the caddisfly fauna found in spring seepages and temporary pools. The third chapter examines how larvae then construct their structures for pupation. Caddisflies must successfully balance the challenges of protecting the pupa from physical harm and predation, meeting respiratory requirements, and then finally allowing the adult to emerge from the cocoon and escape its aquatic environment for reproduction. The diversity exhibited by caddisflies with this regard – as wonderfully shown by the illustrations – is fascinating.

The preceding information is then used for the next two chapters on evolution and biogeography to address the second purpose of the book: buttress his hypothesis with regards to the systematic placement of four “Spicipalpia” families vis-à-vis the monophyletic Annulipalpia and Integripalpia. His arguments are clearly stated, and he appears to provide a well-worked out hypothesis with regards to evolutionary relationships and how the emerging diversity interfaced with the moving landmasses. However, as compelling as his hypothesis appears to be, considera-

tion of other, more comprehensive datasets (adult features, molecular data, etc.) does not support his phylogenetic hypothesis. To his credit, Wiggins freely admits that there is a lack of consensus, but the reader should look to other literature (e.g., Frania and Wiggins 1997; Holzenthal et al. 2007; Kjer et al. 2001, 2002; Morse 1997; Ross 1956, 1967; Schmid 1989; Weaver 1984; Wiggins and Wichard 1989) for detailed explanations for the lack of unanimity. An understanding of cladistical methodology and philosophy (a summary of which would have been a useful addition to the book) is critical for understanding the problematic nature of his hypothesis. The first part of the book ends with an epilogue, essentially a short treatment regarding how caddisflies are important as sentinel organisms of environmental degradation.

The second part of the book provides a thorough overview of familial-level taxonomy, biology, construction behavior, and distribution, with the emphasis clearly placed on North American taxa. The excellent illustrations stem largely from previous publications. Unfortunately, families not found in North America are not given the same amount of detail or attention that Nearctic taxa are given, which will be disappointing for the budding student of Trichoptera whose interests are world-wide, or lie principally outside of the Nearctic. As stated in the book, we have only partially documented the total estimated diversity of Trichoptera, and a detailed family-level descriptive resource for the world would have been most useful. Although larvae and adults are given general diagnoses (and beautifully illustrated), a similar treatment for the pupae would have been welcome, rather than relying on the diagnostic keys.

Despite the criticisms listed above, this book is highly recommended. The writing style is most enjoyable, and the only distraction from the text is frequent page-flipping required to reference figures (page numbers associated with figure references in the text would have been convenient). He does an incredible job synthesizing information on the ecological

diversity and the novel successes of caddisflies to various perennial and temporary freshwater (and some marine and secondarily terrestrial) habitats, and does so in a lucid manner that will undoubtedly excite – not bore – the reader. As usual with his previous books for the ROM, it is richly illustrated and issued in a high quality hardback.

Upon finishing the book, undoubtedly the reader will be infected with an appreciation and fascination for these insects. One will understand why Glenn Wiggins finds caddisflies not only important in the scheme of things, but also interesting and worth his many years of study. If this book spurs on a few more serious students of Trichoptera, and they in turn write their comprehensive treatment on qualitative par with this book, then the author surely will feel vindicated for his passion.

Ethan Bright
School of Natural Resources
and Environment
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29 July, 2008

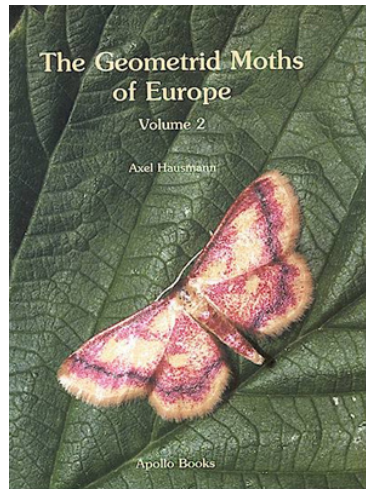
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An underwater architect: a limnephilid caddisfly larva



The Geometrid Moths of Europe. Vol. 2. Sterrhinae. Hausmann, A. 2004. Apollo Books, Stenstrup, Denmark. 600 pp. (Hardcover) US \$192.00, EUR 114.00. ISBN-10: 87-88757-37-4

<http://www.apollobooks.com/geometrid2.htm>

The second volume in the series *The Geometrid Moths of Europe* covers the 196 species of the subfamily Sterrhinae known to occur in Europe. Two other volumes have been published to date in this ambitious series, with volume 1 treating the Oenochrominae, Archierainae, and Geometriinae (including an introductory section to the series), and volume 4 covering the speciose Eupithiciini. The Sterrhinae volume continues the high standard of quality for this series, both in illustrations and text content.

The format of the series is 17 × 24 cm (about 6 3/4 × 9 1/2 inches) hard-cover, with colour photographs of all species, black-and-white diagnostic images including line drawings for genitalia of all species. This volume functions not only as a high-quality diagnostic tool, but also as a revisionary taxonomic work. The species entries are given in the standard format

for the book series, consisting of species name and author, citation of the original description with type localities and type repositories, including synonyms. This is followed by sections entitled Diagnosis, Male genitalia, Female genitalia, Distribution, Phenology, Biology, Habitat, Similar species, and Remarks. Extensive bibliographic citations are given throughout the text. The "Diagnosis" section provides a detailed description of the adult, and should perhaps have been titled "Description", since the differential diagnosis is given under the heading "Similar species". Although a detailed description of wing pattern and colour may seem superfluous given the excellent colour plates, valuable information is presented here on variation in size and markings, including environmentally induced variation such as colour intensification under more humid climatic conditions, and subspecific or geographic variation. The "Diagnosis" section does not cross-reference the plate number on which the adult(s) are illustrated; rather, each species is numbered sequentially in both the text and the corresponding habitus and genitalia plates. This system makes it slightly cumbersome to go from image to text or vice versa, as the reader is left to flip through pages to find corresponding entries. The habitus plates are numbered but plate numbers are not used in the text; the genitalic plates are not numbered. Diagnostic black-and-white images are interspersed throughout the text to allow identification of particularly difficult groups, giving direct visual comparisons of wing markings, genitalia or other structures, usually with indicator lines on key characters.

The "Phenology" section provides data on peak flight periods and voltinism, and is based on collection records rather than literature records; similarly, larval host information is provided with geographic origin and original literature citation, giving proper qualification to these two important data fields. Additional information is provided on adult nectar sources, and parasitoids, where available. Information in the Distribution section is similarly thorough, with literature citations

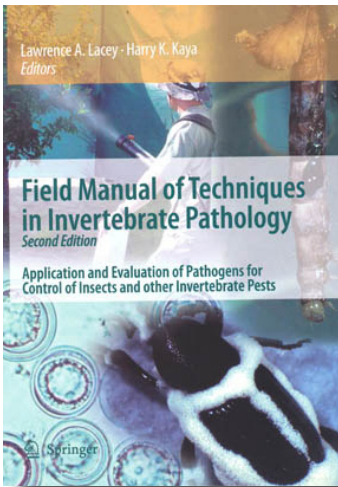
for species records, particularly from edge-of-range regions. This section is accompanied by maps depicting dots for examined and reliably reported specimens, with the extrapolated range shaded in grey.

The "Similar species" section will be crucial for readers seeking species diagnostics. Specific characters for a differential diagnosis are usually given for similar species, although in some instances a bit more detail would have been helpful. For example, it is stated that *Glossotrophia alba* and *G. confinaria* can be separated with certainty only by examination of the genitalia, yet no specific differences are indicated. Thus, the reader is left to interpret said differences from the genitalic descriptions and illustrations. Fortunately (and commendably), male and female genitalia are illustrated with black and white line drawings for all species. Adults of the 196 species are illustrated in colour at natural size or 1.5 times natural size, and even the smallest species are rendered in adequate resolution. Geographic and sexual variation has been well-illustrated, with most species illustrated by six or more specimens, resulting in 24 colour plates.

There is no question that this volume will be part of the standard authoritative treatment of the European geometrid fauna for many years. It has been extensively researched, with thousands of dissections and specimen examinations. Although the faunal coverage is not North American, students of the Nearctic geometrid fauna will find this book extremely useful for its elegant and extensive summary of systematic, biological and bibliographical data, particularly as it pertains to congeneric and Holarctic taxa.

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July 30, 2008



Field Manual of Techniques in Invertebrate Pathology 2nd Edition: Application and Evaluation of Pathogens for Control of Insects and other Invertebrate Pests. Lacey, L.A. & Kaya, H.K. (eds.). 2007. Springer, Dordrecht, The Netherlands. xiii + 870 pp. ISBN 978-1-4020-5932-2 (Softcover) \$109 US.

<http://www.springer.com/life+sci/zoology/book/978-1-4020-5932-2>

This is a weighty book. In the figurative sense, it spans sufficient subject matter for newcomers to microbial pest control in agriculture and forestry to learn about the breadth of the field of study and its application. Established professionals can be confident that the content of this book sets a standard with which to measure his or her work, and to use it to elucidate theories, concepts, techniques, and issues. The book is weighty in the literal sense too – it weighs over 2 kg with a soft cover! – testament to the volume of information that it contains. Beyond presenting fundamentals that would be expected given the title, there is novelty in the 23 varied case studies presented in over 436 pages. While the case studies serve as examples of the methods, techniques and ideas presented in the earlier pages, the section also provides interesting reading, and

a venue for less-common invertebrates such as urban, mollusk, and stored product pests – to name a few.

The book is prefaced with a heartfelt dedication to Dr. H. Denis Burges, and recognizes his long career in, and contribution to insect pathology, the inspiration to those working in the field, and to the book itself. In Section I-1 ‘Introduction to microbial control’, a brief history of microbial control is told, highlighting current and historical successes. In this overview, the editors refer to chapters in the book within which the comprehensive information is found. Further sections of the book appear as follows: Section II - Statistical Considerations, Section III - Application Equipment, Section IV - Overview of Pathogen Groups, Section V - Naturally Occurring Pathogens, Section VI - Exotic Pathogens, Section VII - Evaluation of Entomopathogens in Specific Systems (the ‘case studies’ referred to above), Section VIII - Transgenic Plants, Section IX - Resistance, and Section X - Non-target Organisms. It is obvious that this book is comprehensive and with the inclusion of the latter sections, ventures beyond core studies into ecological aspects at the forefront microbial control.

Besides covering statistical basics such as hypothesis testing, experimental layouts, data transformation, and methods for data analysis, the authors (James F. Campbell and Stephen P. Wraight) of ‘Statistical Considerations’ go further a field to discuss data homogeneity, sub-sampling, pseudo-replication, power analysis, and meta-analysis. Campbell and Wraight summarized these topics elegantly and provide the reader familiarity with essential statistical considerations that aren’t usually mentioned in similar overviews.

On the subject microbial control, it is not that common to encounter extensive discourse on the subject of application equipment and technology. However, this book dedicates four subsections to the subject. The first subsection is I-2, which discusses the theory and practice of application. The application aspect picks up again in Section III in detailing the mechanics and physics of ground-based and aerial appli-

cation. All three of these subsections reiterate the importance and details of nozzle types and droplet size in targeting, efficiency, and efficacy. The authors (collectively Andrew C. Chapple, Roger A. Downer, Roy P. Bateman, G.A. Matthews, F.R. Hall, Karl Mierzejewski, Richard C. Reardon, Harold Thistle, and Normand R. Dubois) emphasize what we need to hear: that if farmers are to adopt the pest control products that researchers develop, then the researchers must make these products congruent with conventional sprayers. The great attention to spray technology is clarified by explaining that the efficacy of sprayed microbials is highly dependent on application parameters, in contrast to other application methods (Chapple, Downer, and Bateman). In Section III-1 'Ground-based equipment', the authors (Bateman, Matthews, and Hall) thoughtfully follow each description of nozzle types with subsections entitled 'Use with biopesticides'. Section III-2 (Mierzejewski, Reardon, Thistle, and Dubois) is exclusive to aerial application and covers highly technical information that enlightens most of us who are less familiar with aerial application techniques. Section III-3 (Fernando E. Vega, Patrick F. Dowd, Lawrence A. Lacey, Judith K. Pell, D. Michael Jackson, and Michael G. Klein) describes dissemination of beneficial microbial agents by insects and emphasizes auto-dissemination. This subsection represents the innovative and thought-provoking that we might consider in venturing beyond conventional approaches to pest management.

Pathogen groups described in Section IV include viruses (Jenny S. Cory and Hugh F. Evans), bacteria (Stephen F. Garczynski and Joel P. Siegel), microsporidia (Leellen F. Solter and James J. Becnel), fungi (Stephen P. Wraight, G. Douglas Inglis, and Mark S. Goettel), and nematodes (Albrecht M. Koppenhofer). While the content for each of these pathogen groups is written using the authors' own style and format, biology and application considerations are thoroughly covered within each group as is persistence and/or recycling of the organisms following application and infec-

tion. Naturally-occurring pathogens (Section V) are discussed for both agriculture (Donald C. Steinkraus) and forestry (Joseph S. Elkinton and John Burand). Primarily from the point of view of assessment, this section lends insight into the roles of pathogenic microorganisms in regulating insect populations in nature, and how we might use this information to enhance management of insect pests.

Section VI discusses exotic pathogens and their use in classical biological control – a subject area normally associated with the release of exotic arthropods to control pest outbreaks. Ann E. Hajek, Italo Delalibera Junior, and Michael L. McManus cover the exploration for new pathogens and regulatory considerations for international collection and subsequent importation, as well as methods and ecological considerations for their release into the foreign environment.

The chapter on transgenic plants (Section VIII; Michael A. Caprio and Douglas V. Sumerford) is a valuable and straightforward presentation on the use of transgenic plants for pest control that emphasizes strategies for resistance management based on toxin dose and spatial orientation of refuges, implications for multiple pests, as well as monitoring and modeling for resistance development. With the increasing and potential use of transgenic technology for pest management, and that microorganisms will undoubtedly work in consort with this development, this chapter shows the foresight of the editors in the compilation of the book. With respect to more conventional methods of application of microbial pesticides, a summary of pest resistance in Section IX by A.M. Shelton, P. Wang, J.Z. Zhao, and R.T. Roush addresses the subject by pathogen groups, illustrating resistance development (or lack of, in certain groups) and management issues for specific cases.

Finally, Section X (Hajek and Goettel) presents guidelines for evaluating entomopathogens on non-target organisms in the field and laboratory, with an emphasis on honey bees.

Organizationally, the presentation of biopesticide application may have been made more

efficient by grouping all the subsections on application technology within single section (particularly beginning Section III with the information appearing in Section I-2), and pooling information on spray droplet size and efficacy as it is mentioned in more than one subsection. While the statistical section was a beautiful summary that included details often overlooked in other general presentations, its placement later in the book might have been more effective, as preceding subjects would give better context to the statistical topics presented.

Still, this book ventures beyond a standard presentation format of microbial pest control. While the fundamentals of microbial pest control are addressed in such detail as to make this book a resource of choice for all levels of pest managers, microbiologists, entomologists, and entomopathologists, and because of the consideration given to specialized and far-reaching topics, this book evokes a strong sense that it is the most current state of the applied technology, tending toward the futuristic.

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July 29, 2008

Noctuoidea: Noctuidae (part), Noctuidae (part - Agrotini). Lafontaine, J.D. 2004. In Hodges, R.W. (ed.) *The Moths of North America*, fasc. 27.1. Washington, DC: Wedge Entomological Research Foundation. 385 pp.

ISBN: 0-933003-12-9

The owlet moths of the tribe Agrotini are perhaps most infamous for including the likes of the dingy cutworm (*Feltia jaculifera*), often extremely abundant in western North America, but also part of an unresolved group of taxa suggestive of cryptic species complexes. Less well-known are the

rare and beautiful *Copablepharon*, blending into their dune habitats with their whites and pastel yellows and tans. These moths are just a few of those included in the latest instalment of the "Moths of North America" (MONA) book series, treating the North American Agrotini. This completes the coverage for the subfamily Noctuidae, with two previous volumes by the same author dedicated to the remainder of the species. In keeping with the format of the MONA series, the primary purpose of this volume is to provide a taxonomic revision and a diagnostic tool for this speciose and economically important group of Lepidoptera. With Lafontaine's previous experience as an author in this series and Jocelyn Gill's mastery of digital photography, the results are excellent.

A slight departure from previous volumes is the inclusion of the Mexican fauna (reflected in the title of the volume), much enhancing the diagnostic utility of this work. 56 of 181 treated species are described as new, many of them from Mexico, reflecting the relatively poor state of taxonomic knowledge of this group. Introductory sections include a historical review of the Noctuidae and Agrotini, and a summary of the systematic arrangement and structural characters used to classify the Agrotini (co-authored with Danish noctuidologist Michael Fibiger). The latter section is concluded with a proposed phylogeny of the Agrotini. The character systems and proposed synapomorphies would make an excellent starting point for a rigorous morphology-based phylogenetic analysis of the Agrotini. The introductory section concludes with a detailed account of methodology for dissecting genitalia and everting male vesicae, which will be invaluable to those learning dissection techniques, and provide helpful "tricks of the trade" to those already familiar with dissecting.

Species accounts are laid out in the familiar MONA format, with species names, synonyms, original citations, and type localities and type depositories given. Habitus and genitalic illustrations are cited under each species heading,

and text-page numbers are given under figures in the plates, making cross-referencing easy. Being intended as a diagnostic tool, the first and most extensive text section provides a species diagnosis (often cross-referenced to the dichotomous keys), followed by sections on immature stages and biology; the latter is often necessarily brief due to lack of available information. Distributional data is summarized textually and with a dot-map for examined material. The dot-maps at once convey much important information, whether this data is used in a species-diagnostic or biogeographical context. It is unfortunate that not all recent volumes of the MONA series include these maps, and it is hoped that future volumes do so. Separate dichotomous keys are given for Agrotini genera, species of each genus, and species based on larvae. Characters used in the keys generally consist of complementary character sets, such as wing pattern, genitalic structure and geographic distribution (for species keys), making the keys very thorough and user-friendly. Only 34 of 181 species are included in the larval key, highlighting the lack of knowledge of immature stages in this group. Nevertheless, I have used the larval key with some success even for excluded species, as these can generally be deduced at least to genus.

Life-size colour habitus photographs of all but one species (the exception being a species known only from a type illustration) are presented in a series of 12 plates, generally depicting multiple specimens to illustrate sexual or geographic variation. Specimens have been photographed individually and assembled digitally on each plate, permitting constancy in lighting and colour reproduction with excellent results, even for nearly all-white species such as some of the *Copablepharon*. Additional monochrome plates include photographs of male and female genitalia (most species), larvae (23 species), and diagnostic larval structures. It is unfortunate that the larval photographs were not reproduced in colour.

This volume is another substantial and valu-

able addition to the MONA series, paralleled with a high standard of quality. The superb illustrations of both habitus and genitalic structure will make it the standard reference for this group of Lepidoptera for both experts and amateurs.

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July 30, 2008



Books available for review:

The Hawk Moths of North America. Tuttle, J. P. 2007. Wedge Entomological Research Foundation, Washington, DC

Urban Ants of North America and Europe. Klotz, J., Hansen, L. and Pospischi, R. 2008. Cornell University Press, Ithaca, NY. 196 pp.

The Encyclopedia of Entomology (4 volumes). Capinera, J. L. (ed.). 2008. Springer, Neward, NJ.

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Alwyn Bradley Ewen

1932 - 2008

Alwyn ('Al') Bradley Ewen passed away unexpectedly on 25 September, 2008, in Saskatoon's Royal University Hospital, aged 75.

Al was born on 24 October, 1932, in Radisson, Saskatchewan, where his father, a Scottish emigrant, was the bookkeeper at the local grain mill. In the late 1930s, Al's family moved to Saskatoon where he completed his school education. In 1947, he enrolled in pre-medical studies at the University of Saskatchewan, but after a year switched to biochemistry. As luck would have it, he worked as a summer student for Don Rawson, the well-known limnologist, and quickly changed course again, to complete a BA degree with Honors in Biology.

At this stage, Al may well have become a fisheries biologist, having worked for the Fisheries Research Board at Victoria Beach on Lake Winnipeg, where his main observation

was that "fishing was never so good", and for the Saskatchewan Department of Natural Resources, Fisheries Branch, at Ile-à-la-Crosse. Here, he was exposed (literally!) to northern biting flies, which pricked his curiosity (and probably other things as well), leading him to undertake a MA degree under the supervision of Les Saunders at the University of Saskatchewan. For his MA thesis "Contributions toward a revision of the genus *Atrichopogon* based on characters of all stages (Diptera, Heleidae)" (Heleidae = Ceratopogonidae), Al attempted to determine useful taxonomic characters for separating species, using larval, pupal and adult features. His study included 18 species, five of which were from near Saskatoon but the rest had been collected by Saunders from around the world. Despite working on the genus for some years, Al remained puzzled by the very name and in his thesis (p. 2) noted: "The name *Atrichopogon* itself is mystifying, for it indicates an impossible situation: a beard ("pogon") without ("a") hairs ("tricho")."

After completing his MA in 1957, Al joined the staff at the Canada Agriculture Research Station in Saskatoon, where he was given responsibility for investigating the physiology of environmental adaptation in immigrant pest insects. To acquire the background in this area, Al with his first wife Marjorie and young son Rick moved to Edmonton where he registered in a PhD program in the Department of Entomology, University of Alberta. Here, under the joint supervision of Brian Hocking and George Ball, Al spent the next three years looking at the induction and termination of diapause in insects and correlating these events with changes in the endocrine system.

With his thesis research completed, Al returned to Saskatoon in 1960, though by now his family numbered four, following the arrival of a second son, Doug. He received his PhD in 1961, for the thesis "Studies on neurosecretion in the alfalfa plant bug, *Adelphocoris lineolatus* (Goeze) (Hemiptera: Miridae)."

Over the next decade and a half, Al undertook a comprehensive program on the physiology of reproduction in insects, using

the alfalfa plant bug and the migratory grasshopper (*Melanoplus sanguinipes* Fabr.). An enjoyable and productive component of this work was the collaboration between Al and the recently appointed insect physiologist at the University of Saskatchewan, Cedric Gillott. Clearly, the latter's strange accent made a major impression on Al who very quickly adopted the habit of greeting his collaborator with " 'ello m' duck" (unfortunately, sounding like a Cockney rather than a Yorkshireman!).

In the mid-1970s, Al undertook another major change in research direction, turning to applied entomology, specifically crop and rangeland grasshopper control, initially using synthetic pesticides, then potential pathogens such as *Nosema* spp. and *Malameba locustae*. In an effort to get away from the non-specific effects and wastefulness of insecticide spraying, Al and his collaborators examined whether the efficacy of insecticides (including microbials) could be improved if they were formulated as dry, edible baits. This was easily the most productive phase of Al's career, with more than 20 publications, co-authored by colleagues at the Saskatoon Research Station (Mukul Mukerji and Chris Hinks), the University of Saskatchewan (Jim Germida), the University of Regina (Paul Riegert) and the University of Wyoming (Jeff Lockwood). As well, Al enjoyed a new role as co-supervisor (with Cedric Gillott) of two MSc students, Lorraine Braun and Martin Erlandson.

Al was a strong supporter of entomology at both provincial and national levels. He was elected the Entomological Society of Saskatchewan's President for 1962-63, and was a major force in the establishment of the Arthur R. Brooks Memorial Prize, awarded annually to an outstanding graduate student in Entomology registered at one of the Province's universities. He was also a long-time member of the Entomological Society of Canada, and served as Scientific Editor for *The Canadian Entomologist* between November 1985 and December 1993.

Al had a wry sense of humour, which was evident on my very first visit to his office.

There, on the door jamb, was a beautiful little hand-made sign – the kind that one sees at service counters in department stores and government offices – complete with two little brass hooks holding numbers and the words "Please take a number (247). Now serving (21)"! Al was also a great lover of puns, and many of us on his e-mail list would receive these regularly. A small selection of these follows in the tribute presented by Robin Leech.

Golf was also another major love of Al's life, though the origin of this affair was unusual to say the least. Early in life, Al had a severe lung infection that required major surgery. To aid the normal regrowth of the back muscles damaged by the operation, Al was urged to take up golf, which he played with a fierce passion (and eventually a single-figure handicap). Harvey Craig, a long-time colleague and golf buddy, recalls how Al always played the first two holes of a round with great care, taking overly much time in the view of some fellow players. Al's response was quite direct: "There's no point in ruining a round of golf in the first two holes." His commitment to the sport extended to even having his golf shoes custom-made. Many a fine afternoon found Al out surveying turfgrass for 'golf eggs'. Once he wistfully commented that if only there were *Melanoplus sanguinipes* in Hawaii, he could transfer there and golf year round! There is also a rumour, completely unfounded of course, that Al's main delight at having two sons was that he could use them as caddies and ball-shaggers from an early age! Apparently, Rick and Doug, each armed with a ball glove, were sent out into the rough, about 200 yards from the tee, to catch the golf balls that Dad hit to them for hours on end! Al continued to golf until about 2 years ago when knee problems forced him to retire from the sport. It was highly fitting that, after his death, the opportunity to pay tribute to, and reminisce about, Al took place at his home-away-from-home, the Saskatoon Golf and Country Club.

Al will be greatly missed by his wife Ruth, his sons Rick and Doug, their mother Marjorie, his grandchildren and great grandchildren, and

numerous colleagues and friends. Wherever he now resides, there had better be a golf course!

Cedric Gillott, University of Saskatchewan, with contributions from Lorraine Braun, Martin Erlandson, Harvey Craig and Rick Ewen.

**Puns and ‘punny’ headlines
(dedicated to Al Ewen)**

Bee & wasp

“How are things going?” asked one bee of another.

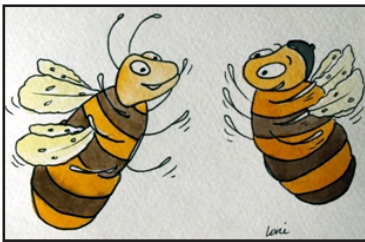
“Terrible,” replied the second bee. “I can’t find any flowers or pollen or nectar anywhere.”

“No problem,” said the first bee. “Just fly down this street. There’s a bar mitzvah going on with lots of flowers and fresh fruit.”

“Thanks!” replied the second bee, buzzing off.

Later, the second bee thanked the first bee for the tip. Then the first bee asked, “But what’s that thing on your head?”

“My yarmulke,” replied the second bee. “I didn’t want them to think I was a wasp!”



Snakes in Noah’s ark

When Noah built his ark, he had two snakes aboard. When the animals were leaving, he said, “Go forth and multiply.” The snakes didn’t move.

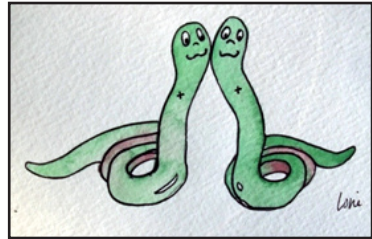
“Go forth and multiply!” They still didn’t move.

Noah was yelling by now. “Go forth and multiply!”

“We can’t,” they answered.

Noah was confused. “Why not?”

“We’re adders,” they replied.



“Wolf sterilization experiment dropped after howls of protest.” (The Edmonton Journal, 25 October 2008, page B9).

“A knack for nitpicking leads to successful delousing business.” (The Edmonton Journal, 1 October 2008, page B1)

Puns and headlines were contributed by Robin Leech. Images were drawn by Lorie Taylor.



Buck Godwin

1928 - 2008

It is with great sadness that the family of Buck "BJ" Godwin announces his passing on October 23, 2008 at the age of 79. Buck will be lovingly remembered by his beloved wife of 53 years, Nola, and their four children, Laura, Hugh (Maxine), Neil (Jennifer), and Karen (Eric). He will also be sadly missed by his seven grandchildren, Brett, Nora, Katelyn, Jenna, Rachel, Ben and Jonah as well as his sister Jean (Bazel) Driver, brother Chip, sister-in-law Yvonne Godwin, sister-in-law Doris (Bob) Tipper, six nephews and three nieces. Buck was predeceased by his brother Perry, and parents Jack and Gertrude.

Buck was born in Big Valley, Alberta and later moved to the Sangudo area to homestead with his parents and siblings. He earned a diploma in Agriculture from the Vermilion School of Agriculture (1950), and a BSc in Agriculture from the University of Alberta (1954), majoring in Horticulture. He furthered his education with a BEd degree from the University of Alberta in 1965. Buck was an inspiring instructor in horticulture, plant science, and farm management since 1954, first at Fairview College 1954 - 1958, then Vermilion College 1958 - 1963 and finally at Olds College 1963 - 1987.

Buck started the horticulture programme at Olds College in 1963 and continued to lead its development until his retirement in 1987. Both the herbarium and the entomology collection at Olds College were begun by Buck. Many a student has passed through Olds College and received a thorough education in insect identification and pest management. Buck's contribution to entomology education was recognised by the Entomological Society of Canada through the awarding of the inaugural Criddle Award in 1981.

His love of hands-on teaching continued after his retirement from the college when he and Nola established their Alberta Supernaturals floral business where they continued to open their farm, home and hearts to numerous students, colleagues, customers, neighbours, friends and family. He loved his family, sharing his knowledge, and working in his fields, whether it was raining or under his favourite "wall-to-wall blue sky". He viewed every day as a good day.

Ken Fry
Olds College, Olds, AB



A crab spider (*Misumena vatia*) on a daisy flower

Max Larrivée

The Arctic and Boreal Entomology Course – 2007

Jennie Knopp, Peter Kevan, and Rob Roughley

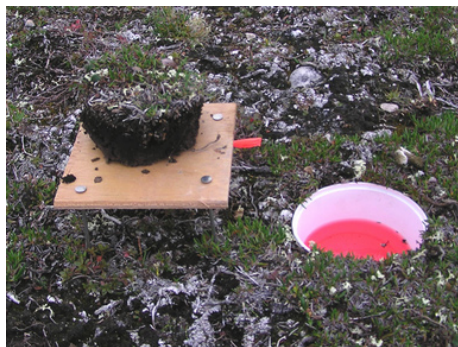
The 2007 Arctic and Boreal Entomology Course, was again held at the Churchill Northern Studies Centre (CNSC) in Churchill, MB in August 2007. The course was led by Peter Kevan, Environmental Biology, University of Guelph and Rob Roughley, Department of Entomology, University of Manitoba. Teaching assistantship was provided by Jennie Knopp, who graduated from the University of Guelph and is currently working as a biologist in Edmonton.

This year, students came from across the world including Norway, France, Bangladesh, and Canada to participate in the course. Many of the students had graduate degrees including Masters and Doctorates or were continuing onto graduate studies in the fall. The entire group of students, teaching assistants and instructors worked extra hard – not only to learn about boreal and arctic entomology, but also to collect insects for the “Bio-Blitz” for the Barcode of Life (BOL) Initiative based at the University of Guelph’s Biodiversity Institute of Ontario (BIO), and in particular the PROBE project for the inventory of life in the Churchill region as funded by the Natural Sciences and Engineering Research Council of Canada as part of the contribution to the International Polar Year. Dr. Paul Hebert, who heads BIO, was happy to receive many insect specimens to help catalogue the invertebrate fauna of Churchill.

The staff at the Churchill Northern Studies Centre (CNSC) again made our stay enjoyable and provided everything we needed to conduct our lessons safely and efficiently. The Centre is an excellent facility to foster scientific research and provides all of the necessary amenities including classrooms, laboratory space, computer and internet access, vehicles, dormitories, and home-cooked meals. The CNSC kitchen staff kept us well fueled for

those long hours of collecting and their culinary variety made us hungry with anticipation while we were still in the field.

Collecting efforts included over 100 pitfall traps (Photo 1), Malaise traps (Photo 2), flight intercept traps as well as dip netting in the tide pools (Photo 3) and along the shores of the Churchill River. Terrestrial insects were sampled from willow scrub, the krumholz, boreal forest-tundra transition zones, and tundra zones. The course days were divided



Jennie Knopp

Figure 1. Pitfall trap with propylene glycol. The soil plug removed to place the trap was returned to the laboratory to sit in a Berlese funnel to remove terrestrial arthropods.



Figure 2. Rob Roughley and Jennie Knopp pose by a Malaise trap on the banks of the Union River in Wapusk National Park.



Jennie Knopp

Figure 3. Students dip net and sweep for insects amongst the tidal pools on the banks of Hudson Bay.



Jennie Knopp

Figure 4. Larva of the sawfly *Cymbex americana* on willow.

between field collecting during the day, and evening lectures after dinner. Lab hours were interspersed throughout the day and evening to allow students to take inventory of their collections and learn proper pinning and preservative techniques as well as identification. There were two trips to Wapusk National Park south of Churchill to help Parks Canada catalogue the insects of the park. Rob Roughley, Peter Kevan and Jennie Knopp flew in by helicopter to Nestor 1 to set up pitfall traps and Malaise traps as well as sample along the banks of the nearby Union River. A total of 26 polar bears were seen during these flights.

New species not yet recorded from Churchill were discovered through the students' sampling efforts. A huge Black Witch moth (*Ascalapha odorata*: Noctuidea) normally found in Mexico's Yucatan and south, was discovered by Torbjørn Ekrem of Norway on the bluffs and tide pools along Hudson Bay. It was presumably blown into the region on storm winds from the south and is the most northerly record for the species. Several lightening beetles (fire flies) were collected from forest fire burn site south of Churchill. Although this is not a new record to Churchill, it is a new record for the course. Other new species records included several beetles and the larva of the huge sawfly, *Cymbex americana* (Cymbicidae) to confirm that it breeds in the area (Photo 4).

A wide variety of passive and active sampling techniques were demonstrated in the course. To collect aquatic insects, shore splashing and dip-net sampling methods were used. Sweep nets, pitfall traps, fan traps, Malaise traps, flight interception traps and aspirators were used to sample terrestrial insects. In the lab, students also employed Berlese funnels to extract insects from soil core samples taken from a variety of habitats. The lectures provided students with an insight into entomology within the context of a boreal and arctic ecozone. Topics were divided into macro-scale and micro-scale effectors on insect diversity. Climate, geography and glaciations were discussed on how these phenomena have shaped and preserve the present day insect fauna of the boreal and arctic ecozones. Climate change and its effects on the biodiversity of Churchill were also discussed. New species records are appearing as the temperatures increase and the cold intolerant insects can move into northern regions.

Along with being immersed in the study of the six-legged variety, students also enjoyed the privileged opportunity to take in some of Churchill's more notorious wildlife including caribou, beluga whales (Photo 5), various birds and, of course, polar bears. A wanted visitor for our course members – but not for the crew from the station – visited the CNSC. A young

male polar bear found the garbage site for the station and had himself a little snack (Photo 6). As Churchill is the Polar Bear Capital of the World, the crew was not surprised to see the polar bear but it was a little alarming to be that close even though the windows are reinforced with steel bars. There was also time to visit some of Churchill's other attractions, including local shops restaurants, and museums.

Information on the course can be found on the web site of the University of the Arctic

<http://www.uarctic.org/completeArticles.aspx?m=38> and www.uoguelph.ca/~pkevan (under courses). Please contact either Peter Kevan (pkevan@uoguelph.ca) or Rob Roughley (Rob_Roughley@umanitoba.ca) if you are interested in taking the course, as we hope to offer it again in the summer of 2010. The course is now part of the University of Guelph's Field Entomology credit course offering.



Jennie Knopp

Figure 5. Beluga whales are very curious creatures and love the mix of freshwater and salt water where the mouth of the Churchill River enters Hudson Bay. The belugas came right up to our Zodiac boats for a close look.



Jennie Knopp

Figure 6. A young male polar bear rummages through the garbage container at the research station. We were safe inside behind the barred windows.

On being opportunistic and critical

“Learn to listen. Opportunity sometimes knocks very softly.”
– H. Jackson Brown, Jr.

“Just think of the tragedy of teaching children not to doubt.”
– Clarence Darrow

The correct identity of the green lacewing on the 2007 Canada-Post stamp

The December 2007 issue of the *Bulletin* (39(4):176) showed a series of stamps issued by Canada Post on 12 October 2007. The 3-cent stamp has an image of a lacewing and names it *Chrysopa oculata* Say, also known as the goldeneye lacewing. However, the image does not show the prominent black head and wing markings typical of this species (Fig. 1). The photograph used in the design of the stamp is shown on page 8 of Canada Post's Collection Canada yearbook for 2007 (Fig. 2). The insect in the photograph is readily identifiable from head markings and wing venation as the common green lacewing, *Chrysoperla carnea* (Stephens) (sensu lato). This suggests to me that the image for the stamp was based on a photograph of *C. carnea* misidentified as *C. oculata*.

For more about green lacewings in Canada (and Alaska), see Zootaxa #1486 (issued 31 May 2007) (<http://www.mapress.com/zootaxa/2007f/z01486p084f.pdf>).

- J.A. Garland, Penticton BC



Figure 1. Photograph of *Chrysopa oculata*, the goldeneye lacewing. (Photo by Steve Marshall, Environmental Biology, University of Guelph).



Figure 2. Photograph of *Chrysoperla carnea*, the common green lacewing. Misidentified as *C. oculata*, it was used as the model for the Canada Post stamp (Photo by Mark Cassino, Kalamazoo, Michigan, USA; printed here with his permission.)

Standing committees / Comités permanents

Nominations / Nominations

T. Shore, Chair, Victoria
R. Hallett, Guelph
M.-P. Mignault, Ottawa
P. Fields, *ex officio*, Winnipeg

Elections / Élections

T. Chapman, Chair, St. John's
R. Auld, St. John's
T. Shore, *ex officio*, Victoria

Continuing committees / Comités en cours

Achievement Awards / Prix d'excellence

M. Evenden, Chair, Edmonton
P. MacKay, Winnipeg
R. Footit, Ottawa
P. Fields, *ex officio*, Winnipeg

Annual Meeting / Réunion Annuelle

T. Shore, Chair, Victoria
W. Riel, Victoria
B. Elliott, Winnipeg
J. Huber, Ottawa
A. Thielman, St. Catharines
P. Fields, *ex officio*, Winnipeg

Bilingualism / Bilinguisme

V. Martel, Chair, Saint-Jean-sur-Richelieu
M. Wu, Saint-Jean-sur-Richelieu
M.-P. Mignault, Ottawa
M. Marcotte, Québec
P. Fields, *ex officio*, Winnipeg

Bylaws, Rules and Regulations / Règlements

W. Riel, Chair, Victoria
P. MacKay, Winnipeg
P. Fields, *ex officio*, Winnipeg

Finance / Finance

G. Gibson, Chair, Ottawa
B. Broadbent, London

P. Mason, Ottawa
M. Erlandson, Saskatoon
P. Bouchard, *ex officio*, Ottawa
P. Fields, *ex officio*, Winnipeg

Headquarters / Siège social

V. Behan-Pelletier, Chair, Ottawa
J. Cumming, Ottawa
P. Bouchard, *ex officio*, Ottawa
P. Fields, *ex officio*, Winnipeg

Heritage / Patrimoine

C. Gillott, Chair, Saskatoon
R. Lamb, Winnipeg
J.-P. Bourassa, Trois-Rivières
P. Fields, *ex officio*, Winnipeg

Insect Common Names / Noms communs d'insectes

M. Roy, Sainte-Foy
H. Goulet, Ottawa
M.-P. Mignault, Ottawa
J.-F. Landry, Ottawa
P. Fields, *ex officio*, Winnipeg
B. Haack, *ex officio*, East Lansing, MI
(Chair, Entomological Society of America
Common Names Committee)

Marketing / Comité du marketing

K. Hillier, Wolfville, NS
C. Olivier, Saskatoon
P. Fields, *ex officio*, Winnipeg

Membership / Adhésion

G. Moreau, Chair, Moncton
W. Riel, ESBC, Victoria
L. Dosdall, ESA, Edmonton
C. Olivier, ESS, Saskatoon
P. MacKay, ESM, Winnipeg
D. Hunt, ESO, Harrow
S. Rochefort, SEQ, Québec
K. MacKenzie, AES, Kentville
G. Smith, student rep., Victoria
C. Borkent, student rep., Sainte-Anne-de-
Bellevue
P. Fields, *ex officio*, Victoria

Publications / Publications

K. MacKenzie, Chair, Kentville
 G. Boivin, Saint-Jean-sur-Richelieu
 P. de Groot, Sault Ste. Marie
 P. Kevan, Guelph
 R. Ring, Victoria
 R. Bennett, *ex officio*, Victoria
 K. Floate, *ex officio*, Lethbridge
 B. Lyons, *ex officio*, Sault Ste. Marie
 P. Fields, *ex officio*, Winnipeg

**Science Policy and Education /
Politique scientifique et éducation**

P. Mason, Chair, Ottawa
 W. Riel, ESBC, Victoria
 L. Dosdall, ESA, Lethbridge
 C. Olivier, ESS, Saskatoon
 P. MacKay, ESM, Winnipeg
 D. Hunt, ESO, Harrow
 S. Rochefort, SEQ, Québec
 K. MacKenzie, AES, Kentville
 T. Shore, *ex officio*, Victoria
 G. Zilahi-Balogh, Kelowna
 D. Huber, Prince George
 P. Fields, *ex officio*, Winnipeg

Student Affairs / Affaires étudiantes

A. Thielman, St. Catharines
 L. Pinault, St. Catharines
 J. Forrest, Toronto
 L. Andreassen, Winnipeg
 T. Wist, Edmonton
 J. Myers, *ex officio*, Vancouver
 P. Fields, *ex officio*, Victoria

Student Awards / Prix aux étudiants

J. Myers, Chair, Vancouver
 N. Holliday, Winnipeg
 T. Wheeler, Sainte-Anne-de-Bellevue
 D. Currie, Toronto
 C. Cloutier, Laval
 F. Sperling, Edmonton
 D. Giberson, Charlottetown
 P. Fields, *ex officio*, Winnipeg

**Ad hoc Committees /
Comités ad hoc****Strategic Review / Revue stratégique**

R. Lamb, Chair, Winnipeg
 P. Dixon, St. John's
 G. Gerber, Winnipeg
 R. West, St. John's
 P. Fields, *ex officio*, Victoria

**ESC Business Plan /
Plan d'affaires de la SEC**

P. Fields, Chair, Winnipeg
 G. Ball, Edmonton
 C. Buddle, Montréal
 R. Lamb, Winnipeg
 G. Moreau, Moncton
 D. Shorthouse, Edmonton

Ad hoc Web Content

M. Cusson, Chair, Sainte-Foy
 D. Shorthouse, Wood's Hole
 K. Rondeau, Lethbridge
 P. Fields, *ex officio*, Winnipeg

Actions from the Governing Board Meeting

Ottawa, 18 October 2008

By Rick West, Outgoing Secretary

Secretary

R. West provided the incoming Secretary, A. Firlej, with a timetabled list of duties and the ESC laptop which contains all electronic files as well as copies of email correspondence since 1998. Paper files have been archived at the ESC office and were reviewed with A. Firlej and the Office Manager, D. Lisi.

Strategic Review – Committee Structure

R. Lamb, P. Dixon, G. Gerber and R. West reviewed the Committee Structure and felt that there was no need to overhaul the present guidelines for the structure of committees. A list of minor changes to the Guidelines will be provided to update the ESC documents in both official languages.

Strategic Review – Ad Hoc IT Committee

There was general consensus that the IT Committee be absorbed by a new Ad Hoc Committee, the Ad Hoc Web Content Committee.

Ad Hoc Business Plan

The ESC has entered into a non-exclusive contract with BioOne www.bioone.org, to distribute *TCE* electronically until December 2011. *TCE* will be part of BioOne.2 which currently has 58 journals in the collection, that are distributed to over 200 institutions for a fee and to over 2500 institutions for free in developing countries. BioOne estimates that there will be a royalty accrued to the ESC of about \$8000 in 2009, rising to \$30,000 in 2012. NRC Research Press estimates that transitioning delivery to electronic-only will reduce costs by 30-35%. They have an in-house printer and estimate that it will cost approximately \$12/is-

sue, or \$72/year plus postage to perform print-on-demand. NRC will give additional details at *TCE* editorial board meeting 20 Oct 2008. The Committee recommended to contract with NRC at cost of \$65,000 to scan back issues of *TCE* and *Memoirs* and place on the NRC website. All the back issues should be available to members by April 2009. Decline in revenues is due mainly to the increase in the Canadian dollar and the decline in international subscriptions. The decline in subscriptions is about 2 subscriptions/year for Canada, 8 subscriptions/year for USA, 14 subscriptions/year for International, or about 25 subscribers/year. The decline in members is about 11 regular/year, 1 students/year, 1 emeritus/year (increase) for a total of about 13/year.

Electronic Balloting

The Board supported electronic balloting and the technology to do this will be investigated by the Ad Hoc Web Content Committee. A Standing Rule and Bylaw change is needed to be approved by the Board and Membership to enable electronic balloting before it can be implemented.

Treasurer

In 2007, net revenue was \$7 023, comparing favourably to the net expenditure of \$17 584 in 2006.

Report from the Office Manager

Translations of announcements from the Board and Committee Chairs sent as emails to the general membership will be discussed with the Bilingualism Committee Chair before this policy is approved by the Board and added as a duty for the Bilingualism Committee.

ESC Headquarters Committee

Repairs to the floor and ceiling of the main office, painting of the main office and entrance and work on the outside are underway. The roof has been repaired and re-shingled.

Finance Committee

Standing Rule changes to facilitate increases in institutional memberships and apply sur-

charges for mailed copies of the *Bulletin* and *The Canadian Entomologist* were discussed prior to approval by Members at the AGM (see AGM minutes). The FC recommended that subscription rates for *TCE* remain comparable with other Affiliated Journals and therefore recommends against any further reduction in member page charges, which would reduce profitability of the *TCE* and add pressure to increase subscription rates.

Online purchasing of memberships

The online system to purchase memberships still needs work. While payment can be made through the PayPal account at the ESC office, the surcharge amounts for handing electronic payments need to be established and they need to be applied according to the Standing Rules of the Society.

Printed Annual Meeting Programs

The Board approved the FC's recommendation that all information on award winners (Gold Medal, Hewitt, etc.) be published only within the Joint Annual Meeting Program and subsequently in the *Bulletin* and no longer be printed as brochures and given individually to meeting participants.

Scientific Editor

One hundred and eight manuscripts were received from January to September 2008: Twenty-nine have been accepted, 21 are in review or being revised, 57 have been rejected. Three C.P. Alexander Fund articles are in preparation and two more are under consideration. Ways need to be found to increase paper submission to *TCE* which continues to offer high production quality and low costs for reprints and page charges. Symposium and review articles can increase readership. Strategies to increase article submissions and subscriptions will be discussed at *TCE* editorial board meeting and will be reviewed by the Publications and Marketing Committees. The name of the journal might imply that only papers of Canadian interest are published, however, pages are regularly accepted from foreign sources.

Editor – *Bulletin*

F. Beaulieu became the new Assistant Editor in January 2008. Shipping costs have been reduced by distributing hardcopies from ESC Headquarters, rather than via a commercial distributor.

Web Site

The Board endorsed the suggestion that an ad hoc committee be struck to provide content for the website and provide guidance on IT issues. The *Bulletin* may evolve into an online only publication with frequent rather than quarterly updates. Members were encouraged to use the Bulletin Board.

Publications Committee

The present 'Authorization to Publish/Copy-right Assignment' form is confusing and will be revised in consultation with the Editor-in-Chief. Use of CD copies of the Memoirs and issues regarding copyright will be included in an amended version of the Conditions of Use document currently posted on the website. A policy outlining the conditions of use for downloading material from the web site is in development.

Bylaws, Rules and Regulations Committee

Chair G. Gerber's three-year term has ended and a new Chair will be appointed.

Heritage Committee

The Chair of the Heritage Committee now writes letters of condolence on behalf of the Society to the families of recently deceased members.

Insect Common Names and Cultures Committee

An updated list with date of last update needs to be provided to the webmaster for posting on the web site. The list currently posted was updated in 2006. Additional content on the activities of the Common Names Committee will be posted on the website.

Membership Committee

Membership declined from 1997-2004 but has been relatively stable since then. There was a 1% decline in the number of members reported for September of 2008 compared to September 2009. A text is being prepared for the *Bulletin* to encourage entomologists to join the Society. Input from the board is welcome. Long-term (multi-year) and lifetime memberships are under consideration. Regional representatives were asked to ask their members if they wanted to have links to PayPal from the ESC website to pay for respective memberships.

Science Policy and Education Committee

Public Encouragement Grants were approved for the Entomological Societies of Alberta, BC, Manitoba, Ontario and Quebec. The Board approved joining the COPUS Initiative by email ballot in May 2008. An invitation from the President of the International Congress of Entomology to consider a "Memorandum on Collaboration" by which Entomological Societies might collaborate on assessing and acting on global issues of concern to entomologists. Representatives of various Entomological Societies, including the ESC, will meet in Reno in November to further discuss this memorandum.

Student Affairs

Co-Chairs Borkent and Smith are resigning and will be replaced by Aynsley Thielman. The Committee maintains a list of new graduates with postgraduate degrees in Entomology in Canada, which is then published in every issue of the *Bulletin*. The committee has web space for students to post a description of their research. The facebook discussion/message board is up and running and has been used both by students and those offering grad student positions or jobs. Scheduling the Grad Student Symposium to follow the Gold Medal Award address was suggested to increase attendance. Marking sheets for the President's Prize competition will be posted on the website

following review by the Board. An updated version of The Directory of Entomological Education in Canada should be finished by the end of the year.

Marketing Committee

Christel Olivier joined the Marketing Committee following the resignation of Owen Olfert and Lorraine Braun. The Society was approached by NRC Press to engage in advertising, through inclusion of literature on their affiliated journals in the society's handouts at the AGM. NRC is prepared to pay the society for this opportunity to reach the membership. Scanning back-issues of ESC publications should increase interest in online subscriptions. A letter detailing subscription information and preferences for subscription (i.e. a one time payment including *TCE* or *Memoirs*, or a bundled 'discount' package for both) was crafted and forwarded to the ESC office for distribution to libraries. While the current literature is adequate, some of the content of the brochure/poster should be revised to reflect more modern aspects of entomological science.

Annual Meeting Committee

A revision of the Guidelines for the organization of the meeting has been mostly completed. The Committee is charged with reviewing the guidelines regarding profit sharing and losses, and flexibility for the ESC to use their share of their profits.

Biological Survey of Canada

Despite an active and productive programme carried out by the BSC, Canadian Museum of Nature funding for the BSC secretariat will be reduced to ¼ current funding levels as of March 2009 if new funding partners are found. If no new funding partners are found, all funding will terminate at the end of March 2009 and the BSC secretariat will cease operations. Talks are ongoing with the Federal Biodiversity Information Partnership to secure funding but this group will not have their own funding in place until well after March 2009.

Affiliated Entomological Societies

There were no requests for action by the Board from the Affiliated Societies.

**Governing Board Meeting,
20 October 2008****Committee Appointments**

The Board approved that a list of Committees and Representatives for 2008-2009 be prepared by the President and the President's appointees.

2008 Budget

The 2008 budget, once finalized following discussion between the incoming Finance Committee Chair and the Treasurer, will be sent to the Board for approval by email ballot.

Student Travel Award Conditions

A revised version of the Travel Award Conditions will be sent to the Board for approval by email ballot.

Student Affairs Committee

A listing of job opportunities for students for posting on the website is under consideration by the Student Affairs Committee.

Interim Meeting of the Executive Council

As a cost-saving measure and at the recommendation of the Finance Committee, the President will chair conference/videoconference calls with Executive Council members, Treasurer and Secretary in January, April and August, in lieu of the Interim meeting held at the Ottawa Office in April.

MINUTES
58th Annual General Meeting
Crowne Plaza Hotel, Ottawa, Ontario
20 October 2008

Past-President P. Dixon called the meeting to order at 17:20 h. Forty members were present.

1. **Notice of Meeting.** Notices of the meeting were published in the March and June 2008 issues of the *Bulletin* (Vol. 40).
2. **Proxies.** P. Dixon for T. Shore (ESC President), K. Floate for L. Dosedall (Entomological Society of Alberta)
3. **Additions to the Agenda and Approval of the Agenda.** W. Riel moved and P. MacKay seconded that the agenda be accepted. Carried.
4. **Deceased Members of the Entomological Community.** A moment of silence was observed in memory of the following members of the Entomological Community who passed away during the past year: Ed Becker, Bill Turnock, Maurice Smith, Don Chant, Cameron Jay, Stuart Walley, Eugene Munroe, Phil Corbett, Ed Leroux, and Al Ewen.
5. **Minutes of the 57th Annual General Meeting.** Minutes of the 57th Annual General Meeting were posted on the web site and published in the December 2007 issue of the *Bulletin* (Vol.

39). K. Hillier moved and G. Gibson seconded that the minutes be accepted. Carried.

6. Business Arising from the Minutes.

6.1 Options for *The Canadian Entomologist*. P. Fields, Chair of the Ad Hoc Business Plan Committee, provided details on matters affecting ownership, subscriptions, and distribution of *The Canadian Entomologist* and the Memoirs. His report will be published in the December 2008 issue of the *Bulletin*.

7. Report from the Governing Board. Past-President P. Dixon presented a report on behalf of President Shore and the Governing Board and gave an update on progress during the past year and plans for the coming year. The report from the President and the Governing Board and regular updates are published in the *Bulletin*. This particular report will be published in the December 2008 *Bulletin* (Vol. 40). The following changes to the Standing Rules were made to recover costs of distributing printed copies of the journal and *Bulletin* to members and to allow flexibility in setting Institutional Subscription rates and reprint charges.

7.1 Dues for Student Members outside of Canada.

J. McNeil moved and P. MacKay moved that Standing Rule II (Dues, By-Laws V) be changed

From:

II.2. Annual dues for Student Membership shall be twenty dollars (\$20.00) in Canada and twenty-five dollars (\$25.00) or eighteen dollars US (\$US18) for student members outside of Canada.

To:

II.2. Annual dues for Student Membership shall be twenty dollars (\$20.00) in Canada and twenty-five dollars (\$25.00) or equivalent in US dollars for student members outside of Canada. **Carried. Action: V. Martel, Chair, Bylaws, Rules and Regulations Committee, A. Firlej, R. West.**

7.2 Surcharge for Mailed Copies of the *Bulletin* and TCE

N. Holliday moved and W. Riel seconded that Standing Rule I (Membership, By-Laws IV) be changed

From:

I.1.(c) Student Members shall receive the *Bulletin* of the Entomological Society of Canada as part of the Annual Dues.

To:

I.1 (c) Student Members shall receive the *Bulletin* of the Entomological Society of Canada as an online access as part of the Annual Dues or as both an online access and print copy for an additional fee reflecting current costs of mailing and production.

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

G. Gibson moved and K. Hillier seconded that Standing Rule I (Membership, By-Laws IV) be changed

From:

I.5 (b) Regular Members shall receive the *Bulletin* of the Entomological Society of Canada as part of the Annual Dues.

To:

I.5 (b) Regular Members shall receive the *Bulletin* of the Entomological Society of Canada as an online access as part of the Annual Dues or as both an online access and print copy for an additional fee reflecting current costs of mailing and production.

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

J. McNeil moved and P. MacKay seconded that Standing Rule I (Membership, Bylaws IV) be changed.

From:

I.4. (b) Emeritus Members shall, upon request, receive the *Bulletin* of the Entomological Society of Canada for twenty dollars (\$20.00).

To:

I.4 (b) Emeritus Members shall, upon request, receive the *Bulletin* of the Entomological Society of Canada as an online access without charge or as both an online access and print copy for an additional fee reflecting current costs of mailing and production.

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

N. Holliday moved and O. Olfert seconded that Standing Rule I (Membership, By-Laws IV) be changed

From:

I.1 (b) Student Members, shall upon request, receive *The Canadian Entomologist* either as print copy or online access for twenty dollars (\$20.00) plus GST or HST, or as both print copy and online access for an additional ten dollars (\$10.00).

To:

I.1 (b) Student Members, shall upon request, receive *The Canadian Entomologist* either as online access for twenty dollars (\$20.00) plus GST or HST, or as both print copy and online access for an additional fee reflecting current costs of mailing.

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

P. MacKay moved and G. Gibson seconded that Standing Rule I (Membership, By-Laws IV) be changed

From:

I.5 (a) Regular members shall receive *The Canadian Entomologist* either as print copy or online access as part of the annual dues, or as both print copy and online access for an additional ten dollars (\$10.00).

To:

I.5 (a) Regular members shall receive *The Canadian Entomologist* either as online access as part of the annual dues, or as both online access and print copy for an additional fee reflecting current costs of mailing.

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

7.3 Institutional Subscription Rates.

G. Gibson moved and J. Shorthouse seconded that Standing Rule XII (Publications) be changed

From:

XII (3) The annual subscription rate for *The Canadian Entomologist* shall be two hundred dollars (\$200.00 Cdn), plus G.S.T. or H.S.T, in Canada and two hundred and fifty dollars (\$250.00 USD) elsewhere for either print copy or online access and three hundred dollars (\$300.00 Cdn) plus G.S.T or H.S.T. in Canada and three hundred and fifty dollars (\$350.00 USD) elsewhere for both print copy and online access. An online subscription represents a contiguous campus located within the same city and reporting to the same administrative body. An annual subscription rate for extended institutional licenses may be negotiated by the Treasurer in consultation with the Finance Committee.

To:

XII (3) The annual subscription rate for *The Canadian Entomologist* shall be recommended by the Treasurer in consultation with the Finance Committee and approved by the Board before it comes into effect. Any annual increase greater than 20% (twenty percent) of the current rate must be approved by members. An online subscription represents a contiguous campus located within the same city and reporting to the same administrative body. An annual subscription rate for extended institutional licenses may be negotiated by the Treasurer in consultation with the Finance Committee

Carried. Action: V. Martel, Chair, Bylaws Rules and Regulations Committee, A. Firlej, R. West.

7.4 Online Purchase of Memberships

Motion:

K. Hillier moved and J. McNeil seconded that the cost of online purchase or renewal of memberships be added as surcharge.

Carried. Action: P. Bouchard, Derna Lisi, R. West.

7.5 Reprint and PDF Charges

C. Buddle moved and P. MacKay seconded that Standing Rule XII (Publications) be changed

From:

XII.6 The cost of reprints from *The Canadian Entomologist* and from the *Bulletin*, effective for manuscripts received after 1 January 1997, shall be as follows:

No. pages	1-4	5-8	9-12	13-16	17-20	21-24	25-28
First 100	\$66	\$95	\$127	\$164	\$204	\$248	\$297
Additional 100's	\$22	\$29	\$35	\$43	\$48	\$56	\$64

To:

XII.6 The cost of reprints from *The Canadian Entomologist* and from the *Bulletin* shall be recommended by the Treasurer in consultation with the Finance Committee and approved by the Board.

Carried. Action: Chair of the Bylaws, Rules and Regulations Committee, A. Firlej, R. West, V. Martel. R. Bennett

- 8. Auditor's Report.** P. Bouchard presented the Auditor's Report for 2007. The report was posted on the web site and summarized in the June 2008 issue of the *Bulletin*. P. Bouchard moved and D. Giberson seconded that the Auditor's report be accepted. **Carried. No action required.**
- 9. Elections Committee Report.** R. West read the Elections Committee report. Those elected were: Dr. Peter Mason, Second Vice-President; and Dr. Michèle Roy, Director at Large. Both were welcomed with a round of applause.
- 10. Installation of Officers.** Past-President Dixon escorted P. Mason, Second Vice-President, to the dais then congratulated P. Fields as incoming President of the Entomological Society of Canada. The new President assumed office and thanked the Members for the honour of being elected President.
- 11. Presentation of Service Awards.** President Fields thanked T. Shore (outgoing President in absentia) for his service to the Society and this was greeted with a round of applause. T. Shore's service award will be presented at a later date. Presentation of service awards followed by a round of applause were made to Barry Lyons (in absentia) and Rick West in recognition of their long terms as Webmaster and Secretary, respectively. Annabelle Firlej was welcomed with a round of applause as the incoming Secretary.
- 12. Appointment of Auditor.** P. Bouchard moved and G. Gibson seconded that McCay, Duff, and Company be appointed as Auditor for 2008. **Carried. Action: P. Bouchard.**
- 13. A Motion and Resolution on behalf of the Entomological Society of Canada**

13.1 Resolution

The following resolution was accepted with a round of applause:

Thanks to Organizing Committee:

Whereas the Entomological Society of Canada has met jointly with the Entomological Society of Ontario at the Crowne Plaza Hotel, Ottawa, Ontario and

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

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

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

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

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

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

Action: A. Firlej

Peter Mason and John Huber, representing the Organizing Committee, were thanked with a round of applause.

14. New Business

14.1 Submissions to *The Canadian Entomologist*. R. Bennett stressed that *The Canadian Entomologist* should not be considered as a regional, parochial journal. It attracts submissions from many countries, has a high standard of quality and has a rejection rate similar to that of prestigious publications such as *Nature*. He encouraged members to submit to *The Canadian Entomologist* and welcomes suggestions to increase the submission of manuscripts.

15. Notice of 59th Annual General Meeting. The 59th Annual General Meeting will be held 18-21 October, 2009 with the Entomological Society of Manitoba at the Fort Gary Hotel in Winnipeg, Manitoba. Further notices for the meeting will be published in the March and June 2009 issues of the *Bulletin* (Vol. 41) and on the ESC website.

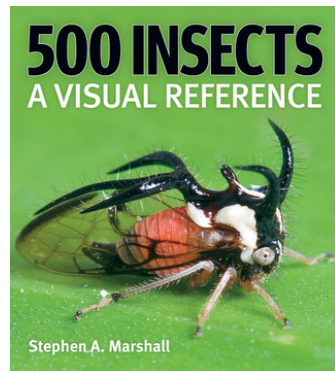
16. Adjournment. President Fields adjourned the 58th Annual General Meeting at 17:58 h following a motion by W. Riel seconded by J. McNeil.

People in the news / Gens qui font les manchettes

Congratulations Steve!

Thomas Say Award—This award is given for significant and outstanding work in the fields of insect systematics, morphology, or evolution. This year's winner, **Dr. Stephen A. Marshall**, is a professor of entomology at the University of Guelph, where he is in charge of the University of Guelph Insect collection and teaches courses including insect biosystematics, field entomology, and insect biology and diversity. His research deals mainly with systematics of acalyprate Diptera, but includes a wide range of projects in insect systematics and faunistics. His 2006 book, *Insects: Their Natural History and Diversity* (Firefly Books), used over 4,000 of his own photographs to make North American

insect diversity accessible to an unprecedented range of scientists, naturalists, and students, and his more recent book, *500 Insects* (Firefly Books, 2008), provides a visual overview of insects from around the world. Steve is also the founding editor of, and a regular contributor to, the *Canadian Journal of Arthropod Identification*.



Steve Marshall frequently contributes articles and photographs to the Bulletin. One of his contributions appears on p. 183 of this issue.

Jailed forester returns from India

Nightmarish story comes to an end with daring escape

By Curtis M. Wong (cwong@praguepost.com)
Staff Writer, The Prague Post; November 5th, 2008 issue

More than anything, Emil Kučera just wants to put this past summer's events behind him. After what has by all means been a tumultuous odyssey, the 52-year-old forester and aspiring entomologist arrived back in the Czech Republic Oct. 24, having fled India after receiving a three-year prison sentence for illegal insect collecting.

"I hope it won't be long until I'm feeling better mentally," Kučera said from his home in Tábor, south Bohemia. "Some people have congratulated me on being back ... Mostly, I'm just trying to get over the experience now."

Kučera's cross-border escape is the latest development in a case that has been plagued with problems since its onset. On June 23, Kučera and his friend, Academy of Sciences entomologist Petr Švácha, 51, were arrested near the Singalia National Park in the northern Indian province of Darjeeling. After spending a month at the Darjeeling District Correctional Facility in a cell with 28 other inmates, the pair was released on bail, followed by a trial that began Aug. 25.

On Sept. 8, both were found guilty of collecting insects without a permit, a decision which was overruled two days later. Contrary to published reports, Švácha was not acquitted, but instead was fined 20,000 rupees, whereas Kučera received a prison sentence of three years.

While the pair says they were initially treated fairly by both inmates and staff during their month in jail, both Švácha and Kučera describe the subsequent trial as extremely disorganized and contend prosecutors entered tampered evidence, including forged confessions, during the proceedings.

"We were really shocked by the deceptive behavior of local forestry officials," said Švácha, who is currently in Delhi awaiting an exit visa. "It is unimaginable that civil servants of a country thought to be a standard democracy would resort to practices like forgery. We were even more surprised when all of these [documents] were accepted by the court without question."

Kučera said he appealed the court's decision immediately with the aid of Czech Embassy officials. In the meantime, he was not sent to jail but instead resided at the Traveler's Inn, one of the two Darjeeling hotels where he and Švácha lived during the trial.

The first hearing was scheduled for Oct. 16, but Kučera arrived to an empty courthouse – neither representatives for the prosecution nor the appointed judge appeared that day. Kučera then contacted his girlfriend, who sent a duplicate passport and money, before setting off for Nepal in a rented Jeep.

Escape from India

After the four-hour journey, Kučera says he continued across the border on foot for two hours, before renting a second Jeep followed by a bus ride to the Nepalese capital Kathmandu. There, after being fined for entering the country without a visa, he "paid a certain sum" to local immigration officers before being granted an exit visa and finally purchasing a flight home through a travel agency.

Indian authorities have yet to react to the incident, though Kučera said his own attorney, T.K. Pandit, is seeking an international arrest warrant for his return.

"I would like to point out that I don't owe him any money," Kučera said. Officials at the Indian Embassy in Prague declined to comment.

(continued on p. 181)

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

Bulletin of the Entomological Society of Canada

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Assistant Editor: Fred Beaulieu

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Rédacteur adjoint : Fred 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.

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The Buzz / Bourdonnements

By Kevin Floate, Editor / Rédacteur



It's about family...

This issue marks the end of my 2nd year as the *Bulletin* Editor. It's been busy at times, but your submissions and Fred's help as Assistant Editor make it much easier.

This year also marks my 23rd as a member of the ESC. Like many of us, I initially joined the ESC to qualify for student awards and reduced registration fees at annual meetings. I kept renewing my membership out of a sense of obligation to support our national society, even during those years I lived outside the country.

I now realize that membership is about more than just obligation. It's about being part of an extended 'family' with a common passion for entomology. Mentors are our 'parents' or 'aunts' and 'uncles', lab mates are our 'siblings', and our students become our 'children'. Annual meetings thus become family reunions where we meet distant 'cousins', catch up with 'siblings', exchange family recipes ('Tricks of the Trade'), and reminisce about recently departed family members.

In this light, the *Bulletin* records the history of our family – not just for us, but for future generations. As always, I thank you for your submissions to keep our family history complete.

C'est une histoire de famille...

Ce numéro marque la fin de ma 2^e année en tant que rédacteur du *Bulletin*. Ce fut chargé par moments, mais vos soumissions et l'aide de Fred comme rédacteur adjoint me rendent la vie bien plus facile.

Cette année marque aussi ma 23^e comme membre de la SEC. Comme plusieurs d'entre vous, j'ai initialement joint la SEC pour me qualifier aux prix étudiants et profiter des frais d'inscription réduits aux réunions annuelles. J'ai maintenu mon adhésion à la SEC par principe d'obligation pour soutenir notre société nationale, même durant ces années où j'ai vécu à l'étranger.

Je réalise maintenant que l'adhésion à la société représente plus qu'une obligation. C'est faire partie d'une 'famille' élargie qui a une passion pour l'entomologie. Les mentors sont nos 'parents' ou 'tantes' et 'oncles', nos collègues de labo sont nos 'frères' et 'sœurs', et nos étudiants deviennent nos 'enfants'. Les réunions annuelles deviennent ainsi nos réunions de familles où nous rencontrons nos cousins éloignés, prenons des nouvelles de nos 'frères' et 'sœurs', échangeons des recettes de famille ('Trucs et astuces'), et se rappelons les membres de notre famille qui nous ont récemment quitté.

Sous ce jour, le *Bulletin* documente l'histoire de notre famille – pas seulement pour nous, mais pour les générations futures. Comme toujours, je vous remercie de vos soumissions qui permettent de préserver l'histoire de notre famille.

Entomological Society of Canada, 2008-2009

Société d'entomologie du Canada, 2008-2009

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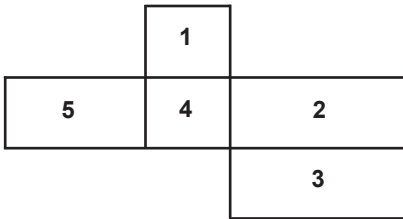
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Images

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* Illiger 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 *Trigonaspis 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