

# Bulletin

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Images

Sur le dos : Le Sphinx de l'euphorbe, *Hyles euphorbiae* (L.) (Sphingidae), un agent de lutte biologique introduit en Amérique du Nord dans les années 1960, photo : P. MacKay.

Sous le titre : La punaise de l'érable négondo, *Boisea trivittatus* (Say) (Rhopalidae), se nourrissant de graines d'érables négondo femelles, photo : B. Landry.

1. Le croquet birayé, *Melanophus bivittatus* (Say) (Acrididae), unravageur important en Amérique du Nord, complétant sa mue, photo : T. Wist.

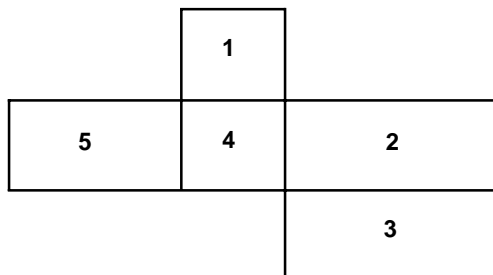
2. Échantillonnage du puceron du soya, *Aphis glycines* Matsumura (Aphididae), photo : J. Brodeur.

3. *Stratiolaelaps scimitus* (Womersley) (Laelapidae), un acarien prédateur utilisé comme agent de lutte biologique contre lesthrips et les sciarides en serre, photo : D. Walter.

4. *Perillus bioculatus* (F.) (Pentatomidae), la punaise bimaculée, un prédateur naturel du doryphore de la pomme de terre, photo : S. Marshall.

5. *Cydia piperana* (Kft.) (Tortricidae), un granivore obligatoire commun sur le pin ponderosa, photo : L. van Akker.

Verso : La punaise assassine, *Zelus luridus* Stal (Reduviidae), se nourrissant d'un syrphé, *Ocyrtamus fascipennis* (Wiedemann) (Syrphidae), photo : S. Marshall.





The last year has certainly gone by quickly, and has been one in which several major changes have occurred in our society. Following recommendations from the strategic review carried out last year under the guidance of Bob Lamb, we have attempted to streamline instructions to authors submitting manuscripts to *The Canadian Entomologist*, and now accept and process manuscripts electronically. Further improvements will continue, in part due to the diligent work of the information technology committee.

This is one of the last issues of the *Bulletin* for which Paul Fields will serve as Editor. Paul has greatly improved the quality of the *Bulletin* while reducing its cost to the society. We look forward to Paul joining the executive as Second Vice-President in November and are thankful that Kevin Floate will assume the role as Editor of the *Bulletin* as of January 2007. We are sure that Kevin will be as productive in his new editorial role as he has been in his other endeavors. One of the best ways we can show our appreciation to Kevin is to provide submissions for the March 2007 and subsequent issues of the *Bulletin* that he will oversee in a timely manner. Marj Smith will continue as Assistant Editor of that journal and will help insure that the transition is a smooth one.

I want to thank all members who contribute to our society by serving as editors, reviewers or contributors to our journal, by serving on committees, or by organizing and participating in meetings and numerous other activities. I particularly want to thank Rick West (Secretary), Patrice Bouchard (Treasurer), Sandy Devine and Derna

L'année s'est écoulée sans qu'on s'en rende compte bien que plusieurs changements majeurs soient survenus au sein de notre société. Suivant les recommandations de la revue stratégique sous la direction de Bob Lamb, nous avons essayé de simplifier les instructions pour les auteurs qui soumettent des manuscrits pour *The Canadian Entomologist*, et nous pouvons maintenant accepter et traiter électroniquement les manuscrits. Grâce au travail assidu du comité d'information technologique, nous pourrons continuer d'apporter des améliorations.

Ceci est l'avant dernière parution du *Bulletin* pour lequel Paul Fields est Rédacteur. Paul a grandement amélioré la qualité du *Bulletin* sans que les coûts à la société en soient augmentés. C'est avec grand plaisir que nous attendons la venue de Paul, en novembre prochain, au sein de la direction comme Vice-président adjoint. Nous souhaitons remercier Kevin Floate d'avoir accepté de prendre la relève comme Rédacteur du *Bulletin*. Nous sommes convaincus que Kevin saura, lui aussi, mener à bien cette nouvelle tâche. La meilleure façon de montrer notre appréciation à Kevin est de lui faire parvenir dans un temps raisonnable nos soumissions pour mars 2007 et toutes autres publications subséquentes dont il aura la responsabilité. Marj Smith continuera son rôle comme Rédactrice adjointe du *Bulletin* tout en s'assurant que la transition d'un éditeur à l'autre se déroule bien.

J'aimerais remercier tous les membres qui oeuvrent au sein de la société comme éditeurs, arbitres, collaborateurs du journal et ou, en siégeant sur des comités, en organisant et participant aux réunions de même qu'aux nombreuses autres activités. J'aimerais remercier tout particulièrement Rick West (Secrétaire), Patrice Bouchard (Trésorier), Sandy Devine et Derna Lisi (Directrices de bureau), Barry Lyons (Webmestre), Paul Fields (Rédacteur du *Bulletin*) et Richard Ring (Rédacteur en chef de *The Canadian Entomologist*) pour leurs contributions à notre société.

Le comité organisateur a préparé un excellent programme pour notre réunion annuelle à Montréal en novembre (<http://seq.qc.ca/activites/reun>

Lisi (Office Managers), Barry Lyons (Webmaster), Paul Fields (Bulletin Editor) and Richard Ring (Editor-in-Chief of *The Canadian Entomologist*) for their contributions to our society.

The organizing committee has prepared an excellent program for our Annual Meeting in Montreal in November (<http://seq.qc.ca/activites/reunions/seq2006/accueil.htm>) and I look forward to seeing most of you there.

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### Concours annuel de photographie

La Société d'entomologie du Canada est fière d'annoncer le deuxième concours annuel de photographie. En 2005, *The Canadian Entomologist* et le *Bulletin de la Société d'Entomologie du Canada* ont lancé un nouveau format pour leurs deux publications, impliquant entre autres des images en couleur sur les pages couvertures. Ces images ont pour but de représenter l'ampleur de l'entomologie couverte par les publications de la Société. Ces images changent à chaque nouveau volume.

Les règlements du concours sont les suivants :

1. Les photos peuvent être soumises sous forme de fichier électronique (de préférence), de diapositive ou d'imprimé (le négatif sera requis si la photo est choisie). Les images numériques doivent avoir une résolution minimale de 50 pixels/cm.
2. Les concurrents peuvent soumettre plus d'une photo.
3. Les photos doivent avoir été prises par le concurrent, ou ce dernier doit en posséder les droits d'auteur.
4. Les droits d'auteur de la photo demeurent au concurrent, mais l'utilisation doit être accordée à la Société d'Entomologie du Canada pour son utilisation

sur [seq2006/accueil.htm](http://seq2006/accueil.htm)) et j'espère avoir la chance de tous vous y retrouver.

lisation sur la couverture d'un volume (i.e. 6 numéros) dans *The Canadian Entomologist*.

5. Le concurrent doit être un membre en règle de la Société d'entomologie du Canada.
6. Le jury d'évaluation sera choisi par le président du Comité des publications.
7. Les photos n'ont pas à être restreinte à des " portraits " d'insectes. Afin de représenter l'étendue des recherches en entomologie, nous encourageons les photographies de terrain, d'expériences de laboratoires, d'impacts des insectes, d'équipement d'échantillonnage, d'arthropodes non insectes, etc. S.V.P., fournir quelques lignes décrivant la photographie.
8. Une sélection des candidats sera exposée et les gagnants seront annoncés à la réunion conjointe annuelle de la Société d'entomologie du Canada.
9. Il n'y a pas de récompense monétaire pour les gagnants, mais les photographes seront remerciés dans chacun des numéros où les photos apparaîtront.
10. Les soumissions doivent être envoyés avant le 15 octobre 2006 à :

Allan Carroll  
Président du Comité des publications  
506 West Burnside Rd  
Pacific Forestry Centre  
Victoria, BC, Canada V8Z 1M5  
Tél: (250) 363-0639, Fax: (250) 363-0775  
Courriel: [acarroll@pfc.cfs.nrcan.gc.ca](mailto:acarroll@pfc.cfs.nrcan.gc.ca)

## Annual photo contest

The Entomological Society of Canada is proud to announce its Second Annual Photo Contest, for the cover images of *The Canadian Entomologist* and the *Bulletin of the Entomological Society of Canada*. The new covers, with colour images were launched in 2005 for their two publications. These images are intended to represent the breadth of entomology covered by the Society's publications. Images change each year with the first issue of the new volume.

Contest rules are as follows:

1. Photos can be submitted as an electronic file (preferred), a slide, or print (negative will be required if chosen). Digital images must have a resolution of at least 50 pixels/cm.
2. Entrants can submit more than one photo.
3. Photos must be taken by the entrant, or the entrant must own copyright.
4. The copyright of the photo remains with the entrant, but use must be granted to the Entomological Society of Canada for its inclusion on the cover of one volume (i.e. 6 issues) of *The Canadian Entomologist*.

*dian Entomologist*.

5. The entrant must be a member in good standing of the Entomological Society of Canada.
6. The judging committee will be chosen by the Chair of the Publications Committee.
7. Photos need not be restricted to insect "portraits". To represent the scope of entomological research we encourage photos of field plots, laboratory experiments, insect impacts, sampling equipment, non-insect arthropods, etc. Please provide a few lines describing the photo.
8. A selection of the entries will be exhibited and the winners announced at the Joint Annual Meeting of the Entomological Society of Canada.
9. There is no cash award for the winners, but photographers will be acknowledged in each issue the photos are printed.
10. Submissions should be sent by 15 October 2006 to:

Allan Carroll  
 Chair of the Publications Committee  
 506 West Burnside Rd  
 Pacific Forestry Centre  
 Victoria, BC, Canada V8Z 1M5  
 Tel: (250) 363-0639, Fax: (250) 363-0775  
 E-mail: [acarroll@pfc.cfs.nrcan.gc.ca](mailto:acarroll@pfc.cfs.nrcan.gc.ca)



Steve Marshall

*Analoopota uhleri* is a relatively uncommon bug in the family Derbidae.



# Moth balls / Boules à mites

By Andrew Bennett

## The Economics of insects or how to get rich with bugs

If you are reading this, it can most probably be assumed that you have committed at least a modest proportion of your life to the study of insects. Admittedly, it is possible there are a handful of people with a clothes moth or carpet beetle infestation who have googled the words "Moth Balls" and stumbled quizzically on to this column, but this is surely the exception, rather than the rule. (If the latter is true, please accept my deepest apologies and try the insect repellent aisle of your local hardware store). I am sure that those who study insects decided to do so, not because of a desire for fame or fortune, but because of a genuine interest in insects. (At this point, give yourselves a hearty pat on the back for following your dream instead of succumbing to the captivating lure of a career in banking or chartered accountancy). But why should the study of insects and the acquisition of wealth and/or fame be mutually exclusive? Isn't there a way that we could become the magnates and rock stars of our generation BECAUSE we work with insects? Here are some ideas how to achieve this (and remember: if any of these schemes produce results then I will expect a significant proportion of the spoils).

**1) Entomo-power.** Forget wind or solar power as an alternative to fossil fuels. How about insect power? A million ants. Tiny tread mills. Lax invertebrate labour laws. Until the insect rights activists and lawmakers catch up with us, it's a license to print money!

**2) Entomo-music.** Many insects make noise. The distinction between music and noise is, at times, arbitrary. (I'm sure many of our senior entomologists would agree wholeheartedly with this



last statement). For the prospective music manager, here are just a few advantages of using insects as musicians rather than humans: a) much less likely to incur damage to hotel rooms during post-performance parties (unless termites or carpenter ants employed); b) little chance of losing band members from asphyxiation in their own vomit during post-performance parties (three cheers for the tracheal system); c) with much shorter generation time, no chance of your band insisting on continuing to tour well into their sixties; d) if lead singer's ego gets too large for the band, just squash him like the bug that he is!

**3) Entomo-mafia.** Having problems with rivals? Need somebody to "have a little accident"? Our assortment of venomous insects and arachnids can do your bidding at a fraction of the price of vertebrate hit-men. Free dermestid disposal services with every order.

**4) Entomo-novels.** For some incomprehensible reason, entomological literature isn't a big seller. A stroll through your nearest bookstore will confirm this: Dan Brown, John Grisham, Robert Ludlum, Dan Brown (again), Danielle Steel... Hmm... My latest article must be here somewhere... How could this problem be addressed? Quite simply, we need to spice up the appeal of our literature. For example, I propose that taxonomists begin embedding species descriptions in Harlequin Romance novels. Below is a simple example that could be easily modified by any taxonomist, ensuring consistent placement in the Top Ten Romance Novel Best Seller List:

"Waking drowsily after her night of passion, Rhyssa rolled over and saw, to her amazement, a colourful female ichneumonid antennating the empty wine glass on the bedside table. Clearly it was a new species. The bright orange and white

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

banding of the hind tibia was unlike any in the known literature for the genus. You shall be the holotype for [enter species name here] n. sp., she giggled to herself, and I will deposit you in the Canadian National Collection of Insects. Gently but firmly, she covered the wine glass with a coaster. A soft voice whispered in her ear - not going anywhere are you, my love?"

**5) Entomo-media.** Following #4 (above), here is another way to make insects more appealing to the masses. Start by writing a quarterly column about the wonders of insects. Make up a bunch of words by adding Ento- or Entomo- to the beginning of everything. Gain a HUGE worldwide

readership leading to offers from *Ottawa Citizen*, *Toronto Globe and Mail*, *National Geographic*, *New Yorker Magazine* and *News of the World* (simultaneously). Write autobiography entitled *Keep Your Hands Off My Moth Balls*. Sell film rights to Universal Pictures (soon to be a major motion picture starring Tom Hanks). Retire from active entomological service. Buy island in South Pacific. Train Entomo-servants to cater to your every need.

OK. I admit some of these schemes still require slight tweaking before they are completely viable. But join me next time when I continue to explore the lucrative waters of undiscovered *Moth Balls*.

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## Meeting announcements / Réunions futures

### 53<sup>rd</sup> Annual Meeting of the Entomological Society of America

Indianapolis, Indiana, USA, 10-14 December 2006

[http://www.entsoc.org/annual\\_meeting/](http://www.entsoc.org/annual_meeting/)

### 62<sup>nd</sup> Joint Annual Meeting of the North Central Branch of Entomological Society of America and Entomological Society of Manitoba

Winnipeg, Manitoba, 25-28 March 2007

[http://esa.ent.iastate.edu/2007\\_winnipeg/meeting](http://esa.ent.iastate.edu/2007_winnipeg/meeting)

Brent Elliott, [BElliott@gov.mb.ca](mailto:BElliott@gov.mb.ca)

### 57<sup>th</sup> Joint Annual Meeting of the Entomological Societies of Saskatchewan and Canada

Saskatoon, Saskatchewan 29 September to 3 October 2007

<http://www.esc-sec.org/agm.htm>

Dwyane Hegedus, [hegedus@agr.gc.ca](mailto:hegedus@agr.gc.ca)

### International Congress of Entomology

Durban, South Africa, 6-12 July 2008

[www.ice2008.org.za](http://www.ice2008.org.za)

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*Meetings are indispensable when you don't want to do anything.* John Kenneth Galbraith (1908 - 2006)

### Agriculture and Agri-Food Canada, Lethbridge Research Centre

It is befitting that we profile the entomology labs at Agriculture and Agri-Food Canada's (AAFC) Lethbridge Research Centre (LRC) in this issue....within days of us celebrating our 100th anniversary as an agricultural research centre. Entomology figured highly from the beginning of the Dominion Experimental Station, with the first laboratory for studies of pest insects in Alberta being established in an implement shed on the station property in 1913 (see <http://collections.ic.gc.ca/agrican/pubweb/hs90020.asp>). The first Officer-in-Charge of the Dominion Entomology Laboratory (also known as "The Bug Lab") was E.H. Strickland, who went on to become the first head of the new Entomology Department at the University of Alberta in 1921. During his tenure in Lethbridge, he began research into the control of the pale western cutworm; a devastating pest of early farming on the western prairie. Of course, there has been a long trail of entomologists and famous research leading to today, but here we highlight the people

and research making up some of the current entomology ongoing at the Lethbridge Research Centre.

#### Héctor Cárcamo: Crop entomology

"As of the summer of 2006 the lab was staffed by myself, Héctor Cárcamo (scientist), Bob Byers (Honorary Research Associate), Carolyn Herle and Tracy Larson (technicians), Stéphane Bourassa and Cassidy Klima (graduate students) and Nichole Schmold, Brian Johnson and Jamie Goettel (summer students). The lab also has close links with the Cereal Agronomy lab (Brian Beres) and the Weed Science lab (Bob Blackshaw), and provides entomological support to some of the plant breeding and environmental agriculture programs at LRC. The goal of our work is to develop environmentally friendly pest management strategies for insect pests of prairie crops, primarily for lygus bugs (oilseed crucifers and alfalfa) and wheat stem sawfly (cereals). To this end, we conduct research in three broad areas: (1) Basic ecological studies, such as understanding the spatio-temporal distribution and host use of lygus bugs in agricultural and non-agricultural habitats, the effect of host quality on the population dynamics of the wheat stem sawfly, and parasitoid-host plant interactions.



Crop entomology; a smiling group of entomologists, from left to right: Jamie Goettel, Stéphane Bourassa, Cassidy Klima, Nichole Schmold, Tracy Larson.





Cereal agronomy; front row, left to right: Steven Simmill, Tarilie Pernitsky, Sheree Kendrick and Cristina Aceytuno. Back Row: Ryan Dyck, Steven Leusink, Brian Beres, and Ken Coles.

(2) Our applied economic entomology work aims to determine action thresholds and control tools, including insecticides, for existing and emerging insect pests (e.g. cereal leaf beetle) and complexes such as the cabbage seedpod weevil/lygus bug in canola. (3) Environmental entomology, such as the effects of genetically modified crops on the biodiversity of beneficial insects (*Carabidae*)."

Héctor and his group add a lot of life and fun to the end of the newly-built laboratory wing on 1st floor. Ask them about their soccer matches.

### **Brian Beres: Cereal agronomy**

As of the summer of 2006 the lab was staffed by myself (biologist), Ryan Dyck, Ken Coles, and Sheree Kendrick (technicians), Steven Simmill and Steven Leusink (plot-persons) and Tarilie Pernitsky and Cristina Aceytuno (summer students). Cereal Agronomy has close links with the Crop Entomology Lab (Héctor Cárcamo) and Weed Science lab (Bob Blackshaw) at LRC, and with the Weed Science and Agronomy Labs at AAFC Lacombe. The program also provides agronomic support to the plant breeding program at AAFC Swift Current (SPARC), and participates

in numerous varietal and registration trials. The primary goal of our work is to develop sustainable wheat and maize production systems. The successful integration of crop management tools to meet this goal cannot occur without a strong IPM strategy for managing cereal pests like the wheat stem sawfly. To this end, we collaborate extensively with the Crop Entomology Lab and the following are our most recent research objectives: 1) determine the impact of re-cropping infested stubble on the population dynamics of both the wheat stem sawfly and the natural enemies of the wheat stem sawfly, 2) develop and assess harvest management strategies to enhance populations of natural enemies, 3) determine the influence of seeding rate on pith expression in the culm of solid-stemmed wheat cultivars and sawfly damage, 4) conservation and enhancement of parasitoids to reduce sawfly damage in order to diversify control options; i.e. to reduce dependence on a single strategy such as solid stemmed-wheat, 5) determine efficacy of insecticide seed treatments to control wheat stem sawfly and non-target environmental effects on natural enemies of the sawfly, and 6) assess the potential of novel seeding strategies and validate negative impact of

solid-stemmed cultivars on sawfly fitness."

Like the Cárcamo lab, the Beres lab is made up of a boisterous group. The summers are a-buzzing with field and lab activities.

### Mark Goettel: Insect pathology

I joined the Lethbridge Research Centre in 1988 to investigate methods for management of chalkbrood in leafcutter bees and to establish research into development of microbial control methods for pest insects. I had just finished a Postdoctoral position at Cornell University after having graduated from the University of Alberta in 1987. Shortly thereafter, I was joined by Grant Duke who had just completed his MSc with Russ Zacharuk at the University of Regina. The leafcutter bee research was terminated in 1995, but studies of insect pathogens and their role in pest insect population mitigation continues. I have been intimately involved in the formation of the Canadian Forum for Biocontrol and the NSERC Biocontrol Network, and am currently Vice-President Elect of the Society for Invertebrate Pathology and Editor-in-Chief of *Biocontrol Science and Technology*. My present research and collaborations include: the development of the entomopath-

ogenic fungus *Metarhizium anisopliae* for management of wireworms in collaboration with Todd Kabaluk at AAFC Agassiz and Martin Erlandson in Saskatoon; the role of *Beauveria bassiana* for Colorado potato beetle management with Dave Hunt at Harrow and Christine Noronha at AAFC Charlottetown; evaluation of the fungus *Lecanicillium* spp for dual management of powdery mildew and aphids in greenhouse ecosystems and their interactions with predators with Dave Gillespie at AAFC Agassiz and Bernie Roitberg at Simon Fraser University (where I also hold adjunct status); the role of entomopathogens in root weevil control with Kenna MacKenzie at AAFC Kentville; and the role of gaseous environments in stimulation of sporogenesis in entomopathogenic Hyphomycetes with Jacques Fargues at INRA and Stefan Jaronski at USDA. Over the years, students from SFU, UBC, Laval and the University of Tehran, as well as several postdoctoral fellows, have been part of the lab. Presently, the lab includes Senior Research Technician Grant Duke, Postdoctoral Fellow Jeong Jun Kim, and University of Lethbridge summer students Mandy Wilson and Heather Regitnig.



Stephanie Erb

Insect pathology; Mark's gang, shown from left to right: Mark Goettel, Heather Regitnig, Grant Duke, Mandy Wilson and Jeong Jun Kim.

**Bob Byers: Honorary Research Associate, Crop entomology**

I work on reorganizing and updating the LRC insect collection. This collection is a comprehensive collection of the insects of southern Alberta. Because it was developed primarily by crop entomologists, insects from taxonomic groups of agricultural importance are especially well represented. In recent years, the collection has received little attention and has deteriorated. Many person-years of effort went into building this collection, especially during the 1920s to 1950s, and in addition to its value as a reference for identification, it may have future value in tracking changes in biodiversity.

In addition to my work as collection curator, and my interactions with the Crop Entomology lab, I also act as a resource person when responding to inquiries from farmers, extension personnel and the general public regarding insects and other arthropods.

Bob is a highly respected part of the scientific community at LRC, and we have been very fortunate to have had continued access to his knowledge post retirement.



Henry Janzen

Bob Byers working on LRC insect collection.



*Mecinus janthinus* for toadflax biocontrol.

**Kevin Floate: Livestock entomology**

I work in a variety of areas, with a primary focus on parasitic wasps (*Pteromalidae*) used for the biological control of pest flies associated with livestock. My research on these 'wee beasts' includes taxonomic surveys in different regions of Canada, methods to improve their mass-rearing and application, and studies on their ecology and biology. These studies have expanded in recent years to include examination of *Wolbachia*. These endosymbiotic bacteria are estimated to infect 20-70 percent of all arthropod species, and can have dramatic effects on their host's reproduction. To the chagrin of my colleagues (and wife, Rose), my efforts to obtain material for various *Wolbachia* projects knows no bounds (i.e., I'm not above asking strangers if they have any lice!) I also do extensive work on the community ecology of insects in cattle dung. My interest derives from the non-target effects of veterinary

products applied to control nematode and arthropod parasites affecting livestock, which get excreted in the faeces where residues can be toxic to insects and impede the natural process of dung degradation. (Kevin's eagerness to poke about in fresh cattle dung makes him very popular with small children.) My other research interests include the use of fluctuating asymmetry in insects as a bio-indicator of environmental quality and the response of herbivorous insects to the hybridization of their cottonwood (*Populus* spp.) host species; an offshoot from my PhD.

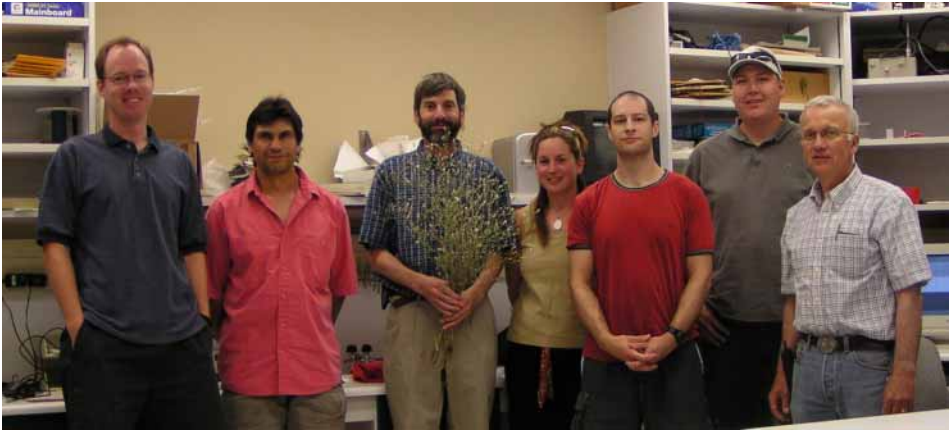
Much of this research would not be possible without the capable assistance of my technician, Paul Coghlin, who does most of the lab and field work. Complementing Paul's efforts are those of Blain Weisser, who maintains the several colonies of flies and wasps used for various studies. The lab normally hosts one or two summer/co-op students and the occasional students working on undergraduate thesis projects.



Paul Coghlin, Kevin Floate and Byron Lee

Livestock entomology; Kevin Floate (upper left) is shown with Paul Coghlin (bottom left) and Blain Weisser (right)





Brian Van Hezewijk

Insect ecology/weed biocontrol; from left to right: Brian Van Hezewijk, Ray Wilson, Rob Bourchier, Kristy Burke, André Duguay, Kyle Shade, Monte Thomson. Missing is Kimberly Rondeau.

**Rob Bourchier: Insect ecology/weed biocontrol**

For 2006, the insect ecology lab consists of myself (scientist), Monte Thomson, Ray Wilson (technicians), Brian van Hezewijk (research associate), Kim Rondeau (graduate student), Kyle Shade, Kristy Burke, and Andre Duguay (summer students). Our primary research outcome is to improve the implementation of biological control for the management of invasive species. We use a combination of observational data from long-term field sites and manipulative experiments to assess host-plant insect interactions, the interactions between biocontrol agents, and the population dynamics of biocontrol agents and their hosts. We are particularly concerned with the factors that influence the spread and impact of biocontrol agents. We also are interested in the application of our results to risk assessment studies, that compare the impact of invasive alien species on native habitats with the potential risks of biological control.

Because of the field work, Rob's group is always on-the-go, often ranging throughout southern British Columbia and Alberta.

**Rose De Clerck-Floate: Weed biocontrol**

I am half entomologist and half botanist, which serves my work in classical weed biocontrol well; especially since understanding the ecological interactions between the the insects that we use and the invasive plants we aim to control is critical to the success of what we do. My research interests take me mostly to southern British Columbia, where we have been working on the biocontrol of two invasive, alien plants in particular: houndstongue and Dalmatian toadflax. Both projects have shown success with the use of European root and stem weevils, respectively. Similar to the Bourchier lab (which we interact with closely), my research focuses on: how to improve the predictability and implementation of weed biocontrol; studies on impact/efficacy and spread of biocontrol agents; host-specificity/risk of biocontrol agents and how to improve pre-testing of our biocontrol candidates; rearing, mass-production and delivery methods for successful insect agents. In addition to the biocontrol science, I also have developed an interest and expertise in insect containment design after being involved for 8 years as the User Representative in the design and construction of our new \$5 million, 883 square metre



'Insect-Microbial Containment Facility' at LRC. This facility, and adjacent non-containment insect rearing facility, has been serving entomology research at LRC since its opening in 2004, and there is plenty of potential for additional collaborations beyond Lethbridge.

In our lab, Eva Pavlik (technician) is the insect-rearing/plant-growing wonder woman, and oversees lab operations and staff, which in 2006 included Renae Barbour (technician), Matthew Smienk and Paul Saunders (summer students). We also have contract staff in BC working on various projects.

### **Peter Harris: Emeritus Scientist, Weed biocontrol**

A fateful decision at school in the UK was dropping Latin, which was required to take forestry at Oxford University. I emigrated to Canada, because forestry at University of British Columbia (UBC) did not need Latin. UBC restricted me to a PhD in forestry whereas the University of London registered me in Zoology and put me in a self-sustaining swarm of entomology post graduates of assorted backgrounds who lived and worked in a large country house at Silwood Park, Ascot. Irene followed when she finished her de-

gree, and we married in England. The biocontrol station at Belleville, Ontario was primarily involved in the control of forest pests, such as the pine shoot moth, on which I did my thesis. I became the Canadian Weed Biocontrol Program of one at Belleville in 1955. The program was in disarray after reassignment of the previous incumbent, I think, because it was not realized that weed biocontrol takes 20 years to achieve economic and ecological benefits. Several of the insects released in British Columbia against St. John's wort (an introduced toxic pasture weed) had started to have effects in 1955 so I was fortunate to join at an exciting and rewarding time.

Twenty-year weed biocontrol projects were not going to give me the required two papers a year in international journals, so there was a need for 'quickies' with at least a tenuous connection to weed biocontrol. One day, after losing concentration in clouds of mosquitoes while looking without success for spurge hawkmoth larvae, I wondered if the mosquitoes were bothering them. I asked at a seminar whether mosquitoes took insect blood meals and was sufficiently annoyed at the tone of the "no!" that I caged some with spurge hawkmoth larvae. Not only did they feed, but they also laid eggs; about four on a spurge hawk-



Grant Duke

Weed biocontrol; Rose, with her highly dedicated, fun-loving summer group. Back row: Matthew Smienk, Renae Barbour, Paul Saunders, Front row: Eva Pavlik and Rose De Clerck-Floate.



Shannon Little

Peter Harris, still passionately dedicated to the promotion of weed biocontrol in Canada.

moth larva meal and 80 on a wax moth meal. I got my two publications; one in *Nature* and the other in *Science* which I know were read as I was sent a picture of a mosquito feeding on a caterpillar on a mountain in Guatemala. Clearly mosquitoes can bother leaf-feeding caterpillars!

I was lucky with bright and hard working technicians, summer students and occasional doctoral students, who kept me challenged; but we still

could not do everything needed. A partial solution was recruiting contacts and biocontrol users across Canada. I make releases for monitoring in beautiful sites so it was a pleasure to work there. These approaches worked as they met both the needs of the agent and the releaser, who must be interested to do a good job.

I closed the Research Institute at Belleville in 1971-1972 and transferred the equipment and staff across country. Weed biocontrol was assigned to the AAFC weed research station at Regina, Saskatchewan. However, the Regina station was closed in 1992 with most of the program going to Lethbridge, AB. In 1995, I was made Emeritus Scientist by AAFC and the program continued under Rob Bouchier and Rose De Clerck-Floate. I am currently working on a weed biocontrol web site with sections on each weed targeted and agent used in Canada [http://res2.agr.ca/lethbridge/weedbio/index\\_e.htm](http://res2.agr.ca/lethbridge/weedbio/index_e.htm). It never seems to end, partly, as I enjoy it and can include interesting details that journal editors delete (e.g., Canada thistle weevils shriek if you hold one gently to your ear). I have received several honours culminating in the Order of Canada in 1997, but these also belong to all who have worked on weed biocontrol since 1955; they could not have happened otherwise.



The insect containment facility greenhouse at the Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta.

## The student wing / L'aile étudiante

Mike Borkent



Chris Borkent

ogists in a relaxed atmosphere - a perfect networking environment! On Sunday 19 November there will be a student mixer to give everyone a chance to mingle. While on the subject of the AGM, please have a look around your office or ask your supervisor for any items that could be donated to the AGM auction, the proceeds of which go to student scholarships.

On a different note, for those of you who have entomological questions, but don't have the appropriate expert at your disposal, try out Entomo-L, an entomological listserv which puts a large number of international and Canadian entomology whizzes at your finger tips. Details for joining are at: <http://www.ent.iastate.edu/maillinglist/entomo-l/>.

Talk to you next time and don't forget to send us any questions, comments or stories you may have.



Jessica Smith

Greg Smith



Henri Goulet

A tiger beetle from the family Cicindelidae.

## Thesis roundup / Un foisonnement de thèses

- Borkowsky, Christie; MSc, April 2006. *Enhancing pollination of the endangered western prairie fringed orchid (Platanthera praeclara) by sphinx moths (Lepidoptera: Sphingidae) in tall grass prairie in southeastern Manitoba and an examination of orchid nectar production.* Supervisor: R. Roughley, University of Manitoba.
- Bowser, Paul; [paul.bowser@utoronto.ca](mailto:paul.bowser@utoronto.ca), PhD, April 2006. *Bioinformatic approaches to the study of insect neuropeptides with particular emphasis on the allatostatins.* Supervisor: S. Tobe, University of Toronto.
- Brown, Adam Oliver; [adam.brown@lesbuissons.qc.ca](mailto:adam.brown@lesbuissons.qc.ca), [adam.brown@bio.ulaval.ca](mailto:adam.brown@bio.ulaval.ca), PhD, February 2005. *The pollination ecology of cloudberry (Rubus chamaemorus) and cranberry (Vaccinium macrocarpon): bet-hedging strategies in the face of uncertain reproduction for northern plant species.* Supervisor: Jeremy N. McNeil, Laval University.
- Danci, Adela; [adela\\_danci@sfu.ca](mailto:adela_danci@sfu.ca), MSc, April 2006. *Intra- and interspecific communication in three species of Glyptapanteles parasitic wasps (Hymenoptera: Braconidae).* Supervisor: Gerhard Gries, Simon Fraser University.
- Derksen, Shannon Jean; [shannon\\_j\\_derksen@sfu.ca](mailto:shannon_j_derksen@sfu.ca), MPM, April 2006. *Semiochemical-mediated oviposition behaviour by peachtree borer, Synanthedon exitiosa (Lepidoptera: Sesiidae).* Supervisor: Gerhard Gries, Simon Fraser University.
- Derham, Scott; [umderham@cc.umanitoba.ca](mailto:umderham@cc.umanitoba.ca), MSc, July 2006. *Experimental assessment of genetic variation in blood feeding duration and evaluation of feeding dynamics in the human malaria vector Anopheles gambiae sensu stricto (Diptera: Culicidae).* Supervisors: R. Anderson and T. Galloway, University of Manitoba.
- Frisco, Caroline; [carofrisco@hotmail.com](mailto:carofrisco@hotmail.com), MSc, May 2006. *L'arrêt du développement chez les Lépidoptères: la 20-hydroxyecdysone est-elle toujours impliquée?* Directeurs: Michel Cusson et Éric Baucé, Université Laval.
- Greif, Matthew D.; [mgreif@ualberta.ca](mailto:mgreif@ualberta.ca), PhD, June 2006. *The dispersal of saprobic fungi by arthropods, and fungal mechanisms that facilitate microfaunal transport.* Supervisor: Randy Currah, University of Alberta.
- Mailhot, Payse; [payse11@hotmail.com](mailto:payse11@hotmail.com), MSc, May 2006. *Écologie de la cécidomyie du sapin (Paradiplosis tumifex) : Relations avec la cécidomyie inquiline des galles (Dasineura balsamicola) et ses parasitoïdes.* Directeurs: Jacques Brodeur et Conrad Cloutier, Université Laval.
- Nazari, Vazrick; [nvazrick@yahoo.com](mailto:nvazrick@yahoo.com), MSc, April 2006. *Phylogeny of Parnassiinae: Comparative analysis of DNA and morphology, with implications for the classification of the subfamily (Lepidoptera: Papilionidae).* Supervisor: Felix Sperling, University of Alberta.
- Nosil, Patrik; [pnosila@sfu.ca](mailto:pnosila@sfu.ca), PhD, July 2006. *Divergent host-plant adaptation and the evolution of reproductive isolation.* Supervisor: Bernard J. Crespi, Simon Fraser University.
- Ratti, Claudia; [claudia\\_ratti@sfu.ca](mailto:claudia_ratti@sfu.ca), MSc, August 2006. *Bee abundance and diversity in berry agriculture.* Supervisor: Mark Winston, Simon Fraser University.
- Roe, Amanda D.; [aroe@ualberta.ca](mailto:aroe@ualberta.ca), PhD, June 2006. *Systematics of Western North American Dioryctria (Lepidoptera: Pyralidae).* Supervisor: Felix Sperling, University of Alberta.
- Sabbahi, Rachid; [sabbahi.rachid@iaf.inrs.ca](mailto:sabbahi.rachid@iaf.inrs.ca), MSc, January 2006. *Densité de pollinisateurs et production du canola.* Directeur: Domingos de Oliveira, Université du Québec à Montréal.

**Application for membership (new members only)**  
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\_\_\_\_\_

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E-mail/courriel : \_\_\_\_\_ Fax : ( ) \_\_\_\_\_

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**TOTAL PAID / PAYÉ**

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Name and contact information on the ESC Web Membership Directory?  Yes/Oui

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# The adventures of *Ento-Man* (Episode VI)

Text: Andrew Bennett

Art: Gaétan Moreau

To battle the evil Arachness, Michael Newman metamorphoses into... Ento-Man



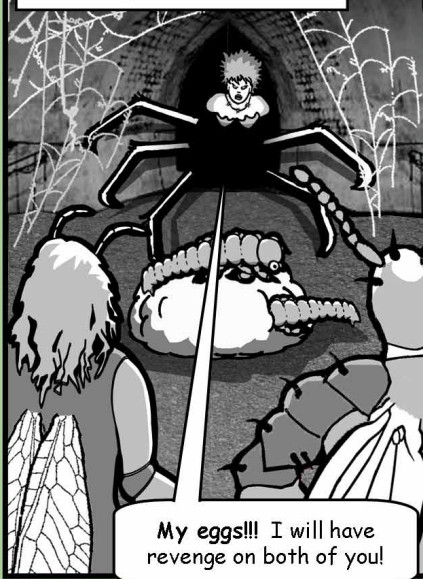
ECDYSONE!

Meanwhile...



If you're quite finished dressing, Ento-Man... Come my lovely larvae... I smell a juicy egg sac!

Following a brief skirmish...



My eggs!!! I will have revenge on both of you!

Thanks for the help.



I'm just in it for the eggs... Keep clear of me, Ento-Boy! I know who you are... Michael.

## Seeking Graduate Students

### University of Alberta

I am seeking one or two qualified students interested in pursuing graduate studies in insect behavior and chemical ecology at either the MSc or PhD level. The Department of Biological Sciences at the University of Alberta has a large graduate program (>200 students), and substantial strength in entomology and ecology. Applications will be accepted until positions are filled.

Our research examines factors influencing mate finding in several moth mating systems in managed and natural landscapes. Projects could include both basic behavior and the application of semiochemicals to Integrated Pest Management. Suitable applicants are eligible for teaching and research assistantships (minimum \$17 700 per year). Operating funds are provided in part by existing support (NSERC). Students would also be expected to pursue additional sources of funding. If interested, please contact me at:

Maya Evenden

(780) 492-1873 [mevenden@ualberta.ca](mailto:mevenden@ualberta.ca)

[www.biology.ualberta.ca/faculty/maya\\_evenden/](http://www.biology.ualberta.ca/faculty/maya_evenden/)

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### University of Victoria

I am seeking graduate students who are interested in insect evolutionary ecology and/or host-parasite interactions. I use a number of approaches (including experimental, molecular, and phylogenetic methods), in the lab and the field, to study the evolution and ecology of associations between insects and their symbionts.

Steve Perlman

(250) 721-6319, [stevep@uvic.ca](mailto:stevep@uvic.ca)

<http://web.uvic.ca/biology/People/perlman/perlman.htm>

### University of Winnipeg

I am seeking a student to enter into a Masters research program in my laboratory. The research project will focus on a recovery and protection program for the threatened Dakota skipper, *Herperia dacotae*, in Manitoba. Research topics will include assessing the effects of agricultural activities (e.g. livestock grazing, forage production) on larval food plant availability and habitat structure, determining adult nectar source requirements, and identifying candidate sites and local populations for enhanced protection and management. Prospective students should have undergraduate experience in one or more of the following areas: entomology, botany, environmental impact assessment or a related discipline. Students need to be highly motivated and able to work independently. MSc candidates will be expected to supervise summer student assistants and spend considerable periods of the summer working in remote areas in western Manitoba. Field expenses including food costs are provided. An annual graduate stipend will be provided for two years (minimum of \$14 000 per annum) which may be augmented through other sources. Experience reading maps, use of GPS, understanding aerial photographs, orientation with a compass and knowledge of GIS is helpful. Physical requirements include the ability to walk over rough terrain carrying a backpack and other equipment and the ability to work in inclement weather. Candidates must possess a valid driver's license. Students will be registered in the Dept. of Entomology, University of Manitoba and based in the Dept. of Biology, University of Winnipeg. Students seeking an interview should provide a detailed resume, a photocopy of their academic record and the names of three references by 31 January 2007. For further information on the project and submission of application material please contact:

Richard Westwood

Depts. of Biology and Environmental Studies,  
University of Winnipeg

(204) 786-9053

email: [r.westwood@uwinnipeg.ca](mailto:r.westwood@uwinnipeg.ca)

### University of New Brunswick

A graduate student position (MSc or PhD) is available for a student interested in entomology, and particularly in crop resistance to insects and insect-plant interaction. This research project involves studying the mode of resistance of wild *Solanum* species to aphids. The position is available beginning May 2006. An annual stipend of \$16,500 (minimum) is available.

The project is a collaboration between several institutions including Université du Québec à Montréal, University of New Brunswick, Université Picardie Jules Verne, Cavendish Farms, Ferme Michel Auger and Agriculture and Agri-Food Canada. The overall project objective is to identify parents and study their mode of resistance in order to develop potato cultivars resistant to aphids. Interested students should submit their CV including a brief description of their research interests, copies of transcripts (can be unofficial) and contact information for 3 references to:

Yvan Pelletier

Potato Research Centre, AAFC

850 Lincoln Rd,

Fredericton, NB. E3B 6E1

Fax: 506-452-3316

[pelletieri@agr.gc.ca](mailto:pelletieri@agr.gc.ca)

### University of Northern British Columbia

A Master's student position is available May 2006 in the Ecosystem Science and Management Program at the University of Northern British Columbia. The research project involves investigating how spatial patterns of salvage harvesting affect Warren root collar weevil pressure in regenerating stands. In coming years, the province of British Columbia will have expansive areas of regeneration following the current mountain pine beetle outbreak (8.5 million ha). Warren root collar weevil (*Hylobius warreni*) concentrating in and migrating from residual stands is a growing threat to post-salvage regeneration.

Suitable candidates will have a BSc in forestry or biology or similar degree at a recognized, post-secondary institution. The ideal candidate will be a team player with experience in field research settings and an interest in spatial ecology. The project will be supervised by Brian Aukema (Canadian Forest Service at UNBC; <http://web.unbc.ca/~aukema>) and Staffan Lindgren (UNBC; <http://web.unbc.ca/~lindgren>) and Michael Gillingham (UNBC; <http://web.unbc.ca/~michael>). Support is available for two years minimum. Applicants will also have opportunities to obtain support and teaching experience through teaching assistantships available within the Ecosystem Science and Management Program. Aside from university resources, the student will receive research support from Canadian Forest Service staff.

Interested applicants should send a CV, statement of interest, and names of 2 references to Brian Aukema ([baukema@nrcan.gc.ca](mailto:baukema@nrcan.gc.ca)) as soon as possible.

The University of Northern British Columbia is situated in scenic Prince George, British Columbia, Canada. UNBC provides wonderful opportunities to students interested in forest research, such as its unsurpassed access to a variety of forest ecosystems, its maintenance of two dedicated research forests within two hours of the campus, and the diverse expertise of its faculty members in a wide range of topics in forest ecosystem research.

Steve Marshall

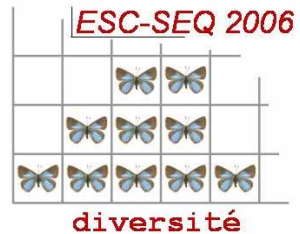


The tachinid fly, *Hystricia abrupta*.

# Congrès conjoint de la Société d'entomologie du Canada et de la Société d'entomologie du Québec

18 au 22 novembre 2006  
l'Hôtel Holiday Inn Midtown  
Montréal, Québec

**Le thème de la réunion : Diversité**



## L'équipe de l'organisation :

Responsable principal et relations avec l'hôtel : Charles Vincent, [vincentch@agr.gc.ca](mailto:vincentch@agr.gc.ca)  
Programme scientifique et décorations : Terry Wheeler, [terry.wheeler@mcgill.ca](mailto:terry.wheeler@mcgill.ca)  
Correspondance scientifique, résumés et équipements audio-visuel : Chris Buddle, [chris.buddle@mcgill.ca](mailto:chris.buddle@mcgill.ca)  
Trésorerie, suivi des finances et administration : Michel Cusson, [cusson@cfl.forestry.ca](mailto:cusson@cfl.forestry.ca)  
Levée de fonds : Jacques Brodeur, [jacques.brodeur@plg.ulaval.ca](mailto:jacques.brodeur@plg.ulaval.ca)  
Webmestre : Thierry Poiré, [poiret@inspection.gc.ca](mailto:poiret@inspection.gc.ca)  
Arrangements locaux, photographies et programme connexe : Pierre Lemoyne, [lemoynep@agr.gc.ca](mailto:lemoynep@agr.gc.ca)  
Coordination du banquet : Johanne Landry, [johanne\\_landry@ville.montreal.qc.ca](mailto:johanne_landry@ville.montreal.qc.ca)

Le programme comportera cinq Symposia, dont les thèmes seront :

- L'impact écologique des espèces invasives (Dave Langor)
- Le symposium des étudiants gradués (Chris Borkent et Greg Smith)
- Nouvelles tendances en protection de la pomme de terre (Philippe Giordanengo et Yvan Pelletier)
- Arachnologie : un hommage à Charles Dondale (Nadine Dupérré et Pierre Paquin)
- Les arthropodes des canopées (Chris Buddle).

Des informations seront disponibles prochainement sur les sites de la Société d'entomologie du Québec : <http://www.seq.qc.ca/> et de la Société d'entomologie du Canada, <http://www.esc-sec.org/>

## 56<sup>th</sup> Annual General Meeting and Governing Board Meeting

The Annual General Meeting of the Entomological Society of Canada will be held at the Holiday Inn Midtown in Montreal on Tuesday, 21 November 2006. The Governing Board will meet at the same location on Saturday, 18 November 2006 and again on 22 November 2006. Matters for consideration at either of the above meetings should be sent to Rick West, Secretary of the ESC.

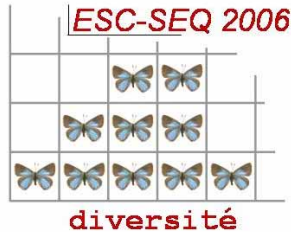
## 56<sup>e</sup> L'assemblée générale annuelle et la réunion du comité directeur

L'Assemblée générale annuelle de la Société d'entomologie du Canada aura lieu au Holiday Inn Midtown à Montréal le mardi 21 novembre 2006. La Réunion du comité directeur de la SEC aura lieu au même endroit le samedi 18 novembre et encore le mercredi 22 novembre 2006. Veuillez faire part au secrétaire, Rick West, de tout sujet pouvant faire l'objet de discussion à ces réunions.

# Joint annual meeting of the Entomological Society of Canada and Entomological Society of Quebec

18-22 November 2006  
Holiday Inn Midtown Hotel  
Montreal, Quebec

Meeting theme: Diversity



## The organisational team:

General chair and hotel related matters: Charles Vincent, [vincentch@agr.gc.ca](mailto:vincentch@agr.gc.ca)

Scientific program and awards: Terry Wheeler, [terry.wheeler@mcgill.ca](mailto:terry.wheeler@mcgill.ca)

Scientific correspondence, abstracts and audio-visuals: Chris Buddle, [chris.buddle@mcgill.ca](mailto:chris.buddle@mcgill.ca)

Treasurer, finance tracking and administration: Michel Cusson, [cusson@cfl.forestry.ca](mailto:cusson@cfl.forestry.ca)

Fund raising: Jacques Brodeur, [jacques.brodeur@plg.ulaval.ca](mailto:jacques.brodeur@plg.ulaval.ca)

Webmaster: Thierry Poiré, [poiret@inspection.gc.ca](mailto:poiret@inspection.gc.ca)

Local arrangements, photographs & side program: Pierre Lemoyne, [lemoynep@agr.gc.ca](mailto:lemoynep@agr.gc.ca)

Coordination-banquet: Johanne Landry, [johanne\\_landry@ville.montreal.qc.ca](mailto:johanne_landry@ville.montreal.qc.ca)

The program will have five Symposia, whose themes will be:

Ecological impact of invasive species (Dave Langor),

Graduate Student Symposium (Chris Borkent et Greg Smith),

New trends in the protection of potatoes (Philippe Giordanengo et Yvan Pelletier),

Arachnology: A tribute to Charles Dondale (Nadine Dupérré et Pierre Paquin),

Arthropods of the canopy (Chris Buddle).

Information will be soon available on the Entomological Society of Quebec website: <http://www.seq.qc.ca/>, as well as the Entomological Society of Canada website <http://www.esc-sec.org/>



Pat MacKay entertaining the masses with the help of a couple of local musicians at the Joint Annual Meeting of the Entomological Society of Canada and the Acadian Entomological Society held in 2004, Charlottetown, P.E.I.



**Evolution of Behavioural and Ecological Diversity: Australian Acacia Thrips as Model Organisms.** Crespi, B. J., D. C. Morris, and L. A. Mound. 2004. Australian Biological Resources Study and The Australian National Insect Collection. CSIRO, Canberra. v + 321 pages; 8 colour plates (27 Figs.); 420 halftone photomicrographs, 36 cladograms, 10 tables; 1 appendix; subject, plant and thrips names indices. Clothbound. \$55 Aus.

Australia is similar in land area to the 'Lower 48' in North America with 70% of its surface occupied by a central arid zone receiving less than 50 cm of precipitation a year. These central deserts, referred to by locals as the 'outback', seem to have emerged over the last 20 to 30 million years as the continent drifted north following the break up of Gondwana and became more arid. Two genera of flowering plants now dominate the Australian flora: *Eucalyptus* with about 700 endemic species and *Acacia* with 986. Species adapted to life in the outback in both taxa probably descend from progenitor species occupying drier habitats in the rain forests thought to have formerly blanketed the continent.

Though only a single species of thrips, *Australothrips bicolor*, is known to feed on the leaves of *Eucalyptus* spp., members of at least 235 spp. in 31 genera (about 29% of the known Australian fauna) feed on the leaves of *Acacia* spp. Cladistic analysis of these thrips based on comparison of homologous nucleotide sequences of the nuclear genes *elongation factor-1a* and *wingless* and of the mitochondrial gene *cytochrome oxidase I* suggest the entire complex to be holophyletic and to nest within the *Liothrips* lineage of the poorly defined phlaeothripid subfamily Phlaeothripinae. Survival and diversification of these thrips in the harsh conditions of the outback depend completely on the availability of shelters in which to raise their broods. This book summarizes what has been learned about the taxonomy and phylogeny of these thrips, the evolution of social behaviour and polyphenisms in some species and their diverse host plant relationships, life histories, species interactions, distributions, and sex ratios. The authors hope to convince readers that this com-

plex constitutes a 'model clade' worthy of intense future investigation by others.

Work on which the book is based began in 1970 and 1971 when Laurence Mound, then at the Natural History Museum in London, described 17 genera and 55 species of phlaeothripines from Australian *Acacia*. Mound's papers attracted the attention of Bernie Crespi, a behavioural ecologist now at Simon Fraser University, who had just (1987) completed his PhD at the University of Michigan with a thesis on the behavioural ecology and polyphenisms of some fungus-feeding thrips living on hanging dead leaves and under the bark of downed trees. Following his degree, Crespi went to Australia on the first of several postdocs to investigate the behaviour of some of these *Acacia* thrips where he discovered the soldier caste and eusociality in several species of *Kladothrips*. Because thrips, like hymenopterans, are haplodiploid and since ants and some bees and wasps are eusocial attracted Michael Schwarz of Flinders University and some of his students. One of these, David Morris did much of the molecular sequencing and phylogenetic reconstruction critical to synthesizing the detailed comparative information arising from this work.

The book contains a general introduction on two pages illustrated by eight superb colour plates and is in three parts: the behaviour, ecology, phylogeny, evolution, and host plant relationships of the thrips (84 pp., 248 refs. by Crespi); a summary of the genus *Acacia* (14 pp., 57 refs. by Bruce Maslin; most thrips diversified on 81 species in the subgenus *Phyllodineae*, the phyllode-bearing acacias); and keys to and descriptions of the presently recognized genera and species of *Acacia* thrips (194 pp., 48 refs. by Mound) including nine new genera and 140 new species. The book ends with a five page appendix listing all *Acacia* species and their thrips all of which induce, build or occupy domiciles in which to raise their offspring under the trying conditions of the outback. Each thrips species can be assigned to one of four guilds based on how they create and/or exploit their domiciles:

Twenty two species of *gall-inducers*, all in the genus *Kladothrips*, reproduce in highly diverse

ways within the galls of 50 spp. of *Acacia*. Galls are induced by the feeding of adult male or female founders on newly expanding phyllodes. The first brood in six species develop into highly modified 'fighters' (soldiers) of both sex having reduced wings and fecundity and powerful forelegs equipped with tubercles and teeth with which they can kill cleptoparasites attempting to enter the gall. Other gall species are 'hidiers' or 'fliers' depending on the activities of the first brood.

*Domicile-builders* representing 33 species in seven genera glue adjacent phyllodes together in species-specific ways using anally released glues to build domiciles in which to rear their offspring (surprisingly, the source glands of this glue have yet to be identified). Colonies of seven species of *Dunatothrips* are facultatively founded by multiple females (pleometrosis) and have multiple generations within the same domicile.

Members of thirteen genera and 140 species are *opportunists* that found colonies in the empty galls of other thrips, aphids, or psyllids, in abandoned lepidopteran larval mines and cocoons or in splits or crevices in stems or bark. In *Csirothrips watsoni*, adults plug the domicile entrance with the caste cuticles of their offspring while those of *Dactylothrips* spp. defend the openings with heavily armed abdomens bearing terminal pincers and of *Katothrips* spp. with defensive volatiles.

*Exploiters* of 23 species in nine genera either usurp galls or domiciles of other thrips by killing or displacing the occupants or live as commensals with them.

Gall formers, phyllode-glueurs and exploiters appear to be monophyletic while opportunists seem to have arisen independently at least four times. Adaptation to life in these guilds has frequently included the development of spectacular polyphenisms and, more rarely, of physogastry that is species specific and that can complicate the identification of single thrips or those of small population samples. In addition, recent molecular analysis of the evolutionary relationships of colonies from different hosts and localities (a locality map is printed in the endpiece at either end of the book) indicate that many of the named species in all guilds could actually represent sibling species complexes. Finally, evidence for both co-specia-

tion and host switching is widespread.

Part III, is a detailed and profusely illustrated account of the taxonomy of all species treated together with a general introduction summarizing problems in identification, characters used, and suggestions for collecting, preserving and mounting thrips. Format for the description of each genus and species, both new and previously described, is the same:

*Genus*: synonymy, general comments, generic relationships, generic diagnosis, and key to species.

*Species*: synonymy, specification of holotype and paratypes, state and host records, comments, description and photomicrographs.

All photomicrographs are of cleared or un-cleared, slide-mounted adults taken with a digital camera through a compound microscope equipped with bright field or phase contrast optics using Automontage® and show the dorsal aspect of the head, pronotum and forelegs, of one or more abdominal tergites, of the prosternal sclerites and mouthcone (in ventral aspect), of the pterothorax and first abdominal segments, and of the terminal abdominal segments. Less commonly illustrated are antennae and wings. These clearly illustrate surface reticulation, the distribution of setae, other sense organs and sclerites and the spatial arrangement of the maxillary stylets and their guides -all important characters of use in identification. For some species, the heads, pronota and forelegs of different morphs are illustrated making it easy to understand why such specimens were assigned to different species or genera when first described by early workers.

The book is printed on good quality paper with a matt finish and is strongly bound between blue covers on which is embossed in silver the image of the aptly named female of *Carcinothrips leai* who looks like she might be pumping iron when not spinning glue or producing eggs. The book is filled with suggestions for future research and is sure to instill envy in those biologists investigating such boring insects as ants, bees or wasps.

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**Carpenter Ants of the United States and Canada.** Hansen, L.D. and J.H. Klotz. 2005 Cornell University Press, Ithaca, NY. 204 pp. ISBN 0-8014-4262-1 (cloth) US \$35.

**A**nts capture the imagination of just about anyone interested in biology. In spite of a fairly modest number of species in North America, however, they are surprisingly poorly known. At least some species of carpenter ant may be an exception, primarily due to the considerable economic losses they cause by occupying woody substrates for their nests. Numerous ant species nest in wood, but to most people it is the carpenter ants in the large genus *Camponotus* that are associated with this habit due to the frequency with which they utilize "wood in service", e.g., wood in buildings, retaining walls, etc. In this book Laurel Hansen and John Klotz complete a task originally initiated by Hansen and the late Roger Akre. The result is a very good reference book for anyone interested primarily in economically important species of *Camponotus*.

Twenty-four of the 50 species of *Camponotus* known from North America are treated in some detail in this book, with considerable (and understandable) focus on the most economically important species. It is generally well written and easy to read. We found only a few minor typographical errors, some minor inconsistencies between text and figure nomenclature, and one odd omission (see below). The content is generally treated at a fairly superficial level (although see below) and restricts usage of specialist jargon, which is appropriate for pest management professionals, which appear to be the intended primary target audience. However, it is still very useful to the professional myrmecologist to have a single reference dedicated to one taxon. In fact, this is an approach that might be of value to emulate with other ant taxa (e.g., *Formica*).

The book is divided into six chapters and illustrated with numerous black and white photographs (of variable quality), four very good color plates showing the general habitus of the 24 species covered, distribution maps for these species, and a number of line drawings of morphological and anatomical characteristics. Each chapter is sup-

ported by a relatively extensive reference list. The first chapter deals with the general ecology of carpenter ants. This chapter covers most aspects of carpenter ant biology, but the information appears on the light side. The reader with a more in-depth interest is for the most part referred to the literature, but this is made much easier by the references. The ecological significance of these ants may be somewhat undersold, e.g., the authors fail to mention the importance of carpenter ants (and other ants) to bears (e.g., Noyce et al. 1997, Swenson et al. 1999).

Chapter 2 is an excellent and detailed chapter covering the external and internal anatomy of ants. This chapter is supported by 39 illustrations, of which most are excellent line drawings. The level of detail in this chapter contrasts with the rest of the book. We find this somewhat odd given that much of the information is not unique to carpenter ants, is easily obtained from other sources, and much is not directly relevant to features needed in identification. Given this high level of detail, it is peculiar that the authors do not mention that the metapleural gland, an antibiotic secreting gland that is considered a key feature in the evolution of ants, is in fact missing in North American species of the genus *Camponotus* (Hölldobler and Engel-Siegel 1985, Shattuck 2005). Despite some specific discussion of carpenter ant glands and generally noting that ants produce antibiotic secretions, they do not mention the absence of this key gland. Chapter 3 covers the taxonomy and distribution of the carpenter ants, and provides a key to the majors of pest species. From our perspective, it is unfortunate that the authors did not attempt to incorporate a key of all North American species of *Camponotus*, since the availability of good keys is often a limiting factor for researchers, particularly in biodiversity and community ecology studies. The key is presumably targeted at pest management professionals. It is doubtful, however, that many will spend the extensive time and effort required to learn how to use the keys, which naturally require considerable knowledge of ant anatomy. Thus, it is unfortunate that these keys may not serve either community well.

Chapter 4 describes the life history of carpen-

ter ants, covering reproductive biology, larval development and colony growth of carpenter ants in some detail. Here one curious statement is made. The authors claim that males are produced either by carpenter ant queens that have exhausted their sperm supply or by workers in queenless colonies. According to Hölldobler and Wilson (1990), most ants produce males via queen control of the spermathecal valve (i.e., closing it to produce haploid male eggs). Further, advances in evolutionary theory have led to empirically supported predictions (with caveats) of specific male:queen ratios (Mehdiabadi et al. 2003). This would necessitate such control. We have found no evidence to suggest that carpenter ants differ from other ants in this regard.

Chapter 5 deals with foraging and feeding, and describes many aspects of these factors; e.g., trail following and territoriality. The final chapter deals with economic aspects of carpenter ants and is largely based on the author's experience with carpenter ants in the Pacific Northwest and Minnesota. This chapter should be a must for pest control personnel dealing with carpenter ants, but contains some information of more general interest as well.

The book is available from <http://www.amazon.ca> for about \$41 (list price US \$35) + shipping and applicable taxes. At that price it is definitely a book worth investing in, particularly as a relatively comprehensive source of general information and references. The lack of detail in some chapters is counter-balanced by the fact that this book can be read very quickly, and the reader will be provided with a good overview of what is known about carpenter ants. While many of the black-and-white photographs are of marginal quality, most of them are adequate. On balance, we would recommend this book as an excellent introduction to carpenter ants, and as a good general reference book for those already familiar with ants.

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**Insect Herbivore-Host Dynamics: Tree Dwelling Aphids.** Dixon, A. F. G. 2005. Cambridge University Press, Cambridge, UK. vii + 199 pp. ISBN 0-521-80232-6 (hardback) US 90\$.

This work by Tony Dixon, one of the pioneer researchers in aphid population studies, summarizes a career's worth of research on the biology of tree-dwelling aphids. The stated objective of the author is to provide students and researchers with an introduction to herbivore-host dynamics. The interactions between aphids and trees are the focus; it is argued that by limiting the discussion the reader does not have to learn the details of different herbivore-host systems and thus can concentrate on essential principles.

Dixon states that studies on insect herbivore-host dynamics have concentrated on leaf-chewing insects and their host plants. However, phloem-feeding insects such as the aphids can be a significant factor in the health of trees and are a major herbivore component of the canopy of temperate and boreal forests. The parthenogenetic mode of reproduction allows aphids to undergo enormous rates of population increase resulting in significant nutrient drain and reduced growth

in trees.

Dixon presents a clear case for the somewhat unorthodox idea that self-regulation in aphids occurs through competition for resources and variable carrying capacity within seasons, and not by bottom-up regulation through host quality or top-down regulation through natural enemies. His work is also distinctive in that there has been a focus on long-term (decades) accumulation of census data on aphid populations.

There are separate chapters dealing with the relations of aphids to trees, aphid natural enemies, aphid abundance, aphid population dynamics, the carrying capacity of trees, aphid dispersal, seasonal sex allocation, tree fitness and additional discussion on rarity of aphid species, conservation of species and the consequences for aphids of global warming.

*Insect Herbivore-Host Dynamics* is a clearly-written, concise but informative treatment. The author consistently gets to the heart of each topic. The only drawback to the relatively narrow approach of the book, and one that is significant for students, is that there is little connection to the larger, overall body of work on insect herbivores.

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**Carabidae de la Península Ibérica y Baleares. Vol. I. Trechinae, Bembidiini.** Ortuño, V.M. and M. Toribio. 2005. Ortuño, V.M. and M. Toribio. 2005. Argania editio, Barcelona, Spain. 455 pp. Hardbound. 80 Euros (about \$108 US) + VAT, available from the publisher's website, <http://entomopraxis.com/argania>.

**T**he Bembidiini is a group of small carabids represented in all zoogeographical regions of the world. For a long period of time, several authors included in the tribe the tachyines and anillines but in recent decades these groups have been excluded and ranked as distinct tribes by many European taxonomists. The genus *Bembidion* Latreille is at the center of the tribe Bembidiini (*sensu stricto*) but its concept had varied

significantly from one author to another. While several taxonomists admit a large, world-wide genus, encompassing the vast majority of the tribe species, others have recognized several genera.

Ortuño and Toribio's book covers the Bembidiini (*sensu stricto*) of the Iberian Peninsula and the Balearic Islands. The authors recognize five genera: *Asaphidion*, *Ocys* (with two subgenera), *Cillenius*, *Sinechostictus* (with two subgenera) and *Bembidion* (with 30 subgenera). The book contains, beside a few introductory pages (pp. 9-14), a section on the preparation and study of the genitalia (pp. 14-16), a presentation of the subfamily Trechinae Bonelli (pp. 17-19), to which the Bembidiini belongs, including a key to the tribes of the subfamily, and a short review of some of the generic classifications of the tribe proposed to date (pp. 19-21). This is followed by a description of the adult characters of the Bembidiini (pp. 23-24), a list of the species of the Iberian Peninsula (pp. 24-27), a key to the genera treated (pp. 27-28) and the main core with the treatment of the five genera and 122 species known or likely to occur in the Iberian Peninsula and the Balearic Islands (pp. 28-303), including keys to the subgenera and, for each of them, to species. The book ends with a list of the specimen localities (pp. 305-316), the bibliography (pp. 317-326), a taxonomic index (pp. 327-336), and the plates which include about 310 illustrations, mainly of the male genitalia (drawings) and the spermatheca (photographs), and 118 maps showing the known distribution of the species in the area covered. There are also 36 nice habitus drawings distributed throughout the taxonomic section of the book.

For each of the genera and subgenera treated, the authors provide the following sections: synonymic list of taxa including the type species, "diagnosis" which is in fact a description, distribution, biology, and taxonomic notes. For each species treated, there is a list of synonyms and combinations proposed, a description, and sections dealing with the distribution, biology (but including only habitat information), taxonomic comment, studied material, and bibliographic citations. One new subspecies, two new statuses, and two new combinations (one of which is not a new combination since a change at the subgener-



ic level does not constitute a new combination) are proposed.

This is one of the nicest books on Carabidae to hit the market in recent years. The book presentation is exceptional with its hard cover, glossy paper, and meticulous illustrations. The information seems at first glance well presented and pertinent except that I would have preferred more comparative descriptions between closely related species rather than long, straight descriptions. I have little doubt that Ortuño and Toribio's book constitutes a wise purchase for any carabidologists. This book is the first one in what appears to be a series on the Carabidae of the Iberic Peninsula and Balearic Islands. I hope that others will follow soon and will be of similar quality.

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**Fauna de Buprestidae de la Península Ibérica y Baleares.** Verdugo, A. 2005. Argania editio, Barcelona, 350 pp. (including 95 plates). Hardbound. EURO 86 (without taxes). ISBN: 84-931847-9-9 (<http://entomopraxis.com/argania/>).

**B**uprestidae (Jewel Beetles) is a family of Coleoptera well known to people outside of the purely professional entomological circles. The family owes its popularity to predominantly metallic and often bright colouration of the adult beetles and many enthusiasts, particularly in Europe, devote their time to collecting and studying them. Many if not most of the European countries have their faunas of Buprestidae thoroughly documented and the book under review is one from this honourable cohort.

This all-Spanish book starts with one page of an English prologue serving more as an advertisement than the otherwise missing abstract. Two introductory pages are followed by a page-long "Material and Methods" section. Morphology of buprestid eggs, larvae, pupae, and adults takes six pages of text and is accompanied by a larval identification key to tribes and genera. Three (slightly oversimplified) drawings illustrate gross

morphology of an adult (dorsal and ventral view) and that of a larva (dorsal view) with the names of a few body parts explained. Four more pages cover the biology and faunal composition of Iberian buprestids.

The core of this book is an identification key to, and treatment of, tribes, genera, and species (pp. 37- 247). Each genus has one paragraph on morphological characteristics, biology of its members, distribution, indication of the gender of the generic name (I find this particularly appealing and something to be followed) and a short list of references. Species treatments follow about the same structure, with addition of a distribution map for each species, as well as icons representing host plants. Bibliography (pp. 249-260) includes some 200 references and the index (pp. 261-265) is a useful entry point. The text of this book is nicely supplemented by the illustrations at the end. Nineteen black-and-white plates show 33 larval habits, details of the larval and adult morphology, and 78 aedeagi; 62 colour plates show dorsal habits of all species and subspecies treated. Taxonomic novelties consist of one species of the genus *Anthaxia* synonymized, and another elevated from subspecies.

It seems justified to compare the book under review with the one by Cobos (1986), which was a similarly structured pioneering monographic overview of the Iberian fauna of Buprestidae. Verdugo's monograph deals with 180 species and nine subspecies (the latter are counted when a species is represented on the Iberian Peninsula and/or Balearic Islands by more than one subspecies); this is an increase compared to 163 and 14, which are the respective numbers dealt with by Cobos. An obvious advantage of Verdugo's work is the addition of colour into the beetle images (though Cobos' back-and-white ink drawings have the superiority of skilful artwork over ordinary-quality pictures). Other advantages are easy-to-grasp distributional maps, host plant symbols, and graphical indications of adult flight period for each species treated. I find it more desirable, however, if larger maps would give locality dots exactly indicated (the style exemplified by Ortuño & Toribio, 2005, a book from the same publisher reviewed in this issue of the *Bulletin* by

Bousquet, 2005) rather than shading the presumed distributional areas, which is always guess work. Cobos was, however, more informative in his account on the details of adult morphology, both text wise and in terms of illustrations. Otherwise these two books are of equally high quality.

Summing up, the book under review represents a nice and up to date overview of the Buprestid Fauna of the Iberian Peninsula and Balearic Islands. It will serve as a useful tool for everyone interested with this fauna (and, in part, that of Southern Europe) and will provide a general picture of species composition, distribution, host plants, and period of adult activity. Adult color pictures will supplement the identification key in guiding a reader to the correct species name. I think that many people will be willing to have this book on their shelves.

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Cobos A. 1986. Fauna Iberica de Coleopteros Buprestidae. Consejo Superior de Investigaciones Científicas, Madrid, xi+365 pp. + 60 plates.  
Ortuño & Toribio, 2005. Carabidae de la Península Ibérica y Baleares. Vol. I. Trechinae, Bembidiini. Argania editio, Barcelona, 455 pp.

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*Time sneaks up on you like a windshield on a bug.* John Lithgow

*You can always tell who the Newfoundlanders are in Heaven; they're the ones who want to go home.* John Crosby

### Books to be reviewed

If you are interested in reviewing one of the following books, please contact Allan Carroll, Chair of the Publications Committee.

Acorn, J. 2004. Damsel flies of Alberta: Flying neon toothpicks in the grass. University of Alberta Press, Edmonton. 156 pp.  
Anderson, N.M. and Weir, T.A. 2004. Australian water bugs: Their biology and identification (Hemiptera-Heteroptera, Gerromorpha & Nepomorpha). Apollo Books, CSIRO Publishing, Australia. 344 pp.  
Baldizzone, G., van der Wolf, H. and Landry, J.F. 2006. World catalogue of insects. Volume 8. Coleophoridae, Coleophorinae (Lepidoptera). Apollo Books, CSIRO Publishing, Australia, 215 pp.  
Ben-Dova, Y. and German, V. 2003. A systematic catalogue of the Diaspididae (armoured scale insects) of the world, subfamilies Aspidiotinae, Comstockiellinae and Odonaspidinae. Intercept Limited, Scientific, Technical and Medical Publishers, Andover, Hampshire UK. 1111 pp.  
Capinera, J.L., Scott, R.D. and Walker, T.J. 2005. Field guide to grasshoppers, katydids and crickets of the United States. Cornell University Press, Ithaca, NY, 249 pp.  
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Gullan, P.J. and Cranston, P.S. 2005. The insects: An outline of entomology. Blackwell Publishing, Oxford UK. 505 pp.  
Hausmann, A. 2004. The Geometrid moths of Europe: Volume 2. Apollo Books, CSIRO Publishing, Australia, 600 pp.  
Heckman, C.W. 2003. Encyclopedia of South American aquatic insects: Plecoptera. Kluwer Academic Publishers. 329 pp.  
LaFontaine, J.D. 2004. Noctuoidea, Noctuidae (part): Noctuinae, Agrotini, In: Hodges RW (Editor) The moths of America north of Mexico. Fascicle 27.1. The Wedge Entomological Research Foundation, Eugene OR. 385 pp.

- Larsen, T.B. 2005. The butterflies of West Africa: 2 volumes. Apollo Books, CSIRO Publishing, Australia, 900 pp.
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- Neunzig, H.H. 2003. Pyraloidea, Pyralidae (Part), Phycitinae (Part), In: Dominick RB et al. (Editors) The moths of America north of Mexico. Fascicle 15.5. The Wedge Entomological Research Foundation, Eugene OR. 338 pp.
- Patocka, J. and Turcani, M. 2005. Lepidoptera pupae: Central European species: 2 volumes. Apollo Books, CSIRO Publishing, Australia, 863 pp.
- Regnault-Roger, C., Philogene B.J.R. and Vincent, C. 2005. Biopesticides of plant origin. Lavoisier, Paris, France, 310 pp.
- Service, M. 2004. Medical entomology for students. 3rd edition, Cambridge University Press, NY, 302 pp.
- van Emden, H.F. and Service, M.W. 2004. Pest and vector control. Cambridge University Press, New York, NY. 349pp.
- Wiggins, G.B. 2004. Caddisflies: The underwater architects, University of Toronto Press, Toronto, 330 pp.

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Steve Marshall

*Pelecotoma flavipes* (Coleoptera: Ripiphoridae) can be collected on dead beech trees where it is often found in association with its hosts, larval Anobiidae. This and other photos in this issue of the *Bulletin* are taken Steve Marshall, and can be found in his recent book, *Insects: Their Natural History and Diversity* (Firefly Books, April 2006, \$95.00 hardcover).

# Biological Survey of Canada: Terrestrial Arthropods

## Survey Report

The Scientific Committee met in Ottawa on 20-21 April 2006. A more detailed account of the meeting appears in the *Newsletter of the Biological Survey of Canada (Terrestrial Arthropods)* 25(2), 2006, which is also on the BSC web site at <http://www.biology.ualberta.ca/bsc/english/newsletters.htm>

## Scientific Projects

### 1. Grasslands

Additional chapters for the first grasslands volume on "Arthropods of Canadian grasslands: ecology and interactions in grassland habitats" have been received. Terry Wheeler can now begin to standardize terminology for the other chapters. Kevin Floate is coordinating volume 2 on arthropods in altered grasslands. Two articles have been posted on Arthropods of Canadian Grasslands Online and further contributions are welcome.

### 2. Canadian Journal of Arthropod Identification

The BSC ejournal will soon be launched with two fully reviewed and edited papers; one a so-

phisticated html key; the other a traditional-style paper with pictures. Instructions to authors have been revised with step-by-step guidelines, which will be included for the launch. The images are of high enough resolution that versions of reasonable quality can be printed.

### 3. Terrestrial arthropods of Newfoundland and Labrador

A key to the Curculionioidea of Newfoundland and Labrador will be completed this year and submitted to the *Canadian Journal of Arthropod Identification*. Work by various cooperators continues on Hemiptera, macro moths and Staphylinidae. Work is proceeding to make the AAFC collection in St. John's much more accessible. The Bio-Blitz 2006 will be held in western Newfoundland and should boost this project, by acquiring specimens and involving other personnel.

### 4. Forest arthropods

Notable progress was reported with all current activities organized through this project, which aims to coordinate research on the diversity, ecology, and impacts of the arthropods of Canadian forests. Many enquiries have been received as a



Joe Shorthouse

Bog near the Berry Hill campsite, Gros Morne National Park, Newfoundland.

result of the online list of forest arthropod biodiversity projects and the *Arthropods of Canadian Forests* newsletter and new contacts have been facilitated. A BSC-sponsored symposium, entitled "Maintaining Arthropods in Northern Forest Ecosystems," was held during the 2005 annual meeting of the Entomological Society of Canada. The papers from this symposium will be published in *The Canadian Entomologist*.

Some collections from the Bio-Blitz 2005 in Waterton Lakes National Park have already been identified and data submitted to a common database managed by WLNP. Bio-Blitz 2006 will be held in Gros Morne National Park, Newfoundland, 5-10 July 2006 in collaboration with the Newfoundland and Labrador Department of Environment and Conservation and Parks Canada. Work on cerambycid beetles continues with the goal of producing three handbooks to the Cerambycidae of Canada and Alaska.

## 5. Insects of the arctic

Doug Currie explained that visits to areas such as northern Quebec and Labrador would be very useful to resolve some outstanding problems from previous northern collecting trips. To conduct this sort of research efficiently, canoe-based travel allows a significant amount of terrain to be covered and expressions of interest in participation are welcomed. Field work in Chukotka, Russia will be done in 2006. Work on the dytiscids of Churchill has revealed that of the 74 species recorded from Churchill, about 70 species are still being found there, and there are additional records of boreal species. Non-biting Diptera from the earlier Horton River and Thelon River trips conducted under the BSC project are still being examined.

## 6. Seasonal adaptations

Several papers published or in press under the auspices of this project were reported on.

## 7. Invasions and reductions

A one-day symposium on the ecological impacts of non-native insects and fungi on terrestrial ecosystems will precede the Entomological So-

cieties' Joint Annual Meeting in Montreal on 18 November. The proceedings will result in a scientific synthesis volume. Plans to move the forward the preparation of a synthesis of distributions and historical changes of lady beetles were discussed.

## Other scientific priorities

### 1. Faunal analysis

The project objectives, including development of a list of the species known and expected to occur in Canada, were reviewed and a proposal for discussion will be developed.

### 2. Arthropods and fire

A plan has been developed to pursue a potential publication, including papers from the recent symposium and added contributions.

### 3. Databasing

A project to list collecting localities for insects is well along and the data should soon be ready to post on the BSC web site.

### 4. Survey web site

The BSC web site has been redesigned, reorganizing the menu structure into a more logical grouping with all options given to the user at a glance.

### 5. Endangered species

A potential project to prepare a list of endangered insects was discussed. The Committee also discussed legislation in some areas of the country.

### 6. BSC award

There were many applicants for the BSC scholarship, following attempts to encourage students to apply for the award. An award certificate has been designed and will be used for this year's award presentation.

### 7. Monitoring of continuing priorities

Some other Survey interests were reviewed,



including arthropod fauna of soils, arthropods of aquatic habitats, arthropod ectoparasites of vertebrates, arthropods of the Yukon, small regional projects and agroecosystems.

### **8. Other priorities**

The Committee also considered work on the arthropods of the Gulf of St. Lawrence Islands, potential future publications, Survey publicity, and other topics.

## **Liaison and exchange of information**

### **1. Canadian Museum of Nature**

Roger Baird, Director, Collections Division, reported that the renovation of the Victoria Memorial Museum Building continues within the planned schedule and budget. The CMN continues to be involved with the Global Taxonomy Initiative, the Governing Board for the Global Biodiversity Information Facility and the Alliance of Natural History Museums of Canada. Members of the Committee asked Roger Baird to communicate their concern about the lack of involvement of university museums with the Alliance. Current CMN resources are largely channelled into renovations, with research and collections support reduced.

### **2. Agriculture and Agri-Food Canada**

Jean-Francois Landry reported that two new scientists have recently been hired - Frédéric Beaulieu, an acarologist, and Qing Yu, a nematologist. The national theme name has recently been changed from Biodiversity to Bioresources. The Centre is trying to raise its profile by preparing posters on the CNC and on the Identification Service. AAFC is working without a budget for the fourth year (although approval for expenditures continues on an ad-hoc basis) making it difficult to plan activities. Reorganization activities continue.

### **3. Entomological Society of Canada**

Dan Quiring, President of the Entomological Society of Canada, reported that electronic proc-

esses for submissions to *The Canadian Entomologist* are being adopted. A candidate to replace Alexandra Devine as the ESC Office Manager has been chosen. Candidates for a new *Bulletin* Editor and Editor-in-Chief of *The Canadian Entomologist* are being sought. The Society continues to be in good financial shape. Dan Quiring said that the ESC continues to fully support the BSC. It would like to ensure that the Biological Survey continues once Hugh Danks retires, because he has been the driving force behind the organization.

### **4. Canadian Forest Service**

John Huber reported that CFS has a new assistant deputy minister and is undergoing restructuring along two business lines - the Competitiveness of Canada's Forest Products Industry and the Sustainability of Canada's Forests. Some objectives being pursued are defining healthy forests and measuring how Canada's forests rate; identifying threats to healthy forests; developing strategies to manage and mitigate these threats; and raising the economic and social value of Canada's forests through enhanced forest resource productivity while maintaining healthy forests. It is hoped that some of the substantial funding for invasive alien species received by CFS will be invested into systematics in the near future.

### **5. Canadian Society for Ecology and Evolution**

Terry Wheeler provided an update on the newly formed Canadian Society for Ecology and Evolution whose goal is give the ecology and evolution community coherent representation. The first meeting was held in April 2006. Systematists and entomologists were under represented at the first meeting, although the Society has potential as a single voice that can be used to lobby various funding agencies such as NSERC to get the message out that ecology and evolution research is critical to Canada's economic, intellectual and cultural health.

### **6. Parasitology module, Canadian Society of Zoologists**

David Marcogliese reported that some funding for the international stickleback parasite biodiversity project has been made available and other projects are in progress.

## Other items

### 1. Regional developments

Information of potential interest from different regions was reported, including work on faunas being carried out by graduate students and others (not noted in detail here), and the following examples. In British Columbia, a group of non-governmental organizations received \$8 million from the province for a biodiversity conservation initiative, including money for land purchase and to develop a biodiversity conservation strategy. The Nature Trust will purchase more than 700 acres of antelope brush habitat in the south Okanagan. In the Prairies, a new containment facility has been built at Lethbridge. In Alberta, a recovery plan for the Yucca Moth / Soapweed has just been approved. Weidmeyer's Admiral butterfly has been recommended for designation as a species at risk. In Manitoba, much work is being done on mosquitoes (cf. West Nile Virus) and on projects related to biocontrol. In Ontario, several fascicles in the handbook series (now published by NRC Press) are being considered for reprinting. On 1 July the Department of Zoology at the University of Toronto will amalgamate with the Department of Botany to form two new departments - the Department of Ecology and Evolution and the Department of Cells and Systems

Biology. At the University of Guelph, there have been some obstacles to expansion of the insect collection although funds are available from the CFI grant also supporting an active bar coding program. In Quebec, entomology is in a growth stage with much activity at several universities and at research stations, including work on forest insects and spiders at Université du Québec à Montréal and McGill University, and taxonomic research at McGill University and elsewhere. Some storage space at the Lyman Museum has been lost and therefore many reprints and memoirs on systematics are available. In Newfoundland and Labrador and the Maritimes, research at universities, museums and government research stations includes work on insects of the Gulf of St. Lawrence, agroecosystems, forests, invasive species in urban systems, and distribution of beetles in the Atlantic region. On PEI community groups are being encouraged to collect and monitor the numbers of Ephemeroptera, Plecoptera and Trichoptera, but no provision has been made to identify further or archive the samples. A mini-Bio-Blitz on Scaterie Island off Cape Breton resulted in interesting finds.

### 2. Other matters

The Scientific Committee also discussed other matters arising from the previous meeting, the Annual Report to the Canadian Museum of Nature, planning for the next meeting of the Committee in view of another year with restricted CMN budgets, work of the Secretariat, and other issues. The Annual Meeting of the Biological Sur-



Joe Shorthouse

David Langor and Lloyd Hollett at the Newfoundland Insectarium.

## Scholarship Fund

Once again the Society would like to thank and acknowledge the very generous donors to the ESC scholarship fund. Donations to the scholarship fund totaled \$11 483 in 2005. The tax-deductible donations are very important to the Society. The scholarship fund generated \$7511 in interest during 2005, and \$7000 in scholarships and travel grants were awarded. In 2006, \$10 000 in awards will be granted. It is only because of your generosity that the scholarship fund is self sustaining. Donations can be made at any time and a receipt for income tax purposes in Canada will be issued. Please make cheques payable to the Entomological Society of Canada.

## 2005 Scholarship donors

Lars Andreassen	T. J. Galloway
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Sheila Fitzpatrick	Valin Marshall
Richard Freitag	John A. McLean
Robert Forbes	Judith H. Myers

## Fonds de bourses d'étude

La Société voudrait remercier, une fois de plus, les généreux donateurs et généreuses donatrices au Fonds de bourses d'étude de la SEC. Nous avons reçu un total de \$11 483 en 2005. Les dons déductibles d'impôt sont très importants pour la Société. Le Fonds de bourses d'étude a généré \$7511 d'intérêt en 2005, et \$7000 en bourses d'étude et de voyage ont été attribués. En 2006, \$10 000 seront attribués en bourses. C'est seulement grâce à votre générosité que le fonds peut être autosuffisant. Les dons peuvent être faits pendant toute l'année, et un reçu pour fin d'impôt vous sera envoyé. Veuillez libeller votre chèque à la Société d'entomologie du Canada.

## Donateurs et donatrices 2005

P. C. Nigam
Toshimichi Okubo
Diether Peschken
Bernard Philogene
Therese Poland
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Lucie Royer
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Mecalab Limited
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...and those who preferred to remain anonymous  
..et ceux et celles qui on donne de façon anonyme

## Overall financial assessment of the Entomological Society of Canada

	2005	2004	2003	2002	2001
<b>Balance beginning of year</b>	<b>803,884</b>	<b>748,731</b>	<b>740,527</b>	<b>706,225</b>	<b>636,443</b>
Total revenue (General account)	206,712	217,386	209,502	231,169	249,841
Total expenditure (General account)	204,015	207,232	213,075	208,136	198,455
Excess revenue (expenditure) for year (General account)	<u>2,697</u>	<u>10,154</u>	<u>(3,573)</u>	<u>23,033</u>	<u>51,386</u>
Gain (loss) on sale of investment (General account)	(178)	250	(431)	150	NA
Interest on investment (General account)	14,964	14,083	13,639	13,496	14,852
Net revenue (expenditure) for year (General account)	17,483	24,487	9,635	36,679	66,238
Net revenue (expenditure) - Endowment fund	529	362	668	1,377	(532)
Net revenue (expenditure) - Scholarship fund	11,994	37,210	6,114	3,955	14,364
Expenses / taxes / depreciation of ESC Head Office	(8,126)	(6,906)	(8,213)	(7,709)	(10,288)
<b>Balance end of year</b>	<b>825,764</b>	<b>803,884</b>	<b>748,731</b>	<b>740,527</b>	<b>706,225</b>

Negative values are in parentheses.

For full details please see <http://www.esc-sec.org/> and click on Member Area.

## People in the news / Gens qui font les manchettes



**P**aul Fields completed his BSc from McMaster University in 1980, and his PhD from Université Laval in 1987. His PhD thesis focused on the overwintering adaptations of two Lepidoptera. He migrated to Ottawa for a Postdoctoral Fellowship at the University of Ottawa on plant-insect interactions. Since 1989, he has been employed by Agriculture and Agri-Food Canada in Winnipeg as a Research Scientist working on the physiology and behavior of stored-product insects. His work has examined the use of extreme temperatures to control stored-product insects, as well as natural products such as diatomaceous earth, legume extracts and biological control. For more details on his research program, see <http://home.cc.umanitoba.ca/~fieldspg/fields/fields.htm>.

He has served the Entomological Society of Manitoba, first as their Regional Director to the Entomological Society of Canada, then as their first webmaster and finally as President. He served as Scientific Chair of the 1994 ESC-ESM Joint Meeting. He is currently on the local organizing committee of the 2007 North-Central Branch ESA-ESM Joint Meeting. Many of you may know him from the *Bulletin* of the ESC. He has been Editor of the *Bulletin* since 2003, and this will be his fourth and final year as Editor. During his time as Editor he has reformatted the *Bulletin*, added new columns and reduced the costs. As Editor of the *Bulletin*, he has come to realize the important role the ESC plays in the professional and social lives of entomologists across Canada.

In the years to come, he thinks the challenges and opportunities that face the Society are: declining membership, declining institutional subscriptions to *The Canadian Entomologist* and the new possibilities we have to interact as a Society via the Internet.

Congratulations to Paul Fields who was elected Second Vice-President.

**I**l a complété son BSc à McMaster University en 1980, et son doctorat à l'Université Laval en 1987. Sa thèse de doctorat était sur l'hivernement de deux lépidoptère. Il a déménagé à Ottawa pour faire un postdoc à l'Université d'Ottawa sur les interactions entre les plantes et les insectes. Depuis 1989, Il travaille comme chercheur scientifique à Agriculture et Agroalimentaire Canada sur le comportement et la physiologie des insectes de denrées stockées. Il a travaillé sur la chaleur et le froid, la terre de diatomées, les extraits de pois et le contrôle biologique comme moyens de contrôle des insectes de denrées stockées. Pour plus de détails sur son programme de recherche, voir : <http://home.cc.umanitoba.ca/~fieldspg/fields/fields.htm>.

Il a joué plusieurs rôles au sien de la société entomologique du Manitoba; d'abord comme directeur régional, ensuite comme leur premier webmestre et finalement comme président. Il était responsable du programme scientifique du congrès conjoint SEC-ESM en 1994. En ce moment, il est sur le comité organisateur du congrès conjoint 2007 North-Central Branch ESA-ESM. Plusieurs d'entre vous le connaissez peut-être comme rédacteur du *Bulletin* de la SEC. Il en est rédacteur depuis 2003, et cette année sera sa quatrième et dernière année comme rédacteur. Il a changé le format du *Bulletin*, en ajoutant des nouvelles rubriques et il en a réduit les coûts. Comme rédacteur du *Bulletin*, il a compris le rôle important que joue le SEC pour les entomologistes du Canada, un rôle professionnel et social.

Dans les années à venir, il pense que les défis et les occasions pour la société sont : une adhésion en déclin, un abonnement institutionnel à *The Canadian Entomologist* et les nouvelles possibilités que nous avons pour communiquer entre nous comme société via l'Internet.





Congratulations to Chris Buddle who was elected Director-at-Large.

Chris Buddle is currently an assistant professor of Forest Insect Ecology at McGill University. He began this position in September 2002 after completing an undergraduate degree (ecology) at the University of Guelph, a PhD (environmental biology and ecology) at the University of Alberta, and post-doctoral studies at Miami University (Ohio).

His current research program is centred on understanding arthropod biodiversity in forest ecosystems, and this includes interests about the effects of forest management on litter-dwelling arthropod biodiversity, and host-use patterns of saproxylic Coleoptera. He has new research initiatives about diversity patterns of arthropods in the canopy of hardwood forests of Quebec, and biodiversity of spiders and beetles along ecological gradients in the Yukon Territory. He also collaborates closely with researchers within Agriculture and Agri-Food Canada, investigating the role of arthropod natural enemies in apple orchard ecosystems. His laboratory is currently hosting six MSc students and three PhD students.

He was peripherally involved with the ESC for a number of years, but began more formal involvement after being hired at McGill University. He is an active participant in many aspects of the society, and he encourages and supports attendance at the ESC's annual meeting for his entire laboratory. He is currently chair of the ESC's common names committee (a post held since Novem-

Christopher Buddle est présentement assistant professeur en écologie des insectes forestiers à l'Université McGill. Il a débuté à ce poste en septembre 2002. Il avait auparavant complété un diplôme de premier cycle en écologie à l'Université de Guelph, un doctorat en biologie et écologie de l'environnement à l'Université de l'Alberta, et un post-doctorat à l'Université de Miami (Ohio).

Actuellement, son projet de recherche se concentre sur la compréhension de la biodiversité des arthropodes dans les écosystèmes forestiers. Il s'intéresse donc aux effets de la gestion des forêts sur la biodiversité des arthropodes de la litière et sur les patrons d'utilisation des hôtes par les coléoptères saproxyliques. Il vient également d'initier de nouvelles recherches sur la diversité des communautés d'arthropodes dans la canopée des forêts de bois dur au Québec, et sur la biodiversité des araignées et des coléoptères le long des gradients écologiques au Yukon. Il collabore étroitement avec des chercheurs d'Agriculture et Agroalimentaire Canada, explorant le rôle des ennemis naturels des arthropodes dans les vergers de pommiers. Son laboratoire accueille présentement six étudiants à la maîtrise et trois étudiants au doctorat.

Il a été impliqué en périphérie de la SEC pendant plusieurs années, mais il a commencé à y participer plus formellement à la suite de ses débuts à l'Université McGill. Il contribue activement à la société de plusieurs façons. Il encourage et supporte financièrement les intervenants de son laboratoire qui souhaitent participer aux réunions annuelles de la SEC. Depuis novembre 2003 il est président du comité des noms communs d'insectes de la SEC. Il est aussi membre du sous-comité des adhésions, chargé de la révision stratégique. Il fait également partie du comité organisateur de la réunion annuelle conjointe de la SEC et de la SEQ qui se tiendra à Montréal en 2006. Il valorise fortement la SEC; cette société joue un rôle vital au Canada.

Il y a présentement un intérêt public renouvelé pour le domaine de l'entomologie, spécialement depuis que les espèces invasives sont fréquemment mentionnées dans les médias, et que la conservation de la biodiversité prend de l'importance

ber 2003), and he is a member of the society's sub-committee (membership) as part of the strategic review. He also sits on the organizing committee for the 2006 joint annual meeting of the ESC-SEQ, to be held in Montreal. He strongly values the ESC; this society plays a vital role in Canada.

There is currently renewed public interest in the field of entomology, especially since invasive species are often in the media, and the conservation of biodiversity is being played out in both academic and political circles. The ESC has a significant role to play in these and other important issues related to entomology. The future of the ESC depends on maintaining membership, continuing to provide a high-quality and internationally recognized scientific journal, and the society must be proactive on a number of other fronts to be sustainable. He can bring fresh new perspectives and ideas to the ESC, and he is committed to seeing the ESC thrive in the future.

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*In politics, absurdity is not a handicap.* Napoleon Bonaparte

*I have made this [letter] longer, because I have not had the time to make it shorter.* Blaise Pascal (1623 - 1662), "Lettres provinciales", letter 16, 1657

*All of the books in the world contain no more information than is broadcast as video in a single large American city in a single year. Not all bits have equal value.* Carl Sagan (1934 - 1996)

*An expert is a person who avoids small error as he sweeps on to the grand fallacy.* Benjamin Stolberg

dans les secteurs académiques et politiques. La SEC a un rôle significatif à jouer sur ces questions et sur d'autres questions importantes en relation avec l'entomologie. L'avenir de la SEC dépend du maintien des adhésions et du maintien d'un journal scientifique de haute qualité, reconnu internationalement. La société se doit également de demeurer proactive sur bon nombre d'autres fronts. Il peut apporter de nouvelles perspectives et des idées fraîches à la SEC, et il s'engage à aider la SEC à prospérer dans le futur.

---



Paul Fields

Derna Lisi is the new office manager for the Entomological Society

Derna Lisi is the office manager for the Entomological Society of Canada. She has been working for the ESC since spring and she is responsible for handling subscriptions, membership lists, and mailings, as well as keeping the ESC running smoothly. She replaces Alexandra Devine. For those of you that wish to say happy retirement to Alexandra, we hope that she will be the Annual Meeting in Montreal.

Meilin Quong



Robert Bennett is to take over as Editor-in-Chief of *The Canadian Entomologist* in 2007.

Congratulations to Robb Bennett on taking on the position of Editor-in-Chief of *The Canadian Entomologist* as January 2007. Robb works in the British Columbia Ministry of Forests with Ward Strong and Jim Corrigan on cone and seed insects. Although generally distracted by his paid employment, his primary research interests are the taxonomy, systematics, and natural history of spiders.

Paul Coghlin



Kevin Floate is to take over as Editor of the *Bulletin* in 2007.

Congratulations to Kevin Floate on taking on the position of Editor of the *Bulletin* as January 2007. Kevin works for Agriculture and Agri-Food Canada in Lethbridge, Alberta in a variety of areas, with a primary focus on parasitic wasps (Pteromalidae) used for the biological control of pest flies associated with livestock.



Steve Marshall

The stink bug, *Perillus circumcinctus*.

## 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 (for the year 2007). The information should include a statement of relevant achievements (three pages maximum) and a *curriculum vitae*. Nominations should be sent in an envelope marked "Confidential" to the following address:

Achievement Awards Committee  
Entomological Society of Canada  
393 Winston Avenue, Ottawa, Ontario  
K2A 1Y8

and should comprise: (1) the name and address of the nominee(s); (2) a statement of relevant achievements; and (3) the name of the nominator and at least one seconder. To be considered by the Achievement Awards Committee, nominations must bear a postmark no later than **28 February 2007**.

**The following conditions govern these awards:**

1. Outstanding contributions should be judged on the basis of: (a) superior research accomplishment either as a single contribution or as a series of associated endeavours and which may be either in entomology or a related field where the results obtained are of great consequence; or (b) dedicated and fruitful service in the fields of Society affairs, research, administration or education.

2. No more than one of each award shall be granted per year but, where circumstances warrant, more than one individual may be mentioned in a single award.

3. Recipients need not be members of the Society providing their contribution is judged to have a major impact on entomology in Canada.

4. The award may be granted on different occasions to the same recipient but for different contributions to entomology in Canada.

**5. 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.

## Médaille d'Or et 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. L'information devrait comprendre un énoncé pertinent des accomplissements (trois pages maximum) et un *curriculum vitae*. Veuillez envoyer vos nominations (pour l'année 2007) au :

Comité des décorations  
La Société d'entomologie du Canada  
393 Winston Avenue, Ottawa, ON K2A 1Y8

dans une enveloppe portant la mention "Confidentiel". La nomination doit contenir: (1) le nom ainsi que l'adresse du (ou des) candidat(s) désigné(s); (2) un compte rendu des réalisations pertinentes; et (3) le nom du parrain et celui d'au moins une deuxième personne appuyant la mise en nomination. Pour être acceptées par le Comité, les nominations devront porter un sceau postal d'au plus tard le **28 février 2007**.

**Les conditions suivantes régissent le choix des récipiendaires de ces prix :**

1. Les contributions exceptionnelles devraient être jugées dans le contexte ; (a) d'un accomplissement hors pair en recherche, soit comme résultat d'une seule contribution ou d'une série d'efforts reliés et ayant abouti à des résultats de grande valeur. Cette recherche aura été réalisée en entomologie ou tout autre domaine connexe; ou (b) de service dévoué et fructueux au profit de la Société, de l'administration de recherche, ou de l'éducation.

2. Chaque prix ne sera décerné qu'une seule fois par année. Cependant, lorsque les circonstances le justifient, plusieurs personnes peuvent collectivement devenir récipiendaires d'un prix.

3. Les récipiendaires ne doivent pas nécessairement être membres de la Société pour autant que l'on juge que leur contribution à eu un impact majeur sur l'entomologie au Canada.

4. Chaque prix peut être décerné plus d'une fois au même récipiendaire mais pour différentes contributions à l'entomologie au Canada.

**5. 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.

## Albert Lloyd (Bert) Turnbull 1917-2006



**B**ert received his Bachelor's (1951) and Master's (1953) degrees in forestry at UBC. He became interested in insects and their predators as a summer student in Agriculture Canada's Biological Control Laboratory in Vancouver (1951-1954). Bert was given educational leave and received his D.Phil degree from Oxford in 1957. He then moved to Belleville Ontario and worked for 10 years on the use of predators in biological control.

In 1967, he and his family moved, along with several others from the Belleville laboratory, to Simon Fraser University in Burnaby, British Columbia. There he taught Pest Management Programme and became deeply concerned with environmental problems. He was one of the founding members of the Society for Pollution and Environmental Control in 1969. His interest in ecology and the environment led to pioneering courses at Simon Fraser University in general scientific education aimed at arts and education students. After retirement in 1982, he and his wife Irene traveled the world. He will be remembered as an unassuming intellectual with a very broad knowledge, always willing to help and give an opinion, often a very firm one, on difficult problems.

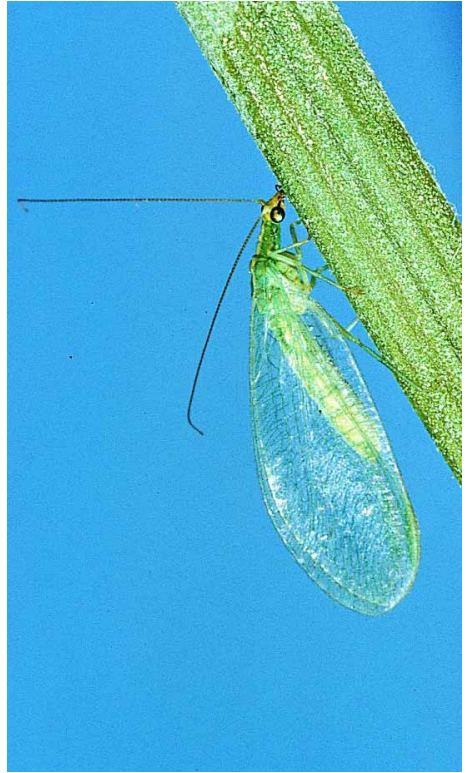
Peter & Elizabeth Belton

## Recently deceased Compiled by Ed Becker

Sir Richard Southwood, the internationally known insect ecologist, died on 26 October, 2005. His obituary appears in a recent issue of *Antenna* (Bulletin of the Royal Entomological Society).

---

*Creativity is allowing yourself to make mistakes. Art is knowing which ones to keep.* Scott Adams (1957 - ), *The Dilbert Principle*



Steve Marshall

The common green lacewing *Chrysoperla plorabunda* (named *Chrysopa carnea* in past) is found across North America.



## Officers of Affiliated Societies, 2005-2006 Dirigeants des sociétés associées, 2005-2006

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E-mail: [grenkowl@agr.gc.ca](mailto:grenkowl@agr.gc.ca)  
<http://www.usask.ca/biology/ess/>

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

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<http://www.entsocont.com>

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<http://www.acadianes.org/index.html>

**Bulletin  
of the Entomological Society of  
Canada**

Editor: Paul Fields  
Assistant Editor: Marj Smith

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

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

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

Rédacteur : Paul Fields  
Rédactrice adjointe : Marj Smith

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

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

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## The Buzz / Bourdonnements

Paul Fields, Editor / Rédacteur



In some ways, the means used to exchange ideas between entomologists in Canada hasn't changed since 1863, when the Entomological Society of Canada was founded. The Society organizes meetings, people make presentations and audiences ask questions. The Society publishes a journal, authors submit manuscripts, editors and reviewers comment and correct and entomologists read the papers.

In some ways, the exchange of ideas is radically different today than it was 143 years ago. Today, it is much easier to access ideas than it was in the 1800s. Travel is cheaper, so it is easier for people to meet. Talking over a beer or in the buffet line is still a great way to exchange ideas. We are all aware that the Internet has radically increased the speed and access to ideas. We are now entering a second wave of change as the content offered by journals on Internet has been increased. The *Journal of Insect Science* (<http://www.insectscience.org>) is available only electronically, and allows authors to publish along with their articles; videos, sound, colour images and large databases at no extra cost. Other journals such as *Nature* and *Science* release weekly half-hour podcasts, Internet radio, that can be set to automatically download to your computer and to your digital portable music player.

Our Society is using its website to distribute this publication, *The Canadian Entomologist*, as well as a wide range of other information. I look forward to the next few years, as we find new and exciting ways to exchange ideas, and to the upcoming meeting in Montreal, to discuss these and other ideas over a beer.

En quelque sorte, les moyens que les entomologistes utilisent pour échanger leurs idées n'ont pas changé depuis 1863, l'année que la Société d'entomologie du Canada a été fondée. La Société organise des réunions, des gens font des présentations et le public pose des questions. La Société publie un journal, les auteurs soumettent des manuscrits, les rédacteurs et critiques font des commentaires et des corrections et les entomologistes lisent des articles.

En quelque sorte, l'échange des idées est très différente aujourd'hui de ce qu'elle était il y a 143 ans. Aujourd'hui, il est plus facile qu'au 19<sup>e</sup> siècle d'avoir accès aux idées. Les voyages coûtent moins cher, alors c'est plus facile pour les gens de se rencontrer. Le bavardage dans un bar ou en ligne pour le buffet est toujours une façon formidable d'échanger des idées. Tout le monde sait que l'Internet a radicalement augmenté la vitesse et l'accès aux idées. Nous entamons maintenant une deuxième vague, où le contenu offert par les journaux en ligne a changé. Le *Journal of Insect Science* (<http://www.insectscience.org>) est disponible seulement électroniquement. Ce journal permet aux auteurs de publier avec leurs articles des vidéos, des sons, des images en couleur et même des bases de données. D'autres journaux, comme *Nature* ou *Science*, mettent en ligne chaque semaine des podcasts d'une demi-heure, c'est-à-dire de la radio à l'Internet. Vous pouvez les télécharger automatiquement à votre ordinateur ou à votre baladeur digital.

Notre Société utilise l'Internet pour distribuer cette publication, *The Canadian Entomologist* et d'autres renseignements. J'ai hâte pour aux années qui viennent, pour voir les nouvelles façons que nous trouverons pour échanger des idées, et aussi à la prochaine réunion annuelle à Montréal pour échanger des idées avec une bière en main.

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## Images

**On the spine:** The spurge hawk-moth, *Hyles euphorbiae* (L.) (Sphingidae), a biological control agent introduced to North America during the 1960s, photo: P. MacKay.

**Beneath the title:** The boxelder bug, *Boisea trivittatus* (Say) (Rhopalidae), feeds on seeds of female boxelder trees, photo: B. Landry.

### Photos on front cover:

1. The two-striped grasshopper, *Melanoplus bivittatus* (Say) (Acrididae), a major North American crop pest, completing its molt, photo: T. Wist.

2. Sampling for the soybean aphid, *Aphis glycines* Matsumura (Aphididae), photo: J. Brodeur.

3. *Stratiolaelaps scimitus* (Womersley) (Laelapidae), a predatory mite used as a biological control agent for thrips and fungus gnats in greenhouses, photo: D. Walter.

4. *Perillus bioculatus* (F.) (Pentatomidae), the twospotted stinkbug, a natural predator of the Colorado potato beetle, photo: S. Marshall.

5. The ponderosa pine seedworm, *Cydia piperana* (Kft.) (Tortricidae), an obligate seed feeder common on ponderosa pine, photo: L. van Akker.

**Back cover:** The assassin bug, *Zelus luridus* Stal (Reduviidae), feeding on a flower fly, *Ocyrtamus fascipennis* (Wiedemann) (Syrphidae), photo: S. Marshall.

Français à l'intérieur de la couverture avant