

# Bulletin

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## Images

**Sur le dos :** Le dendroctone du pin ponderosa, *Dendroctonus ponderosae* Hopk. (Curculionidae), une espèce épidémique qui détruit périodiquement de grandes surfaces de pinèdes dans l'ouest de l'Amérique du Nord. Photo : D. Linton.

**Sous le titre :** La likenée blanche, *Catocala relictata* Wlk. (Noctuidae), se nourrit de peupliers, de trembles et de saules. Photo : A. Carroll.

1. Récolte de scolytes (Curculionidés) dans un piège à entonnoir Lindgren à Angstad Creek, près de Merritt, Colombie-Britannique. Photo : J. Smith.

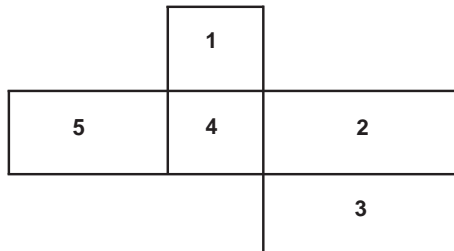
2. *Leptomantispa pulchella* (Banks) photographié à Ojibway Prairie à Windsor, Ontario. L'espèce n'est par ailleurs connue au Canada que de la vallée de l'Okanagan. Photo : S. Marshall.

3. Puceron de l'épinette de Sitka, *Adelges cooleyi* (Gill.) (Adelgidae), exule parthénogénétique avec ses oeufs sur sapin Douglas. Photo : B. Bains.

4. *Formica aserva* Forel (Formicidae), une fourmi agressive qui niche dans les grands débris ligneux partout au Canada, portant une nymphe. Photo : R. Higgins.

5. Cécidomyie du blé, *Sitodiplosis mosellana* (Géhin) (Cecidomyiidae), femelle. Photo : R. Lamb.

**Plat inférieur :** *Tetragnatha viridis* Walck. (Tetragnathidae), seule araignée orbitèle à grands appendices buccaux et à couleur vert brillant au Canada; sa répartition s'étend vers le sud de l'est de l'Ontario et de la Nouvelle-Écosse jusqu'à la rive nord du golfe du Mexique. Photo : M. Larrivée.





### What does your Society do? Want to get involved?

As part of a professional association, it may not always be clear to new and potential members what that membership offers or how you can participate. This month I would like to address the questions... What does the Entomological Society of Canada do? How can you get involved?

You probably are familiar with some of our activities and less familiar with others. We produce a number of scientific publications including *The Canadian Entomologist*, the *Memoirs of the Entomological Society of Canada* and *The Bulletin*. We maintain a website, [www.esc-sec.org](http://www.esc-sec.org). We hold annual conferences, usually together with one of our affiliated regional societies. We give various awards including the ESC Gold Medal, the C. Gordon Hewitt Award, Postgraduate Awards, Research-Travel Scholarships, Student Conference Travel Awards, President's Prizes at annual meetings, the Keith Kevan and John Borden Awards and the Biological Survey of Canada Scholarship.

Other activities might be less familiar, but you'd be surprised at how many ways there are

### Que fait votre Société? Voulez-vous vous impliquer?

En tant que membre d'une association professionnelle, il n'est pas toujours clair pour les nouveaux membres et pour les membres potentiels ce qu'une adhésion peut offrir, ou comment s'impliquer. Ce mois-ci, j'aimerais m'intéresser à ces questions... Que fait la Société d'Entomologie du Canada? Comment pouvez-vous vous impliquer?

Vous êtes probablement familiers avec certaines de nos activités, et un peu moins avec certaines autres. Nous produisons un certain nombre de publications scientifiques, incluant *The Canadian Entomologist*, *Memoirs of the Entomological Society of Canada* et le *Bulletin*. Nous gardons à jour un site Internet, [www.esc-sec.org](http://www.esc-sec.org). Nous tenons des réunions annuelles, généralement avec une de nos sociétés régionales affiliées. Nous attribuons également divers prix, incluant la médaille d'or de la SEC, le prix C. Gordon Hewitt, les bourses pour étudiants gradués, les bourses de voyage pour la recherche, les bourses pour assister à la réunion annuelle de la SEC, les prix du Présidents aux réunions annuelles, les prix Keith Kevan et John Borden, ainsi que la bourse de la commission biologique du Canada.

Les autres activités vous sont peut-être moins familières, mais vous seriez surpris du nombre de façons de s'impliquer. En voici dix:

- Vous prenez de belles photos d'insectes? Nous avons un concours de photographie! Vous pourriez avoir vos photos en page couverture du *The Canadian Entomologist*, utilisée dans le *Bulletin*, ou encore sur le site Internet.
- Vous aimez les livres sur l'entomologie? Faites une revue d'un livre pour le *Bulletin*. Vous pouvez même garder le livre!
- Êtes-vous un étudiant gradué sur le point de terminer? Gonfler votre curriculum vitae

to get involved. Here are just ten:

- Do you take great insect photos? We have a Photo Contest! You could have your photo on the cover of *The Canadian Entomologist* or used in the *Bulletin* or on the website.

- Do you like books on entomology? Do a book review for the *Bulletin*. You even get to keep the book.

- Are you a graduate student near the end of your program? Increase your profile by participating in the Grad Student Symposium run by the Student Affairs Committee at our annual meeting.

- Do you have an interesting entomological story or technique? Let us know – we can share it with hundreds of colleagues through our Publications.

- Need a graduate student or have a position to advertise? Finished your thesis? Let us know.

- Know of a meeting coming up? We can advertise it in the *Bulletin* and on the web.

- Are you fluently bilingual and have a bit of spare time? Perhaps our Bilingualism Committee can use some help with translations.

- Do you have a lab full of interesting projects and great people? Do a Lab Profile for the *Bulletin*.

- Are you a born salesperson? We might be able to use your expertise on our Marketing Committee.

- Do you have old books or photos that you don't know what to do with? (entomologically-related of course). They might be of special interest to the Society. Let our Heritage Committee know.

Does any of this sound interesting? Involvement in your Society is a great way to meet other entomologists, and it looks good on your resume too. A few years ago when I was a new scientist with Agriculture and Agri-Food Canada, I wanted to do more with the Society but didn't know how to go about it. I approached long-time member and Past-President, Dr. George Gerber and thanks to his help, ended up on the Science Policy Committee and from there on other Committees, Secretary for three years and now the Executive. There is no

en participant au Symposium des étudiants gradués organisé par le comité des affaires étudiantes lors de notre réunion annuelle.

- Avez-vous une histoire entomologique ou une technique intéressante à partager? Faites-nous le savoir – nous pouvons le partager avec des centaines de collègues par le biais de nos publications.

- À la recherche d'un étudiant gradué ou un poste à afficher? Votre thèse est terminée? Faites-nous le savoir.

- Vous avez connaissance d'un prochain congrès? Nous pouvons l'annoncer dans le *Bulletin* ou sur le site Internet.

- Vous êtes bilingues et avez un peu de temps libre? Notre comité du bilinguisme pourrait certainement apprécier un coup de main avec les traductions.

- Votre labo est rempli de projets intéressants et de gens fantastiques? Écrivez un profil de labo pour le *Bulletin*.

- Êtes-vous un bon vendeur? Nous pourrions utiliser vos talents dans notre comité du marketing.

- Vous possédez de vieux livres ou photos et ne savez pas quoi en faire? (reliés à l'entomologie, bien sûr). Ils peuvent être intéressants pour la Société. Communiquez avec notre comité de l'héritage.

Est-ce que quelque chose parmi cette liste vous semble intéressant? S'impliquer dans la Société est un bon moyen de rencontrer d'autres entomologistes, et embellit également votre résumé. Il y a quelques années, alors que j'étais une nouvelle scientifique au sein d'Agriculture et Agroalimentaire Canada, je voulais m'impliquer davantage dans la Société sans savoir comment faire. J'ai approché un membre de longue date et ancien président, Dr. George Gerber et grâce à lui, je me suis jointe au comité de la politique scientifique et de l'éducation. De là, j'ai joint d'autres comités, je suis devenue secrétaire pendant trois ans, et maintenant, je suis sur le conseil exécutif. Il ne fait aucun doute que la Société roule grâce aux bénévoles! Si quoique ce soit vous intéresse dans la liste précédente, ou si vous avez d'autres idées, n'hésitez pas à me

doubt that the Society runs on volunteers! If you see anything in the list that interests you, or if you have another idea, I encourage you to contact me.

In closing I'd like to congratulate Kevin Floate on this, his first *Bulletin*. I'm sure Kevin will continue the high standard set by Paul Fields. And a final comment – remember that we are all in this together because of a shared fascination for insects. Enjoy your spring.

contacter.

En terminant, j'aimerais féliciter Kevin Floate pour son premier *Bulletin*. Je suis certain que Kevin conservera la grande qualité établie par Paul Fields. Et un dernier commentaire – rappelez-vous que nous sommes tous là pour notre fascination commune pour les insectes. Bon printemps!

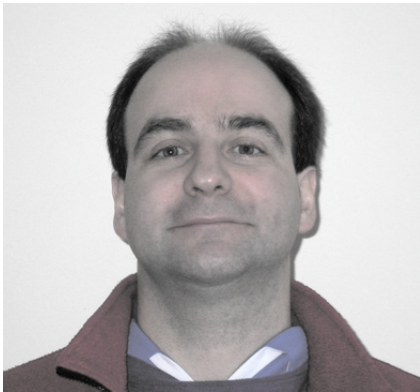


Kudos to Bernie Roitberg! His photograph of leafcutter ants was a 'runner up' in WestJet's 3rd Travel Photo Contest. It appears on p. 63 in the February 2007 issue of Westjet's travel magazine *Up!*



# Moth balls / Boules à mites

By Andrew Bennett



## The pitter-patter of many tiny feet: A commentary on entomological parental care.

As a child, one of my favourite pastimes was searching the fields around my house for insects. I am sure my first foray into the world of insect collection focused on grasshoppers, but once I caught my first caterpillar, my ento-parental genes kicked in and I knew I had to provide for the caterpillar and try to raise it to adult. Even at a young age, I understood the importance of associating caterpillars with their correct food plant. Even so, I am sure that my success rate in rearing them to adult was nothing short of abysmal. In fact, “abysmal” gives me far more credit than I deserve, for surely, until I was twelve or thirteen, I don’t believe I ever managed to rear a single caterpillar to adult. In my defence, it is likely that the majority of caterpillars I stumbled on were on the ground

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and therefore, disassociated with their food plant. But even when I did find them on plants and was careful to keep them associated with this foliage, I would generally lose interest in caring for them or they would escape, much to my mother’s chagrin at finding them wandering around the house (or more often, decidedly NOT wandering around the house). It seemed that my enjoyment was mostly limited to the thrill of the chase and nurturing my imprisoned victims was simply not as interesting as going out and finding more and varied prisoners for my dungeons of starvation and dehydration.

Currently, I am on parental leave. Perhaps luckily for my nine-month old son, it’s winter and I live in Ottawa, therefore caterpillar collecting is at a lull. Of course, I take my parental responsibilities a bit more seriously than I did when I was five, but when I am pacing with my teething son or up to my elbows in Penaten, I sometimes reminisce on those halcyon days. Since my childhood, I have had considerably better success at rearing many kinds of insects, including Lepidoptera, and so I feel at least slightly qualified to offer the following commentary concerning the rearing of immature insects and humans.

### Nutrition

Whereas it is possible that a meridic pinto bean diet or a dish full of first instar crickets may offer some nutritional value to a baby, the converse is generally not true (most insects given Pablum will not survive). Even though preparation of baby and insect foods may seem similar, and making them simultaneously may seem most efficient, to ensure optimal growth of all young it is recommended to separate your food preparation activities by species. Careful labelling of all baby/ larval dietary supplements will help ensure that your time-consuming efforts in food preparation do not go to waste.

### Daylength / temperature

Environmental conditions for optimal growth differ depending on species. Lit-

erature on human baby rearing recommends temperatures of  $20 \pm 5$  ° C and light regimes ranging from 8:16 LD to 16:8 LD, depending on age. My experiences have shown that literature values for optimal light regimes may not reflect your individual larva/child's desires with respect to daily sleep and/or light patterns (my nine month old is currently insisting on a sleep regime of 3:2:4:3:6:1:3:2 LDLDLDD). Remember that human babies do not diapause (and no amount of wishing or modifications of light/ temperature regimes will alter this). In contrast, many insects require specific temperature and/or light conditions in order to induce diapause as a mandatory stage of development to adult. Despite this, it is prudent to be sure that the species for which you are caring does undergo diapause before departing on any winter getaways to warmer/sunnier destinations.

### Housing

Babies sleep best in cribs or beds, whereas immature insects have an annoying habit of wandering off or being squashed if kept in similar enclosures (unless, of course, you plan on rearing bed bugs, in which case, beds are perfect). For most insects, petri dishes or mesh-walled rearing chambers are much better and will placate angry roommates or family members who are strangely sensitive to finding young insects wandering through the house or residing under their bed sheets.

### Clothing

For human babies, of course (all six-month-old humans need running shoes and baseball caps), but for juvenile insects? Madness, you say? Try googling "dog clothes" and be prepared to stare dumbfounded at the 936,000 hits you retrieve. If dogs have lines of clothing, then why not put clothes on baby insects? Clothing for babies of all species is as much about guilt as necessity. For example, what self-respecting guardian of a limnephilid larva would let their little darling go to the top of the aquarium unless adorned in the latest designer case? OK... small market, I admit,

but I'll start off by aiming for an item or two on the inventory at PetSmart (I'm thinking an eight-armed leather bomber jacket for the discerning tarantula breeder) and we'll see where it goes from there.

### Hygiene

Call it what you will: faeces, frass, dung, poo-poo; regardless of the species, as a caregiver you will most likely become intimately familiar with the waste products of your youngsters because maintaining hygienic conditions within your rearing chambers is essential to ensure development of healthy individuals. Nevertheless, if dealing with large amounts of excrement alarms you, decisions can be made with respect to which species to rear – humans or Hercules beetles: heaps of poo; Zoraptera or microhymenoptera: not so much.



Henri Goulet

Ladybird beetles (Coleoptera: Coccinellidae)

# Meeting announcements / Réunions futures

## **1st General Meeting of the Canadian Society for Ecology & Evolution**

University of Toronto, Ontario, Canada, 17-20 May 2007

[www.eeb.utoronto.ca/csee](http://www.eeb.utoronto.ca/csee)

## **Joint Meeting of the 51st Livestock Insect Workers Conference and the 9th International Symposium on Ectoparasites of Pets**

Lexington, Kentucky, USA, 10-14 June 2007

[http://www.pestmanagement.info/ISEP\\_LIWC/](http://www.pestmanagement.info/ISEP_LIWC/)

## **VII International Biotherapy Society**

Seoul, Korea, 20-24 June 2007

<http://www.icb2007.org>

## **North American Forensic Entomology Association's 5th Annual Conference**

Simon Fraser University, Vancouver, British Columbia, Canada, 11-13 July 2007

[www.nafea.net](http://www.nafea.net)

## **92nd Annual Meeting of the Ecological Society of America and the Society for Ecological Restoration International**

San Jose, California, USA, 5-10 August 2007

<http://www.esa.org>

## **Annual Meeting of the American Arachnological Society**

Susquehanna University, Selinsgrove, Pennsylvania, 13-17 July 2007

<http://www.americanarachnology.org/>

## **17th International Congress of Arachnology (ISA)**

São Pedro, São Paulo, 5-10 August 2007

<http://www.ib.usp.br/~ricrocha/ISA17/ISA17.htm>

## **40th Annual Meeting of the Society for Invertebrate Pathology and the 1st International Forum on Entomopathogenic Nematodes and Symbiotic Bacteria**

Université Laval, Quebec City, Quebec, Canada 12-16 August 2007

<http://www.sipweb.org/>

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

Saskatoon, Saskatchewan, Canada, 30 September - 3 October 2007

<http://www.sfn.saskatoon.sk.ca/science/ess/ESS.html>

## **55th Annual Meeting of the Entomological Society of America**

San Diego, California, USA, 9-12 December 2007

[http://www.entsoc.org/annual\\_meeting/current\\_meeting/index.htm](http://www.entsoc.org/annual_meeting/current_meeting/index.htm)

## **XXIII International Congress of Entomology**

Durban, South Africa, 6-12 July 2008

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



## Insect Photography and the *Canadian Journal of Arthropod Identification*

One of the most important aspects of communicating information about insects - especially information about identity, morphology and behaviour - is the capture and distribution of images that provide visual summaries of critical information. Insect taxonomy, and the dissemination of the results of insect taxonomy in the form of identification tools, has traditionally been significantly limited by the cost and difficulty of producing and publishing accurate, detailed illustrations and photographs. Recent advances in digital photography have dramatically reduced those limitations, so much so that anyone with even a modest digital camera can produce publication-quality images. Perhaps of equal importance, there are now vehicles for free or very inexpensive web-based publication of documents containing huge sets of images that would have been prohibitively expensive to publish only a few years ago. One such vehicle is the *Canadian Journal of Arthropod Identification*, a fully reviewed on-line journal published by the Biological Survey of Canada. Essential instructions for those wishing to publish in *CJAI* can be seen at <http://www.biology.ualberta.ca/bsc/ejournal/authors.html>.

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*Steve and Dave are the editor-in-chief and technical editor, respectively, for the Canadian Journal of Arthropod Identification. They can be contacted at: [samarsha@uoguelph.ca](mailto:samarsha@uoguelph.ca) or [dcheung@uoguelph.ca](mailto:dcheung@uoguelph.ca).*



David Cheung

A Nikon Coolpix mounted on the trinocular head of a compound microscope. The same mount can be used on a binocular head by removing one of the microscope eyepieces.

The object of this article is to supplement guidelines like those provided by *CJAI* with a more informal set of tips, tricks and advice based on our experience with digital photography. One of us (DC) is a dedicated digital photographer who started out with digital cameras; the other (SM) is a long-time film photographer who has recently and enthusiastically embraced digital photography. We work with a variety of cameras, including inexpensive point-and-shoot digital cameras, “prosumer” digital SLRs, professional SLRs, and elaborate laboratory digital photoscopes. This short article is meant to provide advice appropriate to a variety of budgets, backgrounds, and objectives. In all cases we are commenting on our own experience only, and the particular equipment or systems we discuss reflect that experience rather than opinions about competing cameras and microscopy systems. We use Nikon digital SLR cameras

in the field and a Canon digital SLR for high magnification laboratory macroscopy.

### **The absolute basics, minimal budget**

One of us was recently in the field with a Cuban colleague who is working on a photographic guide to the Diptera of Cuba. He carried a credit card-sized Sony Cybershot in contrast to the large camera bags we use to carry heavy digital SLRs with extension tubes and other accessories. He was able to pull his little camera out of his shirt pocket, hold it close to the subjects with one hand, pop an image at arm's length, and tuck the camera away all in less time than it took to open up a "serious" camera bag. His images, however, were excellent and provided a good reminder of the first rule of insect photography – the only shots sure not to turn out are the ones you don't take. His images were neither as large nor as detailed as those taken with a digital SLR, but you would probably be unable to tell the difference on the basis of web-posted jpegs. Furthermore, the depth of field provided by digital point-and-shoot cameras like the Sony Cybershot and Nikon Coolpix models is incredible, and ideal for information-rich insect photographs. More importantly, these small cameras are easy to carry with you at all times and easy to bring into play when that rare photo opportunity presents itself. Almost any of the leading models of digital camera will prove adequate for casual insect photography, and some of the more costly models can produce stunning results right out of the box. Here are some tips for getting the best insect photographs out of your digital camera, based mostly on our experience with various Nikon Coolpix models.

The automatic program settings in most point and shoot cameras are not ideal for insect photography, so you need to be familiar with switching between shooting modes (manual mode is recommended for insect photography), adjusting flash output, and using manual focus. If your camera doesn't allow for manual exposure use an aperture priority setting, allowing you to set a small aperture (a high f-stop) in

order to obtain adequate depth of field. In most lenses the highest f-stop can only be used at 1/3 the zoom level. When shooting with a high f-stop a flash is almost always necessary. You will find it worth learning to adjust flash output to minimize glaring highlights in your photos, since most automatic exposure settings tend to overexpose macro shoots. We recommend that you disable digital zoom and ignore the automatic "macro" settings.

When purchasing a new digital point and shoot camera for insect photography try and get a model with manual exposure and manual focus, a lens with a short working distance and capability for high depth-of-field (high f-stop value). Good battery life and a large viewfinder are also important attributes.

### **Basic SLR (single-lens reflex) photography in the field**

Although users of high-end digital point and shoot cameras would certainly disagree with us, we think that serious field photography of the full range of insects from springtails to sphingids is best accomplished with a digital SLR camera. This is in part because moving from SLR/35mm film photography to digital SLR photography is an easy transition that allows continued use of some of the equipment (especially the lenses) and most of the techniques used in film photography. More importantly, 35mm digital photography is tremendously flexible because of the wide range of lenses, teleconverters, extension tubes, close-up rings and other equipment made for 35mm equipment. The exceptional range of virtual film speeds available on digital SLRs (often up to an equivalent of 800ASA or more) allow for natural-light photography with or without a tripod, and the range of possibilities for natural-light photography is widened by the availability of VR (vibration reduced) lenses which damp out hand-held vibration. Our experience with VR lenses suggest that the extra weight and cost is only justified if you routinely do hand-held, natural light photography of dragonflies, damselflies and butterflies. For smaller insects, we usually use



Stephen Marshall

A field photograph of some small acalyprate flies (*Sobarocephala latifrons*, Clusiidae), taken with a Nikon D70, a 60mm lens and a 2X teleconverter.

a hand-held camera with a macro lens and at least a single flash, although flash photography does not work well for shining insects such as carabid beetles, or for subjects not set against a close background.

Different subjects call for different approaches: the approaches we would take to different subjects are outlined below, starting with the easiest. First of all, however, it might be useful to review a few basics. Every photograph is a trade-off between shutter speed and depth of field. For a given light level and film speed, you can let in the same amount of light using a slow shutter speed (which requires a tripod to avoid blurring) and a small aperture (small aperture = large depth of field) or a fast shutter speed and a large aperture. For an artistic photograph of a large insect such as a damselfly a shallow depth of field is desirable to blur out an otherwise confusing background, but for photography of small insects a large depth of field is generally desirable. This means that for a hand-held camera with ASA100 film, or the digital equivalent, if you need a shutter speed of 1/125 of a second to

avoid blurring then you will probably have to shoot at an aperture of f8. An aperture of f8 won't give you much depth of field, which may be ideal for shooting a damselfly and blurring out the background but will be inadequate if you want to shoot smaller insects entirely in focus. You can solve this problem by using a tripod, using faster "film", or adding more light. Tripods are only useful for stationary subjects and faster "film" (digital film speed equivalent) leads to progressively grainier images, so we usually opt for adding more light using one or more flash units. Some examples:

**Shooting a large, stationary insect such as a grasshopper:** Unless exceptional depth of field is required, shooting large insects with a digital SLR is pretty much goof-proof. Automatic, Aperture Priority, Shutter Priority or Manual settings all work well. Depending on light levels, you may want to increase the film speed equivalent to allow adequate shutter speed at the required depth of field. Fill-flash is often useful to take out shadows, but neither flash nor tripod is really required for this kind

of simple photography under daylight conditions. Furthermore, flash-photographs of larger insects often have ugly and uninformative black backgrounds and unnatural shadows. Try the automatic setting and a film speed of about 300, or aperture priority starting with a variety of aperture settings. Start with f8 and then try successively smaller apertures (larger f-numbers). Check your results and adjust to compensate for blur or inadequate depth of field.

**Shooting a medium-sized stationary insect**, for example a tiger beetle, against a solid background when greater depth of field is required because of subject size or shape: Tiger beetles are ideal subjects, since they will remain absolutely motionless if you approach them slowly, they are generally situated against solid contrasting backgrounds, and they are almost always found on open ground where you can rest your elbows to provide a steady brace for your camera. The tiger beetle images on the University of Guelph Insect Collection website (<http://www.uoguelph.ca/debu/>) were photographed with a hand-held film camera and flash at about f16 using 100ASA film; we now accomplish the same thing using digital cameras without a flash and with the ASA equivalent set to 400. To go “deeper” than f16 or to use a slower film speed equivalent you can use a ring flash or a hand-held flash on a cord, but flash tends to damp out some of the metallic highlights visible on natural-light images.

**Shooting small, mobile insects:** If you are going to shoot small insects and get adequate depth of field you will probably need to stop down to f16 or more; if your subjects are at all mobile you will require supplementary lighting. If you want to photograph small insects on the go, you will need a flash somehow held off-camera because high-magnification photography usually involves lenses that are too long to allow flash from a hotshoe-mounted flash to reach the subject. This limitation can easily be solved by using ring-flash setups, remote-fired flash units, bracket-flash setups, or hand-held flash units linked to the camera

hotshoe by a cord. With a powerful flash you can easily shoot with apertures down to f22 (or lower, but we find our image quality drops off noticeably below f22) and a default flash sync speed of 1/250 second. It is possible to get by with a single, hand-held flash, but a ring-flash setup mounted on the lens is probably the best approach for a beginning photographer. Remember, with flash photography you must have a solid background such as a leaf, branch, stone, sand etc. or your background will be jet black. We carry coloured cards and pieces of felt to supplement natural backgrounds when necessary.

**Increasing your magnification:** Magnification can be increased by adding a teleconverter, close-up rings, or extension tubes. Teleconverters are easily inserted between the lens and the camera body, and have the added advantage of increasing your working distance. A macro-lens combined with a 2X teleconverter is perfect for shooting dragonflies in the field. Extension tubes, which have no glass and merely separate your lens from your camera body, increase magnification with minimal light loss. Close-up rings simply screw on the end of your lens, and provide a cheap and easy way to increase magnification at the expense of working distance and image quality. We regularly use teleconverters and extension tubes; we do not recommend close-up rings.

**Choosing cameras, lenses and other equipment:** Several manufacturers make excellent digital SLRs, but we use Nikon equipment. We both have Nikon D70s and one of us has a Nikon D2X. We share the opinion that the former is the perfect camera; the latter is a great camera but very heavy. We use a variety of lenses, including the same 60mm and 105mm lenses used with various film cameras to do the pictures in Marshall’s recent book (*Insects: Their Natural History and Diversity*). Given a choice, we would recommend the 60mm for digital photographers and the 105 for film photographers because of the different working distances you get with film versus digital cameras. These lenses alone work well down to mosquito-size; if you

want to go smaller we would recommend a 2X teleconverter. We use SB800s as primary flash units, sometimes using SB600s and the newer remote-fired SBR-200s as supplementary flash units.

### Basic 35mm photography in the lab

Photographing specimens in the lab is easy once you have mastered photography in the field. Solid neutral backgrounds are easily positioned, and your subjects are immobile. Both camera and flash(es) can be mounted on brackets for standard image capture setups, but we prefer to hand-hold the camera (often using a beanbag brace) for optimal flexibility. Try shooting at about f16 with a flash plus reflector, fine tuning by adjusting exposure on either the flash or the camera. Very deep subjects can be photographed on different planes, after which the multiple photographs can be put together into a high depth of field composite using freeware such as CombineZ (see below).

### High-end digital macroscopy

Our high-end digital macroscopy is done by taking multiple low depth-of-field photographs at different planes (different focus points) using a Canon digital SLR with a Microptics Digital Imaging System, and then combining the images into a single high depth-of-field photograph using the shareware program CombineZ. Shooting with a small aperture (high f-stop) is not necessary since an unlimited depth of field can be achieved with CombineZ. Medium aperture settings allow for a sharper image.

### Digital photomicroscopy

We use a Nikon 4500 mounted in the eyepiece of a compound microscope for high magnification digital photography of small, slide-mounted specimens. The 4500 is different than most digital cameras because it has a threaded ring around the lens enabling it to be attached to different microscopes with a simple eye piece adapter (There are several

online retail stores that stock the inexpensive eye piece adapter for the Nikon 4500). Shooting in manual mode with a high f-stop gives best results. Since the camera is mounted to the scope, shake due to long shutter speeds is not an issue, and the camera can be easily connected to a computer to allow you to set up your shot on the computer monitor rather than the small LCD on the camera.



David Cheung

A composite image of a vespid (*Euodynerus crypticus*) head, taken using the Microptics digital macroscopy system.



## The student wing / L'aile étudiante



Mike Borkent

Chris Borkent



Jessica Smith

Greg Smith

Hello everyone. The New Year is well under way and the next field season is quickly approaching (assuming we don't get any further wild and crazy weather)! Remember to check for any scholarship, bursary, etc. deadlines that may be coming up before leaving the lab for the summer. We would like to welcome Kevin Floate, who is our new *Bulletin* editor. Kevin takes over from Paul Fields (who did a great job!) and will be working alongside assistant editor Marjorie Smith to continue bringing us the *Bulletin*. We look forward to working with him over the next few years as the *Bulletin* continues to develop as the amoeboid publication it is.

This year at the ESC/ESS JAM in Saskatoon, we will again be having a graduate student symposium based around the theme of the meetings "Insects: Microscale Subjects for Megascala Research". We encourage all students that have just finished up their theses, or are in their final year of studies, to submit abstracts (deadline June 15). Let's try to beat last year's record number of submissions, 24 abstracts! For more info on this please see pages 15-16.

Over the next year we would like to introduce a section into the Student Wing where we post helpful hints for making life as a grad student easier. We are looking for information to share with fellow students such as how to create a good poster/presentation, how to find a supervisor (and not regret your choice), how to write a grant or how to take criticism. If you know of any documents, websites or have personal advice that you would like to share on these topics and others, please forward them to Chris ([chris.borkent@mail.mcgill.ca](mailto:chris.borkent@mail.mcgill.ca)) or Greg ([gregsmith@telus.net](mailto:gregsmith@telus.net)) and we will put them together for the *Bulletin*. Also remember to update your webpage on the Student Affairs page of the ESC website. If you don't have a page yet, download the template at <http://esc-sec.org/ESCstudentwebpage.doc> and send it in with your favourite photo of yourself and/or your study insect.

Keep those pinning fingers warmed up, spring is just around the corner!

Greg and Chris



## Thesis Roundup / Un foisonnement de thèses

- Crozier, Stephen William; [scrozier@sfu.ca](mailto:scrozier@sfu.ca), MPM, December 2006. *Determining flight behavior in the European wireworms* *Agriotes lineatus* and *A. obscurus*. Supervisor: Bernard Roitberg, Simon Fraser University.
- Ericsson, Jerry; [jericsso@sfu.ca](mailto:jericsso@sfu.ca), MSc, April 2006. *Host-pathogen interplay: A study of factors applicable to the infection efficacy of* *Metarhizium anisopliae* *to wireworms* (*Agriotes spp.*) *L.* Supervisors: Judith Myers, Mark Goettel, Eduardo Jovel, Murray Isman and Todd Kabaluk, University of British Columbia.
- Giroux, Marjolaine; [mgirou9@po-box.mcgill.ca](mailto:mgirou9@po-box.mcgill.ca), PhD, January 2007. *Morphology and phylogeny of Sarcophaginae and the systematics of* *Neobellieria* (*Diptera: Sarcophagidae*). Supervisor: Terry Wheeler, McGill University.
- Kirouac, Martin; [Martin.L.Kirouac@sympatico.ca](mailto:Martin.L.Kirouac@sympatico.ca), PhD, Novembre 2006. *Effet des toxines insecticides du bacille de Thuringe sur la perméabilité des vésicules de membrane à bordure en brosse intestinale du sphinx du tabac*. Directeur: Raynald Laprade, Université de Montréal.
- Lonsdale, O. Owen; [neoxabea@hotmail.ca](mailto:neoxabea@hotmail.ca), April 5, 2007. *Revision of the New World Clusiidae (Diptera: Acalyptatae), with a phylogenetic analysis of the family using morphological and molecular data*. Supervisor: S.A. Marshall, University of Guelph.
- Miresmailli, Saber; [Saber@interchange.ubc.ca](mailto:Saber@interchange.ubc.ca), MSc, January 2006. *Assessing the efficacy and persistence of rosemary oil as a miticide/insecticide for use on greenhouse tomato*. Supervisor: Murray B. Isman, University of British Columbia.
- Money, Tomas; [moneyt@biology.queensu.ca](mailto:moneyt@biology.queensu.ca), PhD, December 2006. *Heat shock-mediated plasticity in the axon of a locust looming-sensitive visual interneuron*. Supervisor: Mel Robertson, Queen's University.
- Saguez, Julien; [julien.saguez@u-picardie.fr](mailto:julien.saguez@u-picardie.fr), PhD, Hiver 2007. *Dérégulation des activités chitinasés: vers de nouvelles perspectives de lutte contre les aphides*. Directeurs: P. Giordanengo (France), JC Laberche (France) et Charles Vincent (Canada), Université de Picardie Jules Verne, France.
- Saint-Germain, Michel; [michel.saint-germain@mail.mcgill.ca](mailto:michel.saint-germain@mail.mcgill.ca), PhD, December 2006. *Host-selection behaviour and host-use patterns of saproxylic beetles in snags of aspen* (*Populus tremuloides Michaux*) *and black spruce* [*Picea mariana (Miller)*] *in the province of Québec, Canada*. Supervisors: Chris Buddle, McGill University, and Pierre Drapeau, Université du Québec à Montréal.
- Simard, Louis; [simardl@hotmail.com](mailto:simardl@hotmail.com), PhD, Décembre 2006. *Distribution, abondance et écologie saisonnière des principaux insectes ravageurs du gazon sur les terrains de golf du Québec et évaluation du potentiel de contrôle de nématodes entomopathogènes indigènes*. Directeur: Jacques Brodeur, Université Laval.

## Entomological Society of Canada Graduate Student Symposium 2007: Call for Submissions

A Graduate Student Symposium will take place this year in Saskatoon, Saskatchewan, during the Joint Annual Meeting of the Entomological Society of Canada and the Entomological Society of Saskatchewan, September 29th - October 3rd 2007. The symposium is currently scheduled for the afternoon of Tuesday the 2nd of October.

The principal goal of the symposium is to give a higher profile to graduating students as they move to the next stage in their careers by providing them a longer time slot to talk about their research.

To be eligible, students must have either defended their thesis in the past year or be planning to defend within 1 year of the meeting. The degree may be either MSc or PhD.

Students from all disciplines are encouraged to submit an abstract. Ideally, the symposium will follow the general theme of the meeting, "Insects: Microscale Subjects for Megascale Research". However, depending on the submissions, a different focus may be selected.

- 4-6 presentations will be selected depending on the amount of time allotted to the symposium.

- presentations will be approx 25 minutes in length with an additional 5 minutes for questions (30 minutes total).

- papers that are included in the Graduate Student Symposium will not be eligible for the Presidents Prize. However speakers may also submit a paper on a more specific topic to the President's Prize competition.

If you are eligible and want to be considered for the symposium please submit the following information **by 15 June 2007**:

1. **An expanded abstract** (200-300 words) describing your proposed presentation and briefly how it relates to the theme of the meeting "Insects: Microscale Subjects for Megascale Research".

2. **A letter (or email) of support** from your principal supervisor that confirms the anticipated or actual date of graduation, and comments on your proposed presentation.

Students who have been selected to speak will be contacted by 31 July 2007. When notified, they will receive a list of the other speakers, email addresses and a copy of all initial abstracts to identify point for discussion in the talks and elimination of potential overlap.

Expanded abstracts of chosen speakers will be published in the December issue of the *Bulletin of the Entomological Society of Canada*.

Submission for the graduate student symposium should be sent in Word or Rich Text format to: Chris Borkent ([chris.borkent@primus.ca](mailto:chris.borkent@primus.ca)) or Greg Smith ([grsmith@pfc.cfs.nrcan.gc.ca](mailto:grsmith@pfc.cfs.nrcan.gc.ca)).

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## Entomological Society of Canada Conference Travel Award

The 2007 meeting of the Society will be held in Saskatoon on 30 September to 3 October. Each year one or two \$500 awards are made to help students travel to the meeting to present a talk or poster – see the [ESC web site, student affairs section](#) for details. The deadline is the same as that for abstract submission and that is still not announced. So this is a heads up to students to think about presenting at the meeting and to watch for the announcement for the submission of abstracts.

Judy Myers, Chair Scholarship Committee

## Symposium des étudiants gradués de la Société d'Entomologie du Canada 2007: Invitation générale

Un Symposium des étudiants gradués est organisé à l'occasion de la réunion annuelle conjointe de la Société d'Entomologie du Canada et de la Société d'Entomologie de Saskatchewan qui aura lieu à Saskatoon, Saskatchewan, du 29 septembre au 3 octobre 2007. Le symposium est actuellement prévu pour l'après-midi du mardi 2 octobre.

L'objectif principal de ce symposium est de mettre en lumière les travaux de recherche des étudiants gradués alors qu'ils passent à la prochaine étape de leur carrière en leur fournissant une période plus longue afin de présenter leurs recherches.

Pour être admissibles, les étudiants doivent avoir soutenu leur thèse au cours de la dernière année, ou planifier de le faire dans l'année suivant la réunion. Les étudiants à la maîtrise et au doctorat sont admissibles.

Les étudiants de toutes les disciplines sont encouragés à soumettre un résumé. Idéalement, le Symposium devrait correspondre au thème général de la réunion, soit "Les insectes : petits sujets pour de grandes recherches". Toutefois, selon les sujets proposés, il sera possible de lui donner une orientation différente.

- 4 à 6 présentations seront sélectionnées en fonction du temps alloué pour le Symposium.

- Les présentations seront approximativement de 25 minutes avec une période additionnelle de questions de 5 minutes pour un total de 30 minutes.

- Les présentations incluses dans le Symposium des étudiants gradués ne seront pas admissibles au Prix du président. Cependant, les conférenciers peuvent également soumettre un résumé sur un sujet plus précis afin de participer au Prix du président.

Si vous êtes admissible et souhaitez être

considéré pour le Symposium, veuillez nous faire parvenir les informations suivantes au **plus tard le 15 juin 2007**:

1. **Un résumé détaillé** (200-300 mots) décrivant la présentation proposée et faisant le lien entre le sujet de l'exposé et le thème de la réunion " Les insectes : petits sujets pour de grandes recherches ".

2. **Une lettre (ou courrier électronique) d'appui** de votre directeur de thèse confirmant votre date prévue ou réelle de graduation, et commentant la présentation proposée.

Les étudiants dont l'exposé sera sélectionné seront contactés au plus tard le 31 juillet 2007. Ils recevront alors la liste des autres conférenciers du Symposium avec leur adresse électronique ainsi qu'une copie de leur résumé initial afin de se préparer aux discussions et d'éviter les chevauchements éventuels.

Les résumés détaillés des conférenciers seront publiés dans le numéro de décembre du *Bulletin de la Société d'Entomologie du Canada*.

Les soumissions pour le Symposium des étudiants gradués doivent être envoyées en format Word ou Rich Text à Chris Borkent ([chris.borkent@mail.mcgill.ca](mailto:chris.borkent@mail.mcgill.ca)) ou Greg Smith ([grsmith@pfc.cfs.nrcan.gc.ca](mailto:grsmith@pfc.cfs.nrcan.gc.ca)).



Henri Goulet

Pea leaf weevil (*Sitona lineatus*)



## Bourse pour assister à la réunion annuelle de la Société d'Entomologie du Canada

La réunion annuelle 2007 de la société aura lieu à Saskatoon, du 30 septembre au 3 octobre. Chaque année, une ou deux bourses de 500\$ sont remis à des étudiants afin de les aider à se rendre à la réunion pour présenter une conférence ou une affiche – voir le site Internet de [la SEC, section Affaires étudiantes](#) pour plus de détails. La date limite est la même que pour la soumission des résumés, et n'a pas encore été annoncée. Ceci est donc une invitation aux étudiants à considérer de présenter à la réunion et à surveiller les annonces pour la soumission des résumés.

Judy Myers, Présidente du comité des prix étudiants



Brian Beres

Wheat stem sawfly (*Cephus cinctus*)

## Seeking Graduate Students

### Memorial University

Graduate student position available in plant-insect interactions. The project focuses on understanding the mechanisms behind which plants attract insects by examining the ecology and evolution of spore dispersal by flies in Splachnaceae mosses. See [http://www.mun.ca/biology/pmarino/PMarino\\_bryophyte\\_research.php](http://www.mun.ca/biology/pmarino/PMarino_bryophyte_research.php) for more detailed information on the research project.

Paul Marino  
(709)737-7497, [pmarino@mun.ca](mailto:pmarino@mun.ca)

### Lethbridge Research Centre

The Insect Pest Management at the Lethbridge Research Centre (Agriculture and Agri-Food Canada) is looking for a graduate student, maybe two, to conduct research to integrate biological and cultural control strategies to manage the wheat stem sawfly (*Cephus cinctus*). The second student would work on development of economic injury levels and chemical management for the pea leaf weevil (*Sitona lineatus*) in field peas. For more information, please email Héctor Cárcamo at [carcamoh@agr.gc.ca](mailto:carcamoh@agr.gc.ca).

?

What's the difference between a mosquito and a fly?

You can sew a button on a fly.

## Lab profile / Profil de labo

### The Forest Entomology Cluster at the University of Northern British Columbia

Until recently, forest entomology research was confined to the lone entomologist at UNBC, Dr. Staffan Lindgren. With the addition of Drs. Lisa Poirier (2001), Dezene Huber (2005), and Brian Aukema (Canadian Forest Service, 2006), UNBC now has considerable strength in forest entomology, and a thriving lab environment for graduate students. We have weekly joint meetings where we discuss recent research findings, do dry-runs of presentations, brainstorm, or discuss some topic of mutual interest. Research by these labs is described below.

In addition to the entomologists, a number of other faculty members at UNBC are engaged in research relating to forest insects, primarily the mountain pine beetle (*Dendroctonus ponderosae* Hopk.). This includes dispersal using molecular (Dr. Brent Murray) and atmospheric modeling (Dr. Peter Jackson) tools, impacts on regeneration, soils, and forest structure (Drs. Phil Burton, Keith Egger, and Chris Hawkins), and “shelf life” of mountain pine beetle-killed trees (Drs. Kathy Lewis and Ian Hartley). Furthermore, Drs. Allan Carroll (CFS, Pacific Forestry Centre) and Kimberly Wallin (Oregon State University) are adjunct professors currently co-supervising graduate students at UNBC. Outside of the forest entomology realm, Dr. Russ Dawson, a bird behavioural ecologist by training, studies the



Michael Rutherford

Back row (from the left): Matthew Klingenberg, Staffan Lindgren, Niuklas Björklund and Dezene Huber. Middle row: Sandy Allen, Lisa Poirier, Marnie Graf, Honey-Marie Giroday and Erin Clark. Front row: Brian Aukema, Daniel Ott and Duncan McColl.

effects of ectoparasitic insects on birds, and he has recently initiated research on silphid beetles.

## The Brian Aukema laboratory

Research within our lab explores the landscape ecology of forest insects, primarily bark beetles, with special emphasis on linking patterns observed across space and through time to individual- and community-level processes. Within forest entomology, this incorporates fields of study such as plant-insect and predator-prey interactions, population dynamics, chemical ecology, and biometry; i.e., the application of statistical tools to novel ecological questions therein. Linking pattern and process across scales touches on a number of topics in natural resource management, such as insect outbreaks and disturbances, dispersal, sampling, climate change, invasion biology, and biological control. Current model systems include the mountain pine beetle, Warren root collar weevil (*Hylobius warreni* Wood), and pine engraver (*Ips pini* (Say)). Our research is enriched by collaborators in ecology and statistics in Canada, the United States, and Europe.

Contact us at <http://web.unbc.ca/~aukema>.

### **Brian Aukema, Research Scientist, Canadian Forest Service, and Assistant Professor (Adjunct), Ecosystem Science and Management**

Personal research involving insects and numbers commenced at age four, growing up on a farm in rural Ontario. Exploring waist-high grass and weeds behind the barn one day, I sequestered no less than 100 woolly bear caterpillars in a cardboard box. These were subsequently sprung on my unsuspecting mother in a catch-and-release study on her linoleum kitchen floors. Now, caterpillars are not exceedingly fast, and if you have caught them once, you can catch them again. To this day, however, I consider myself fortunate that I didn't end up in the box as I, the box, and my

pet caterpillars all sailed out the back door. I use this opportunity to now apologize in print to my mother ("sorry Mom").

After experimenting with vertebrates (the old frog-in-the-teacher's-desk trick in grade 4), I returned to insects and pursued an undergraduate degree in Biology (Hons.) at Redeemer University College. I then worked as a lab assistant at Agriculture and Agri-Food Canada with George Lazarovits in pest management of vegetable crops. Seeking to move into natural resources, I joined the forest entomology laboratory of Kenneth Raffa at the University of Wisconsin-Madison in 1997. I investigated interactions between the pine engraver and its associated predators, completing a MSc in Entomology 1999 (applied pest management) and a PhD in Entomology in 2003 (predator-prey interactions). Concurrently, I pursued a MSc in Biometry (2003; statistical analysis of biological systems) with Dr. Murray Clayton, studying insect-fungal interactions on the spruce beetle (*Dendroctonus rufipennis* Kirby). Following postdoctoral work on the spatial ecology of aggressive and non-aggressive bark beetles with Drs. Kenneth Raffa and Allan Carroll (Pacific Forestry Centre), I joined the new research cluster of the Canadian Forest Service at UNBC where I have been for one year.

### **Honey-Marie Giroday, MSc candidate**

Born and raised in northern British Columbia, I developed a passion for landscape ecology and invasion biology during my undergraduate degree at the University of Northern British Columbia (BSc, 2004). My research examines the range expansion of mountain pine beetle into a novel habitat, the Peace River region of British Columbia and northwestern Alberta. There is concern that mountain pine beetle outbreaks will coalesce in this region, similar to outbreaks seen in central and southern B.C., and continue to spread into jack pine (*Pinus banksiana* Lamb.) forests of eastern Canada. I am linking stand- and landscape-level aspects of invasion biology of mountain pine beetle, quantifying the spatial

dependence of newly established populations, and examining stand characteristics allowing for successful establishment in these new habitats.

### **Matthew Klingenberg, MSc candidate**

I grew up in rural southern Ontario and moved to northern British Columbia to study landscape ecology and forest entomology in the Aukema lab. My project investigates the landscape-level effects of Warren root collar weevil pressure in a post-mountain pine beetle ecosystem. The initial stage of my project focuses on the spatial dynamics of Warren root collar weevil within seven to 15-year-old lodgepole pine (*Pinus contorta* var. *latifolia* Engel.) stands surrounded by mountain pine beetle-killed stands. Future research will employ photogrammetry and dendrochronology to better quantify spatial patterns of Warren root collar weevil distribution, and mark-recapture experiments to help determine host preference, to determine if weevils are moving into regenerating cutblocks.

### **Sandy Allen, Forest Research Technician, Canadian Forest Service**

Originally from la belle province, I migrated west to find the mountains. My duties include, but are not limited to, coordinating field activities, report writing, and the solving of unsolvable problems. Several projects with which I am involved explore the ecological impacts of the current mountain pine beetle infestation in northern B.C. on stand and vegetation dynamics. I spent much of the recent field season wrestling with devil's club (*Oplonanax horridus*) while researching spruce beetle populations in old-growth hybrid white spruce (*Picea glauca* x *engelmannii* (Moench.) Voss) stands, and hunting for Warren root collar weevil in juvenile stands of lodgepole pine. My graduate work in dendrochronology kindled interests in the use of tree-rings to explore the ecological processes associated with forest insect disturbance.

### **Hollie Moore, Undergraduate research assistant**

Originally from Vanderhoof, British Columbia, I was initiated into entomological



Rob Higgins

*Manica invidia* (Hymenoptera: Formicidae)



field work this summer and contributed to research on the spatial distribution of Warren root collar weevil in juvenile lodgepole pine stands in mountain pine beetle-affected areas of the Nechako Plateau. I love critters of all forms, and have continued to provide cheerful technical support to the Aukema lab throughout the winter.

### **Talya Truant, Undergraduate research assistant**

I help out on a variety of projects, including assessments of understory vegetation in mountain pine beetle-infested lodgepole pine stands, and patterns of mortality due to Warren root collar weevil in juvenile stands of lodgepole pine stands. I have a special affinity for carnivorous plants and blueberries.

### **Muddy, Canine field support and lab mascot**

A fieldwork veteran of seven years, I coordinate all aspects of the field program that involve monitoring movements of red squirrels (*Tamiasciurus hudsonicus*), even if red squirrels are not part of the program. I pride myself on being an effective shade locator and bear alarm, and am the most enthusiastic field worker in the Aukema lab.

### **The Dezene Huber laboratory**

The work in my lab at UNBC combines my interests in plant defenses against herbivory, herbivore resistance to plant defenses, and chemical ecology of forest insects. Current research in the lab involves studies on lodgepole pine and jack pine heritability of resistance traits to mountain pine beetle, bark beetle molecular genetics related to survival in the tissues of their host tree, response of western pine beetle to nonhost angiosperm volatiles (NAVs) and verbenone, and other basic and applied chemical ecological work. I am always happy to hear from students who may be interested in pursuing graduate studies in my lab on these, or related, topics.

Contact us at <http://web.unbc.ca/~huber>.

### **Dezene Huber, Assistant Professor and Canada Research Chair, Ecosystem Science and Management Program**

My first introduction to chemical ecology occurred in an undergraduate organic chemistry class at the University of Calgary in which the instructor, Elizabeth Dixon, gave a short anecdote about a cockroach semiochemical that was related to the chemical structures that my class was studying. Dr Dixon told the class that she had a literature review on insect chemical ecology that she would provide to interested students; I promptly went to pick it up from her and read it in its entirety. Later, while looking for potential supervisors for graduate school, I heard Dr. John Borden on the radio discussing the use of bark beetle aggregation pheromones in forest pest management. Although I had already applied to a number of universities to potentially work with supervisors in various zoology-related fields, the initial spark of interest provided by Dr. Dixon and the exciting research possibilities outlined by Dr. Borden landed me in the Borden lab at Simon Fraser University, where I completed an NSERC-funded PhD on the responses of a number of bark beetle species to NAVs. Following my time at SFU, I worked for two years as an NSERC Postdoctoral Fellow under the supervision of Dr. Joerg Bohlmann at the University of British Columbia where I studied molecular, chemical, and anatomical aspects of defense responses of Douglas-fir and poplar. I then moved to Davis, CA, where I worked as a postdoc under the direction of Dr. Steven Seybold in association with the USDA Forest Service and the University of California, Davis Department of Entomology. My work in Dr. Seybold's lab mainly involved studies on genes involved in bark beetle colonization of host trees. While at Davis, I also collaborated with another USDA-FS scientist, Dr. Christopher Fettig, on western pine beetle responses to NAVs. In 2005, following my work at Davis, I began work at UNBC as assistant professor



and Canada Research Chair in Forest Entomology and Chemical Ecology.

### Erin Clark, MSc candidate

My research focuses on the terpene components of oleoresin in lodgepole and jack pine (*Pinus banksiana*) as they relate to mountain pine beetle (MPB) host colonization and reproductive success. Lodgepole pine is the primary host of MPB, but they are capable of successfully utilizing other species such as jack pine, stands of which extend across North America and are contiguous with an unprecedented infestation in neighboring British Columbia. In addition, I am comparing the terpene components between areas with a historically high climatic suitability for MPB and those with a historically low suitability. Identifying a correlation between oleoresin chemistry and beetle attack will provide a useful tool for refining models that predict the spread of beetles.

### Daniel Ott, MSc candidate

I am studying the heritability of lodgepole pine tree defenses against mountain pine beetle and the symbiotic fungi that they vector. A number of lodgepole pine tree families, set up in provenance trials in central B.C., have been vital to my research. My work mainly focuses on the differences between families defensive characteristics such as resin flow, ability to stop blue stain fungus growth, and resin terpene composition. Identification of tree family specific defensive traits may inform tree breeders and predictive models and may thus help to reduce losses in future MPB epidemics.

## The Staffan Lindgren Lindgren laboratory

Members of the Lindgren lab are engaged in research on a broad range of topics in forest insect ecology and management. Recent research has focused on community ecology, particularly on ants and ground beetles, as well as insect-plant interactions projects focusing



Staffan Lindgren

Tim Cudmore with field assistant

on the mountain pine beetle and the Warren root collar weevil. Smaller projects currently under way include the use of molecular tools for studying bark beetle population genetics and dispersal, as well as population genetics of a thatching ant. Research in the lab is aimed at increasing our understanding of mechanisms of intra- and interspecific interactions, host plant and habitat selection by insects, and the application of knowledge for the benefit of forest managers.

Contact us at <http://web.unbc.ca/~lindgren>.

### B. Staffan Lindgren, Professor, Ecosystem Science and Management Program

I have been interested in “the little creatures that run the world” since early childhood in Sweden. I grew up surrounded by forests, so my choice of profession as a forest entomologist was very natural. I did most of my undergraduate training at Umeå University, but received my degree in biology from Uppsala

University, Sweden. In 1977, I arrived in Canada to complete a Master of Pest Management at Simon Fraser University, Burnaby, B.C.. My supervisor, Dr. John H. Borden, convinced me to stay to do a PhD, which I completed in 1982. After a short time as a post-doctoral fellow with Dr. John A. McLean, UBC, I was hired as an industrial post-doctoral fellow by Phero Tech, Inc., a spin-off company of the Chemical Ecology Research Group at SFU. I stayed with Phero Tech as Research Director until 1994, when I accepted my current position at UNBC. The year prior to my departure from Phero Tech, I spent six months as a visiting scientist with the Swedish University of Agricultural Sciences, Uppsala, Sweden, where I had the privilege to work with Dr. Göran Nordlander on the pine weevil, *Hylobius abietis*. It was during this sabbatical that I was introduced to the Nordlander pitfall trap, which I now use extensively in ecological work, along with my own invention, the Lindgren funnel trap.

I have broad interests in forest insect ecology and management. My training is in applied chemical ecology, but over the last decade I have primarily focused on research in forest insect community ecology and insect-plant interactions.

**Niklas Björklund, Post-Doctoral Fellow**

I came all the way from Sweden to be able to join this research group, and it has been a very rewarding experience. Currently, I am working on developing and validating a model that predicts mountain pine beetle productivity at the stand level. We are also investigating the linkage between host preference and performance. In my spare time I have developed a trap that catches insects that tend to walk up tree trunks, such as the Warren root collar weevil. With the help of the trap I have done a mark-recapture study to evaluate the host choice and movement patterns of this flightless weevil.

**Tim Cudmore, MSc candidate**

I ventured to northern British Columbia from the United States to study geographic

variation in mountain pine beetle populations in the largest outbreak in recorded history. I have focused primarily on the effect of historic climate on the current success of mountain pine beetle productivity, and on population dynamics in lodgepole pine forests that have not coevolved with the beetle at epidemic levels. My focus on high-latitude populations will switch to high-elevation populations as I start a position with the Colorado State Forest Service in February of 2007. I am hoping to defend my thesis in the summer of 2007. I am also one of the 5 researchers associated with Dr. Lindgren that has had a child in the last two years, which has made my thesis particularly exciting!

**Marnie Graf, MSc candidate**

Through my MSc research, I am trying to determine how the quality of brood trees affects the fitness of emerging mountain pine beetles. I am also interested in fitness differences between all emerging MPBs and those that respond to aggregation pheromones. My



Robert Higgins



**Lisa M. Poirier, Assistant Professor,  
Ecosystem Science and Management  
Program**

Insects and their behaviour have fascinated me since earliest childhood. I majored in Ecology at the University of Guelph, then spent some time as a private contractor near my home in north-eastern Ontario. At the suggestion of a family friend, I crossed the country and completed a Master of Pest Management at Simon Fraser University, Burnaby, B.C.. My supervisor, Dr. John H. Borden, convinced me

to stay to do a PhD, which I completed in 1996. I spent five years managing natural history collections for the Forest Science Department at the University of British Columbia. In 2001, I accepted my current position at UNBC, with a strong emphasis on undergraduate teaching.

I have broad interests in insect ecology and management. My primary interest is the behavioural ecology of lepidopteran defoliators, but my recent work has examined the distribution of mosquito species in northern British Columbia

**Territorial Claims (J.D. Gregson)**

Said a cricket to an ice-bug as they sat on Mt. Paul's slide,  
 "Don't you love my rocky talus - it's the topmost of my pride".  
 "But yours it's not", the ancient bug reprovingly replied,  
 "Three hundred million years I've lived, and you have just arrived."

Said an eagle to a ground-squirrel as it soared o'er peaks sublime,  
 "Be careful how you dig the earth and spoil this land of mine."  
 But the rodent queried rightly, as the best he could define -  
 "You birds were not around at all when mammals had their time."

The moral of this issue is, as far as I can see,  
 This land belongs to none of us, not even you and me!  
 We're all just lucky tenants on an earth that came to be.

Signed: Grylloblatta, the Ice-bug

Submitted by Reuben Kaufman. Reprinted from Jongejan, F. & Kaufman, W. Reuben (Eds) Ticks and Tick-Borne Pathogens, Kluwer Academic, Dordrecht/Boston/London 2003.

*[Editor's note: Jack Gregson was a tireless environmental advocate. He wrote 'Territorial Claims' in response to a local group's assertion that they had the right to develop a ski village because they "owned" the land. Jack's obituary appeared in the December 2006 issue of the Bulletin.]*

### CPS takes on hosting the *Pest Management Research Reports*

The *Pest Management Research Report* (*PMRR*) is a periodical published to facilitate the rapid exchange of information on Integrated Pest management (IPM) among persons involved in research and advisory services on IPM of plant diseases and insect pests in the agri-food sector of Canada. The *PMRR* is a compilation of research reports by federal and provincial government, and university and industry researchers, and advisory personnel. While in the past the reports were considered to be more pesticide-related, the aim is now broader based. The reports represent all aspects of pest management, including cultivar and management responses, and are available to support the registration of pest control products.

In the coming year the *PMRR* hopes to refine and encourage a broader base of reports on IPM in Canada, in particular a greater number of submissions in the non-pesticide aspects of IPM. We will also be investigating the potential of adding sections of interest to the forestry sector. With the assistance of members of the Entomological Society of Canada and of the Canadian Phytopathological Society (CPS) this publication can become a much more useful resource tool.

The *PMRR* was originally published thru Agriculture and Agri-Food Canada and then the Canadian Agricultural Research Council's Expert Committee on Pest Management. With the recent demise of CARC, and the expert committee structure, the CPS has taken up the publication of the *PMRR*, in conjunction with the Entomological Society of Canada. The *PMRR* will continue to be published annually, in electronic format, with reports in either English or French.

The *Pest Management Research Reports*, since 1991, can be downloaded through a new addition to the publication section of CPS website (<http://www.cps-scp.ca/publications>.

[htm](#)). A link to this web site will soon appear on the web site of the Entomological Society of Canada.

The deadline for submissions to *PMRR* usually is January 31. Although it is too late to submit for the 2007 issue, please consider doing so for the 2008 issue. For further information, please contact the Editor-in-Chief of the *PMRR*, Andrea Labaj at [labaja@agr.gc.ca](mailto:labaja@agr.gc.ca) or the CPS editor for the *PMRR*, Richard Martin at [martinra@agr.gc.ca](mailto:martinra@agr.gc.ca).

Information on the occurrence and severity of plant disease in Canada and on the assessment of losses from diseases will continue to be published thru the CPS in the Canadian Plant Disease Survey, with Robin Morrall as the national coordinator. There is, however, a section in the *PMRR* relating to surveys and outbreaks of insects and mites to fill the historical information gap left by the loss of the *Canadian Agricultural Insect Pest Review*.

Submitted by Richard Martin

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### Congratulations!



The *Bulletin* extends its congratulations to Charles Vincent who received in December, an 'Exceptional Service Award' from the Entomological Society of America for his work on the ESA's Committee on International Affairs.



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

## Insects: Microscale Subjects for Megascale Research

Delta Bessborough Hotel

29 September – 3 October 2007, Saskatoon, Saskatchewan

We hereby invite you to attend the Joint Meeting of the Entomological Societies of Canada and Saskatchewan, to be held at the Delta Bessborough Hotel in Saskatoon on 29 September - 3 October, 2007. The theme of this year's meeting is Insects: Microscale Subjects for Megascale Research. Our Plenary Session will feature presentations that highlight the use of insect models for the study of neurobiology and the development of nanotechnology, as well as the use of the Canadian Light Source (CLS Synchrotron) as a research tool in insect biology. One of the planned symposia deals with Insect – Microbe Interactions from obligate mutualism to pathogenic relationships. Another focuses on Basic and Applied Aspects of Insect Neuroethology, including nanotechnology and robotics. Further information on the Graduate Students' Symposium can be found on pages 15-16 in this issue of the *Bulletin*.

The meeting will also feature an excursion to Waneskewin Heritage Park, where First Nations peoples have gathered for over 6,000 years. The tranquil setting on the banks of the South Saskatchewan River may allow visitors a chance to view arthropod fauna as they prepare for the prairie winter.

Visit the Entomological Society of Saskatchewan's website at <http://www.sfn.saskatoon.sk.ca/science/ess/ESS.html> for more information and to register for the meeting electronically. If you have any questions or suggestions, please contact the Chair of the Organizing Committee, Dwayne Hegedus, at [hegedusd@agr.gc.ca](mailto:hegedusd@agr.gc.ca), or Scientific Program Co-Chairs Cedric Gillott at [cedric.gillott@usask.ca](mailto:cedric.gillott@usask.ca) or Martin Erlandson, at [erlandsonm@agr.gc.ca](mailto:erlandsonm@agr.gc.ca). See you in Saskatoon in September.



REGISTRATION FORM

Note: On line secure-site registration can be made after 1 March 2007 at [www.sfn.saskatoon.sk.ca/science/ess/ESS.html](http://www.sfn.saskatoon.sk.ca/science/ess/ESS.html) OR fill out the following form and mail.

Please fill out a separate registration form for each registrant, even if paying for several. Accompanying persons need not fill out an additional form.

Name:.....
Last First Initial

Title and Affiliation:.....

Address:.....

City:..... Province/State:.....

Postal Code..... E-mail:.....

Telephone..... FAX.....

Table with 4 columns: Member Type, Before August 25, After August 25, Amount. Rows include Regular member, Non-member, Student members, etc.

Name of accompanying person.....

Cancellation policy: before 25 August – full refund; before 15 September – 40% refund, on or after 15 September, no refund (you may as well attend)

Please indicate if banquet preference is a vegetarian dish [ ]

Accommodation: Rooms at \$129/night have been reserved for participants at the Hotel Bessborough. To obtain this reduced rate indicate that you are attending "ESC" when making reservations. This rate will end 27 August. Any groups requiring additional meeting rooms should contact the conference organizers.

Hotel reservations are available through:

Delta Bessborough Hotel
601 Spadina Crescent East
Saskatoon, SK
Tel: 1-800-268-1133 / (306) 244-5521
FAX (306) 665-9769
www.deltahotels.com/hotels/hotels.hp?hotelId=8

If registering by mail, return this form and a cheque made out to ESC Meeting 2007 to:

Julie Soroka – ESC JAM 2007
Agriculture and Agri-Food Canada
107 Science Place
Saskatoon, SK S7N 0X2
Email: sorokaj@agr.gc.ca
Tel: 306-956-7294, FAX: 306-956-7247

## CALL FOR SUBMITTED PAPERS AND POSTERS

### DEADLINE FOR SUBMISSION: June 29, 2007

**Categories of presentation:** Oral presentation - Regular or President's Prize\*  
Poster presentation - Regular or President's Prize\*

Presentations (including the Abstract) may be given in either official language.

\* President's Prize Eligibility Criteria: Candidate is

- currently enrolled in a degree program or has graduated from a degree program since the last annual meeting
- registered at the meeting and has designated the President's Prize category at the time of abstract submission
- the principal researcher of the paper or poster

**Abstracts** (not more than 70 words) should be submitted by e-mail to [cedric.gillott@usask.ca](mailto:cedric.gillott@usask.ca) in Rich Text Format (rtf). Abstracts should include the following information, as per the example: 1) authors' names, with name of presenter in **bold** font, 2) authors' addresses and affiliation, 3) presentation title, 4) presentation category and language of presentation 5) summary text

**Tara D. Gariepy**<sup>1,2,3</sup>, Ulrich Kuhlmann<sup>2</sup>, Cedric Gillott<sup>3</sup>, Martin Erlandson<sup>1</sup>

<sup>1</sup>Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK Canada, S7N 0X2; <sup>2</sup>CABI Bioscience Switzerland, Rue des Grillons 1, CH-2800 Delémont, Switzerland; <sup>3</sup>Department of Biology, University of Saskatchewan, 112 Science Place, Saskatoon, SK Canada, S7N 5E2.

**A Molecular Approach to Evaluating the Ecological Host Range of European *Peristenus* spp. (Hymenoptera: Braconidae), Parasitoids of *Lygus* spp. (Hemiptera: Miridae)**

(Oral, President's Prize - English Presentation)

Molecular methods for detecting and identifying parasitoids within their hosts may expedite ecological studies prior to introducing exotic biological control agents. To determine the utility of molecular diagnostics in non-target risk assessment of European parasitoids of *Lygus* (Hemiptera: Miridae), a multiplex PCR assay for *Peristenus* (Hymenoptera: Braconidae) was applied to field-collected target and non-target mirids. Parasitism levels and parasitoid species composition based on rearing, dissection, and molecular analysis were compared.

**Oral presentations** (regular and President's prize) will be 12 minutes plus 3 minutes for questions and discussion. Presentations in PowerPoint only, using common Windows fonts for text and symbols and with limited use of animation. Facilities for loading oral presentations from USB storage devices or CD-R formats will be provided at designated times during the meeting.

**Poster presentations** should be sized to fit a 1.2 (h) x 1.0 (w) metre format.

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

## Les insectes : Petits sujets pour de grandes recherches

Hôtel Delta Bessborough

29 septembre – 3 octobre 2007, Saskatoon, Saskatchewan

**V**ous êtes invités à participer à la réunion annuelle conjointe des Sociétés d'Entomologie du Canada et de la Saskatchewan, qui se tiendra à l'Hôtel Delta Bessborough à Saskatoon, du 29 septembre au 3 octobre 2007. Le thème de la réunion de cette année est : « Les insectes : Petits sujets pour de grandes recherches ». La session plénière met l'accent sur l'utilisation des insectes en tant que modèles pour les études de neurobiologie et le développement des nanotechnologies, ainsi que sur l'utilisation du Synchrotron (Centre Canadien du Rayonnement Synchrotron) pour étudier la biologie des insectes. L'un des symposiums traitera de l'évolution des interactions « microbes – insectes », des mutualistes obligatoires aux relations hôtes-pathogènes. Un autre symposium se penchera sur la neurobiologie et la biomécanique des insectes et leurs applications au développement des nanotechnologies et de la robotique. Des informations complémentaires sur le symposium des étudiants sont disponibles à la pages 15-16 dans ce bulletin.

Une excursion au Parc de Wanuskewin est également prévue lors de la conférence. Le parc est un site archéologique, où se trouvent des vestiges et traces des passages des Premières Nations qui ont utilisé ces terrains depuis plus de 6000 ans. Le parc est situé sur la rive sud de la rivière Saskatchewan, et les chemins d'excursion offrent aux visiteurs la possibilité d'observer les arthropodes en préparation pour leur hivernage.

Pour vous inscrire par Internet ou pour obtenir plus d'informations sur la réunion, veuillez consulter le site de la Société Entomologique de la Saskatchewan : <http://www.sfn.saskatoon.sk.ca/science/ess/ESS.html>. Si vous avez des questions ou suggestions, veuillez contacter le président du comité d'organisation, Dwayne Hegedus à [hegedusd@agr.gc.ca](mailto:hegedusd@agr.gc.ca), ou les organisateurs du programme scientifique Cedric Gillott à [cedric.gillott@usask.ca](mailto:cedric.gillott@usask.ca) ou Martin Erlandson à [erlandsonm@agr.gc.ca](mailto:erlandsonm@agr.gc.ca). Rendez-vous à Saskatoon en septembre 2007.









**Entomology.** Gangwere, S.K., 2005, First Page Publications, Livonia, MI, USA. 353 pp. (Soft cover). US24.95\$

This book is made up of 19 chapters, including an Introduction and the final two chapters on Nomenclature, and Taxonomy and Classification. The author states that he largely ignores insect classification and control except where they bear on comprehension of principles. Fair enough. That is a somewhat novel approach but a refreshing one too, especially to those of us who are not systematists.

The author has done a commendable job in covering his subject. The writing is concise and clear and the text is generally well organized. Most chapters cover morphological and physiological systems and for the most part, this is a good plan. Chapter 1 is introductory, dealing with the nature and importance of insects, and Chapter 2 covers their external body structure. Both chapters are nicely put together. Chapters 3 through 10 deal with internal structure and physiology and generally read quite well. I was a bit disappointed in the sketchy treatment the author gives to the nervous system and the endocrine system but it must be remembered that this is a book that has an objective to summarize "material salient to beginning aspect of the subject". It does that quite well. I am disappointed that there is no discussion of insect pathology in spite of the fact that this area of study is of increasing importance.

Many of the figures throughout the text simply do not show what they purport to show. For example: fig. 1-2, part of 1-8, 7-5 (what is the point of this figure?), part of 12-2, 12-5, 14-3, part of 14-4, 15-4, 16-3a and part of 17-1 are not very good. Many of these were redrawn from other sources. It would have been better to leave them out entirely. By contrast, the figures through Chapters 4, 5, and 6 are quite well done and show the reader what the author wants the reader to see.

I have one more scab to pick and that is

the invention (?) and use of compound words where they are quite unnecessary. Two chapter headings stand out: Chapter 3: Skeletointegumentary System and, especially, Chapter 7: Digestivoexcretory System. I suppose I could bite my tongue and accept 'skeletointegumentary' (although two words would be better) but 'digestivoexcretory' is a terrible word and should not be used.

The author states that he produced this book as an introduction to entomology for biological science students. I think he has done that and the book deserves a place on library shelves everywhere. Because of the recent bankruptcy of the publisher, copies are obtainable either from [advantage@Amazon.com](mailto:advantage@Amazon.com) or from P.O. Box 2273, Ann Arbor, MI 48106, USA, but not from the publisher.

Al B. Ewen  
Box 185, Osler, Sask.  
Canada S0K 3A0

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### Books available for review:

H. Takahashi and M. Ohara. 2006. Biodiversity and Biogeography of the Kuril Islands and Sakhalin, Volume 2. Bulletin of the Hokkaido University Museum, Japan. 174 pp. (Includes information on millipedes and Coleoptera in Hydrophilidae and Staphylininae, a checklist of Heteroptera and vascular plants studies).

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

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

# THE ADVENTURES OF ENTO-MAN (EPISODE VIII)

TEXT: ANDREW BENNETT

ART: GAËTAN MOREAU

Fruit Fly Entomologist wanted? Polymerase chain reaction? *Schistocerca*! I must stop this heresy!

After a brief metamorphosis, Ento-Man makes his way through the dilapidated factories and tenements of Old Dipteraville...

Cyclorrhapha Crescent

Hmmm... I smell the sickly odour of fermenting fruit fly media...

Must be careful... This is likely nothing more than a cunningly baited pitfall trap...

66

Broken microscopes! Burnt entomology texts! Who would do such a thing?

Join Ento-Man next time when he comes supraclypeal area to supraclypeal area with his arch-nemesis Dr. melanogaster!

### John Lawrence Carr 1922-2006



John L. Carr of Calgary passed away peacefully on Monday, 4 September 2006 after a lengthy illness at the age of 84 years. John was born in Edmonton, Alberta, grew up in Medicine Hat and migrated to Calgary after receiving his Master of Science in Geology from the University of Alberta in Edmonton. His early geological career took him from gold mines in Quebec to the Canol Project in Northern Canada to explorations and surveys of the Rocky Mountains on horseback. He parlayed his exploratory expertise into a successful career in the oil industry, from the beginnings of Home Oil through to the days of Dome Petroleum.

His alter ego thrived in a different facet of the natural world - the pursuit of beetles throughout North America. Continuing the work of his father (Frederick S. Carr), this began as a hobby but grew into a vocation after retiring from the oil patch. He was sought after by professional, amateur and student en-

tomologists for his insights and knowledge in the field. When no longer able to do the field or office work required to further his collection, it was donated to the Canadian National Collections of Insects, Arachnids and Nematodes in Ottawa, Ontario.

Fundamental to his philosophy of life was a desire to see an interest in science and nature carried through to the next generation. To further this desire the family requests that memorial tributes be made directly to the Canacoll Foundation (K.W. Neatby Building, 960 Carling Avenue, Ottawa, ON, K1A 0C6) or a nature, science, or education based charity of the donor's choice. John is survived by Bert (nee Batty), his loving wife of fifty-seven years; two sons and daughters-in-law, Richard and Bonnie, and Doug and Margo (Glover), and four grandchildren. He was predeceased by his sister Mary Carr of Medicine Hat, AB. He has left a legacy of entomological knowledge based on the collecting and taxonomy of several hundred thousand beetles and many people either laughing or groaning over his puns.

#### The Carr Family

*Editor's note: John and Bert were awarded the Norman Criddle Award in 1990 by the Entomological Society of Canada and the Frederick S. Carr Award in 2002 by the Entomological Society of Alberta for their contributions to the entomological community. John's memoirs can be read on the internet at <http://www.carr-glover.com/Personal/TheCarrs/Introduction.shtml>*

## Frederick Lewis Watters 1917-2006



**F**red Watters died on 21 November 2006 in Vancouver, B.C. He was preceded by his wife Dorothy in 1997 and is survived by three children, Dorothy Ann, Robert, and Tim, four grandchildren, and a sister in Oakville Ontario.

Fred was born in 1917 in Lethbridge, Alberta and educated at St. John's Ravenscourt School in Winnipeg. He joined the RCAF in World War II serving in England, Scotland, Africa and Europe. Upon his return he enrolled at the University of Manitoba where he received a BSc in 1947, MSc in 1949, and PhD in 1964.

He started working in entomology in 1946 as a student assistant in the Stored Product Insect Laboratory, Canada Department of Agriculture, Winnipeg, headed by B.N. Smallman. After Smallman was transferred to London, Ontario in 1951 Fred became Officer-in-Charge. In 1966 he was appointed Section Head of the Entomology section at the Canada Agriculture Research Station, Winnipeg and served in that capacity until 1982 except for two years (1969-1971) when he was as a consultant to FAO, United Nations, in Rome. Fred pioneered research in control of insects in flourmills, the use of high frequency radio waves and gamma radiation, application of

spot fumigants, and the toxicity and persistence of insecticides. His biological studies included effects of temperature on insecticide activity, and of environmental factors on populations of the hairy spider beetle and the larger grain borer. He initiated research on the use of organo-phosphate insecticides to control malathion-resistant red flour beetles. Most of his career was devoted to improving food storage in developing countries.

Fred was one of the earliest members of the Entomological Society of Manitoba and served as President in 1955 and 1956. He was a lifetime Honorary Professor of the University of Manitoba, Adjunct Professor of Simon Fraser University, and Visiting Professor of the University of Mexico. He published more than 100 articles in scientific and grain industry journals in Canada, United States, and Europe. He was a member of the Royal Entomological Society, Entomological Society of America, Entomological Society of Canada, and Agricultural Institute of Canada.

He spent most of his working life in Winnipeg before moving to Victoria in 1985. While a resident of Winnipeg he and his family enjoyed camping at Rushing River, travelling by car to the West Coast, and enjoying reunions of the Radar group with fellow R.C.A.F. veterans. At summer gatherings and office parties held jointly with Plant Protection staff in the Dominion Public building Fred would play the violin, along with fellow virtuosos Sam Loschiavo on the piano accordion and Ben Berck on the banjo accompanied by enthusiastic voices in sing-a-longs. They were not candidates for Carnegie Hall, but they had a lot of fun. Above all, Fred had a great love of family. He was devoted to his wife Dorothy and instilled in his children a love of life and learning. Even in his declining years Fred displayed great courage and a buoyant spirit, which was a source of inspiration to his family and friends.

Sam Loschiavo  
Winnipeg, Manitoba



# Biological Survey of Canada: Terrestrial Arthropods

## Survey Report

The Scientific Committee met in Montréal, QC, on November 22, 2006. Because of budget restrictions this was an abbreviated meeting and some members were not able to attend, and the range of topics discussed was curtailed. A more detailed account of the meeting appears in the Newsletter of the Biological Survey of Canada (Terrestrial Arthropods) 26(1), 2007, which is also on the BSC web site at <http://www.biology.ualberta.ca/bsc/english/newsletters.htm>

## Scientific Projects

### 1. Grasslands

All chapters have been submitted for the first grasslands volume on ecology and interactions in grassland habitats.

### 2 Canadian Journal of Arthropod Identification

The [\*Canadian Journal of Arthropod Identification\* \(CJAI\)](#) was formally launched on June 28, 2006 with the publication of papers on the “Mecoptera of Ontario” and “Keys to the Families and Genera of Blood and Tissue Feeding Mites Associated with Albertan Birds”. Several other papers have either been submitted or are in advanced stages.

### 3. Terrestrial arthropods of Newfoundland and Labrador

Work continues on a number of keys including the key to the Curculionioidea which should soon be submitted to the *CJAI*. Checklists are also being compiled. There is a large amount of activity in extracting species records from the literature which will contribute to the species database and to the bibliographic database. The 2006 Bio-Blitz 2006 in Gros Morne National Park provided a lot of new material from interesting habitats, including two new mosquito records for the island.

### 4. Forest arthropods

The BSC continues to maintain and update a list on its web site of forest arthropod biodiversity projects in Canada and adjacent parts of the United States. Volume 3 of the *Arthropods of Canadian Forests* newsletter will be published electronically in the spring. The papers from the JAM-2005 symposium, “Maintaining Arthropods in Northern Forest Ecosystems,” will be published in *The Canadian Entomologist*. Work on the Cerambycidae of Canada and Alaska project continues.

### 5. Insects of the arctic

Collecting was done by a graduate student in the western Cordillera including Alaska and the Yukon in the summer of 2006. A proposal to undertake a systematic revisitation of historical arctic insect survey sites (see Graduate Student Proposal below) could provide an opportunity to encourage collaborative work. Finding alternate sources of funding might make this costly northern work more feasible.

### 6. Seasonal adaptations

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

### 7. Invasions and reductions

A well attended 1-day symposium on Ecological Impacts of Non-Native Insects and Fungi on Terrestrial Ecosystems was held on November 18 at the Joint Annual Meeting in Montreal. Papers from the symposium will be published in a special issue of *Biological Invasions*.

A list (with associated data) of all non-native terrestrial arthropods has been developed. A selected bibliography is also being compiled. An analysis of these data will be published and the data about arthropods on trees will be incorporated into a CFS/CFIA IAS web site currently under development. Another related activity is the capture of label data associated with archived specimens of non-native ar-

thropod fauna and fungal flora on trees. These data will be used to develop distribution maps and for analysis of rates and patterns of range expansion.

### Other scientific priorities

#### 1. Bio-Blitzes

The 2005 Bio-Blitz 2005 in Waterton Lakes National Park continues to yield new data as participants complete identifications. The 2006 BSC Bio-Blitz took place in Gros Morne National Park, NL, from 5-10 July and was a success in terms of specimen collection, creating public awareness, and forging new partnerships that bodes well for future arthropod biodiversity work on the island. Bio-Blitz 2007 is planned for Riding Mountain National Park, Manitoba.

A proposal to organize a Collection Blitz was discussed whereby a group effort would be organized to work on a particular collection.

#### 2. Survey web site

An updated web site was launched in the first week of June 2006. A summary of the changes was published in the 2006 Fall issue of the Newsletter of the Biological Survey of Canada (Terrestrial Arthropods).

#### 3. Faunal analysis

Steps needed to revitalize this project were discussed. A new subcommittee has been struck.

#### 4. Arthropods and fire

The Journal of Insect Conservation has tentatively agreed to publish the papers from the BSC symposium on arthropods and fire held last year.

#### 5. Arthropods of the Gulf of St. Lawrence Islands

Some collecting occurred during the summer of 2006 in this fledgling project.

#### 6. Databasing

The BSC database of collecting localities should be soon ready for posting on BSC web site. Some other initiatives were discussed such as a large CFI proposal that will fund databasing at several university entomological and botanical collections across Canada and the Nearctic Spider Database of The Canadian Arachnologist.

#### 7. Biodiversity sampling brief

The proposal to revise and expand the Survey's 1994 biodiversity brief on planning a study and recommended sampling techniques was put on hold but may be revived.

### Liaison and exchange of information

Due to the location and abbreviated nature of this meeting most representatives from other agencies were not able to attend.

#### 1. Alliance of Natural History Museums of Canada

Mr. Roger Baird, Director Collections Services, Canadian Museum of Nature reported that the Alliance of Natural History Museums of Canada is working on a strategic plan. A collections survey of Alliance institutions has been completed. How the Alliance can grow to be more inclusive is under discussion.

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

Dr. Jean-François Landry reported that the departmental reorganization is largely completed. Dr. Barry Grace, formerly acting Science Director for the Biodiversity Theme of the Environmental Health Program has been officially appointed to that post. Several publications are in process or have been recently published. The primary types of the CNC will soon be databased and made available in an online, searchable database.

### Other business

#### 1. BSC transition

Dr. Hugh Danks advised the CMN of his plans to retire in August 2007. The CMN will not be able to make a decision about the long-term relationship between the CMN and the Biological Survey until the Museum's strategic planning process for 2008-13 concludes in the winter of 2007-08. The Committee discussed options to fill the gap between the time Dr. Danks retires and when this planning is completed.

**2. Graduate student proposal**

A proposal made by the chair of ESC student affairs committee, Mr. Chris Borkent, to

promote graduate student work in northern Canada was considered. Mr. Borkent hoped to build upon the Northern Insect Surveys that were done in the 1950's and 1960's as well as other programs that have catalogued northern species. A subcommittee agreed to develop a proposal for review at the spring meeting of the Scientific Committee.

**3. Other matters**

The Committee also considered briefly issues such as endangered species, the BSC award, and the membership of the Scientific Committee.

**Entomologists at work / Entomologistes au travail**



**W**hen catching a few bucketsful of grasshoppers for a wheat storage study, Noel White and Colin Demianyk of the Cereal Research Centre, Winnipeg, were once seen driving an AAFC van wildly around a few pastures near Elie, MB with sweep nets hanging out the windows. (If you drive fast enough the hoppers cannot jump out of the net.) Neighbouring farmers just stood and watched the strange behaviour – why would someone really need a bucket of grasshoppers?

Noel White

## MINUTES

### 56th Annual General Meeting Holiday Inn Midtown Montreal, QC November 21, 2006

*Editor's note: Items 13 through 16 were omitted from the original posting of the minutes in the December 2006 issue of the Bulletin. The minutes are reposted here in their entirety.*

President D. Quiring called the meeting to order at 1705 h. 45 members were present.

1. **Notice of Meeting.** Notices of the meeting were published in the March and June 2006 issues of the *Bulletin* (Vol. 38).
2. **Proxies.** T. Shore for A. Carroll (ESBC), B. Lyons for D. Hunt (ESO).
3. **Additions to the Agenda and Approval of the Agenda.** P. MacKay moved and D. Giberson seconded that the agenda be accepted. **Carried.**
4. **Deceased Members of the Entomological Community.** R. West thanked Ed Becker who kindly writes letters of condolence to the families of the deceased on behalf of the Society. Ed is the longest serving member of the Society and was in attendance for his 47th consecutive annual meeting of the Society. This distinction was noted by a round of applause. Ed also produces the *Senior Entomologists Newsletter*.  
A moment of silence was observed in memory of the following members of the Entomological Community who passed away during the past year: Mike Spironello, John Carr, Jack Gregson, Bernie Smith, Dick Davis, Isobel Munroe, Doc Davis, Margery Milne, Ron Baird, Bobbie Peterson, Reg Shuel, Ellen MacGillivray, Vera Forster and Albert Turnbull.
5. **Minutes of the 55th Annual General Meeting.** Minutes of the 55th Annual General Meeting were posted on the web site and published in the December 2005 issue of the *Bulletin* (Vol. 37). S. Fitzpatrick moved and D. Giberson seconded that the minutes be accepted. **Carried.**
6. **Business Arising from the Minutes.**  
There was no business arising from the minutes.
7. **Report from the Governing Board.** President D. Quiring presented a report on behalf of the Governing Board and gave an update on progress during the past year. The report from the Governing Board and regular updates are published in the *Bulletin*. This particular report will be published in the December, 2006 *Bulletin* (Vol. 38).
- 7.1 **Change to Standing Rule VI 3 (b).** K. MacKenzie moved and T. Shore seconded that Standing Rule VI 3(b) be amended to read,  
“The Treasurer shall have custody of the Society’s funds, report on the finances of the Society when required, submit an interim financial statement to the Annual Meeting, submit a budget to the first Board Meeting, and submit an audited financial statement at the end of each fiscal year to the membership by posting it in the members’ area of the Society’s website.” **Carried. Action: R. West, V. Martel.**

- 8. Auditor's Report.** P. Bouchard presented the Auditor's Report for 2005. The report was posted on the web site in July 2006 and summarized in the September 2006 issue of the *Bulletin*. P. Bouchard moved and D. Gillespie seconded that the Auditor's report be accepted. **Carried. No action required.**
- 9. Elections Committee Report.** R. West read the Elections Committee report. Those elected were: Paul Fields, Second Vice-President; and Chris Buddle, Director-at-Large.
- 10. Installation of Officers.** President Quiring called on R. Lamb to escort P. Fields, Second Vice-President, to the dais then congratulated P. Dixon as incoming President of the Entomological Society of Canada. The new President assumed office and thanked the Members for the honour of being elected President.
- 11. Presentation of Service Awards.** President Dixon thanked D. Quiring (outgoing President), P. Fields (outgoing *Bulleting* Editor) and R. Ring (outgoing Editor-in-Chief), and Alexandra Devine (Office Manager) for their service to the Society and presented them with a service awards. All received loud rounds of applause.
- 12. Appointment of Auditor.** P. Bouchard moved and D. Giberson seconded that McCay, Duff, and Company be retained as Auditors for 2006. **Carried. Action: P. Bouchard.**
- 13. A Motion and Resolution on behalf of the Entomological Society of Canada.**
- 13.1 Motion in support of the Biological Survey of Canada.** R. Lamb moved and D. Giberson seconded that the Entomological Society of Canada affirms its support for the Biological Survey of Canada: Terrestrial Arthropods and acknowledges the importance of BSC's contribution to the study and documentation of arthropod biodiversity in Canada. The Society also recognizes and endorses the ongoing importance of the Head of the Secretariat to the BSC, and the importance of an ongoing interaction between the Canadian Museum of Nature and the Society in facilitating the activities of the BSC. **Carried.**
- 13.2 Resolution.** At the request of the President, H. Danks presented the following resolution on behalf of the Entomological Society of Canada:
- Thanks to Organizing Committee:
- Whereas the Entomological Society of Canada has met jointly with the Entomological Society of Quebec at the Holiday Inn Midtown, Montreal, QC, November 18-22, 2006; and Whereas there has been a full and interesting meeting of lectures, symposia, posters and papers; and
- Whereas the meeting has been planned with care and concern for those attending; and Whereas there has been ample opportunity for social interaction and visits to Montreal and surrounding areas;
- Be it resolved that the Entomological Society of Canada express its sincere thanks to the Organizing Committee for their hard work and skill in arranging a worthwhile and entertaining program; and
- Be it further resolved that the Society thank the Organizing Committee and meeting contributors for their generous assistance; and
- Be it further resolved that the Society express its thanks to the Management and Staff of the



Holiday Inn Midtown for their courteous assistance during the Meeting.”

The resolution was accepted with a round of applause. **Action: R. West**

**14. New Business**

**14.1. 2012 International Congress of Entomology.** D. Quiring moved and Neil Holliday seconded that the Entomological Society of Canada support the American bid to host the 2012 International Congress of Entomology in 2012. **Carried. Action: D. Quiring.**

**15. Notice of 57th Annual General Meeting.** The 57th Annual General Meeting will be held October 2, 2007 with the Entomological Society of Saskatchewan at the Delta Bessborough, Saskatoon. Further notices for the meeting will be published in the March and June 2007 issues of the *Bulletin* (Vol. 39) and on the ESC web site.

**16. Adjournment.** President Dixon adjourned the 56th Annual General Meeting at 17:30h following a motion by P. Dixon seconded by C. Borkent.



Prey, parasitoids and predators. A sphingid caterpillar with attached braconid cocoons is attacked by ants.

## Annual Photo Contest Seeking a Few Good Photos!

The Third Annual Photo Contest to select images for the 2008 covers of *The Canadian Entomologist* and the *Bulletin of the Entomological Society of Canada* is underway. The cover images are intended to represent the breath of entomology covered by the Society's publications. Insects and non-insects in forestry, urban or agriculture; landscapes, field, laboratory or close-ups; or activities associated with physiology, behaviour, taxonomy or IPM are all desirable. A couple 'Featured Insects' (for the spine and under the title) are also needed. If selected, your photo will grace the cover of both publications for the entire year.

Contest rules are as follows:

1. Photos can be submitted as an electronic file (preferred), a slide or a 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. A brief description (i.e. caption) should be provided with each photo submitted.
3. Photos must be taken by the entrant, or the entrant must own the copyright.
4. The copyright of the photo remains with the entrant, but use must be granted to the Entomological Society of Canada for inclusion on the cover of one volume (i.e. 6 issues) of *The Canadian Entomologist* and one volume (i.e. 4 issues) of the *Bulletin of the Entomological Society of Canada*.
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 of ESC.
7. Photos are not 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.
8. A selection of the entries will be exhibited and the winners announced at the 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 July 31, 2007 to:

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

## Concours annuel de photographie À la recherche de quelques bons clichés!

La troisième édition du concours annuel de photographie visant à sélectionner des images pour les couvertures du *The Canadian Entomologist* et du *Bulletin de la Société d'Entomologie du Canada* de 2008 est présentement en cours. Les images des couvertures doivent représenter l'étendue de l'entomologie couverte par les publications de la Société. Des photos représentant des insectes et non-insectes forestiers, urbains ou agricoles, des paysages, du travail de terrain ou de laboratoire, des gros plans, ainsi que des activités associées à la physiologie, au comportement, à la taxonomie ou à la lutte intégrée seraient souhaitées. Nous avons également besoins de quelques «Insectes vedettes» (pour le dos et sous le titre). Si vos photographies sont sélectionnées, elles seront utilisées pour la couverture des deux publications pour l'année entière.

Les règlements du concours sont les suivants :

1. Les photos peuvent être soumises sous forme de fichiers électroniques (de préférence), de diapositives ou imprimées (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. Une brève description doit être fournie avec chaque photographie soumise.
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 appartiennent au concurrent, mais l'utilisation doit être accordée à la Société d'Entomologie du Canada pour son utilisation sur la couverture d'un volume (i.e., 6 numéros) dans *The Canadian Entomologist* et un volume (i.e., 4 numéros) dans le *Bulletin de la Société d'Entomologie du Canada*.
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 de la SEC.
7. Les photos n'ont pas à être restreintes 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.
8. Une sélection des candidats sera exposée et les gagnants seront annoncés à la réunion 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 31 juillet 2007 à :

Kenna MacKenzie  
Présidente, Comité des publications de la SEC  
Agriculture and Agri-Food Canada  
32 Main St.  
Kentville, Nouvelle-Écosse, B4N 1J5 Canada  
Tél.: (902) 679-5731  
Photocopieur: (902) 679-2311  
Courriel: [mackenziek@agr.gc.ca](mailto:mackenziek@agr.gc.ca)

## ADDENDUM FOR INDEX TO BIOGRAPHY OF ENTOMOLOGISTS IN CANADIAN PUBLICATIONS, 2001-2005

## ADDENDUM AU INDEX DES BIOGRAPHIES DES ENTOMOLOGIS- TES DANS LES PUBLICATIONS CANADIENNES, 2001-2005

by/par Cedric Gillott & Jean-Pierre Bourassa

The Index (*Bull. Ent. Soc. Can.* 35(1):17-48, March, 2003) was several years in the making. For its authors (D.C. Eidt, P.W. Riegert, and E.C. Becker) it was a true 'labour of love', as all these individuals had a long-standing, deep interest in the biographies of their fellow entomologists. Eidt et al. found 16 Canadian publications that contained biographical information. These included journals and newsletters issued by the national and regional entomological societies, as well as the federal Division of Entomology's Newsletter. Included separately in the Index was biographical information on entomologists abstracted from *Tableau*, a newsletter published by the Research Branch of Canada Agriculture, October 1970 to March 1987. The authors also examined *Quaestiones Entomologicae*, *Memoirs of the Entomological Society of Canada*, and *Mémoires de la Société d'entomologie du Québec*, but found these had no biographical references.

The Index covered the period from 1869, when *The Canadian Entomologist* and the *Proceedings of the Entomological Society of Ontario* began publication, to the end of 2000. Not surprisingly, as Eidt et al. noted, no library had all the periodicals searched or even complete sets of a single publication. Thus, Eidt et al. relied heavily on, and were most grateful to, librarians and other individuals who supplied photocopies, loaned documents, or even did searches.

A major change has occurred in recent years in terms of information accessibility; that is, almost all the Canadian periodicals searched for entomological biographies are now also available on the internet. This has greatly simplified the task of preparing this first addendum to the Index. Very rarely, biographical information has been found only on a society's web page and does not appear in printed form.

La préparation de l'Index (*Bull. Ent. Soc. Can.* 35(1) : 17-48, mars 2003) fut un travail s'étendant sur plusieurs années. Pour ses auteurs (D.C. Eidt, P.W. Riegert et E.C. Becker), c'est le résultat d'une véritable passion liée à leur intérêt manifeste pour les biographies de leurs collègues entomologistes. Eidt et al. ont répertorié 16 publications canadiennes renfermant des informations biographiques. Ces publications comprenaient aussi bien des journaux que des bulletins provenant de sociétés d'entomologie nationales et régionales, tel le Bulletin de la Division fédérale d'entomologie. Aussi, l'Index retient des informations biographiques tirées de *Tableau*, un bulletin publié par la Division de la recherche d'Agriculture Canada, paru d'octobre 1970 à mars 1987. De plus, les auteurs ont consulté les revues *Quaestiones Entomologicae*, *Memoirs of the Entomological Society of Canada* et les *Mémoires de la Société d'entomologie du Québec*, sans toutefois relever des informations biographiques.

L'Index couvrait la période allant de 1869, alors que *The Canadian Entomologist* et les *Proceedings of the Entomological Society of Ontario* débutèrent leur édition, jusqu'à la fin de 2000. Eidt et al. notèrent, sans surprise, qu'aucune bibliothèque ne possédait tous les périodiques recherchés ou même la collection complète de l'un d'eux. Ainsi, Eidt et al. comptaient beaucoup sur les bibliothécaires et autres personnes qui pouvaient leur fournir des photocopies, prêter

des livres et qui faisaient même des recherches pour eux; ils étaient très reconnaissants envers ces collaborateurs.

Récemment, un changement majeur survint dans l'accessibilité de l'information; la plupart des revues et périodiques canadiens consultés dans la recherche de biographies d'entomologistes sont maintenant disponibles sur Internet. La préparation de ce premier Addendum à l'Index fut grandement facilitée. Mais, très rarement, les informations ont été trouvées uniquement à partir de pages électroniques d'une société ou étaient disponibles sur papier.

### Sources, with abbreviations used / Sources, avec les abréviations utilisées<sup>1</sup>:

**Abe** - Entomological Society of Alberta web site ([www.biology.ualberta.ca/courses.hp/esa](http://www.biology.ualberta.ca/courses.hp/esa))

**Ac** - *Proceedings of the Acadian Entomological Society* (also available on-line at/aussi disponible au site Web [www.acadianes.org/proc.html](http://www.acadianes.org/proc.html))

**Ace** - Acadian Entomological Society web site ([www.acadianes.org/news](http://www.acadianes.org/news))

**An** - *Antennae* (also available on line at/aussi disponible au site Web [www.seq.qc.ca/antennae/archives](http://www.seq.qc.ca/antennae/archives))

**Bo** - *Boreus* (also available on-line at/aussi disponible au site Web <http://esbc.harbour.com/publ.html#Boreus>)

**Bu** - *Bulletin of the Entomological Society of Canada* (also available on line at/aussi disponible au site Web <http://esc-sec.org/Bulletin>)

**Mn** - *Newsletter of the Entomological Society of Manitoba* (also available on line at/aussi disponible au site Web <http://home.cc.umanitoba.ca/~fieldspg/news.html>)

**On** - *Newsletter of the Entomological Society of Ontario* (also available on line at/aussi disponible au site Web [www.entsocont.com/newsletters.htm](http://www.entsocont.com/newsletters.htm))

**Sn** - *Newsletter of the Entomological Society of Saskatchewan*<sup>2</sup> (also available on line at/aussi disponible au site Web <http://www.sfn.saskatoon.sk.ca/science/ess/ESS.html>)

Other sources cited in the Index but not included here have ceased publication.

Autres sources citées dans l'Index, mais non retenues ici puisque leur publication a cessé.

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<sup>1</sup> The following publications, used in preparation of the Index, contain no biographic information for the period 2001-2005: *Journal of the Entomological Society of British Columbia*; *Proceedings of the Entomological Society of Alberta*; *Proceedings of the Entomological Society of Manitoba*; *Proceedings of the Entomological Society of Ontario* (became the *Journal of the Entomological Society of Ontario* in 2002); *Proceedings of the Entomological Society of Saskatchewan*; *The Canadian Entomologist*

<sup>1</sup> Les publications suivantes, utilisées dans la préparation de l'Index, ne contiennent pas d'informations biographiques pour la période 2001-2005: *Journal of the Entomological Society of British Columbia*; *Proceedings of the Entomological Society of Alberta*; *Proceedings of the Entomological Society of Manitoba*; *Proceedings of the Entomological Society of Ontario* (devenu le *Journal of the Entomological Society of Ontario* en 2002); *Proceedings of the Entomological Society of Saskatchewan*; *The Canadian Entomologist*

<sup>2</sup> Cited as the *Bulletin of the Entomological Society of Saskatchewan* in the Index.

<sup>2</sup> Cité comme *Bulletin of the Entomological Society of Saskatchewan* dans l'Index.



- A  
 Andreassen, L. **Mn** 32(1):4  
 Angus, T.A. **Bu** 37(4):214  
 Anweiler, G.G. **Bu** 37(4):203  
 Arnason, J.T. **Bu** 35(4):207  
 Arthur, A.P. **Bu** 37(2):104; **Sn** 26(2):2
- B  
 Bahlai, C. **On** 10(1):5  
 Bahreine, R. **Mn** 31(3):10  
 Baker, A.W. **Bo** 21(1):20  
 Baute, T. **On** 7(2):3  
 Becker, E.C. **On** 8(2):8  
 Bennett, A.M.R. **On** 8(2):3  
 Bennett, W. **On** 7(2):3  
 Bouchard, P. **On** 8(2):3  
 Bouchier, R.S. **Bu** 33(4):192  
 Brisson, J.D. **An** 12(3):12  
 Brodo, F. **On** 9(2):3  
 Brown, A.W.A. **Bu** 37(2):105; **On** 10(1):3  
 Buckle, D. **Sn** 26(1):4
- C  
 Cano, K. **Mn** 31(3):10  
 Carmichael, I. **On** 10(1):2  
 Carr, F.S. **Abe/carr.htm**  
 Carr, J. **Abe/honmem.htm**  
 Chiasson, H. **An** 9(3):14  
 Chouinard, G. **An** 8(1):10  
 Copley, C. **Bo** 23(2):19  
 Corbet, P.S. **On** 8(2):9  
 Corrigan, J. **On** 7(2):2  
 Côté, S. **An** 8(3):12  
 Criddle, N. **Ac** 2004:6; **Bu** 37(1):10
- D  
 Danks, H.V. **Bu** 35(4):200  
 Davey, K.G. **Bu** 36(4):174  
 De Oliveira, D. **An** 8(2):12  
 Delisle, J. **An** 9(2):12  
 Derham, S. **Mn** 31(2):10  
 Desai, S. **Mn** 32(2):4  
 Devlin, C.G. **Bu** 36(4):186; **Sn** 25(1):1  
 Dionne, L.A. **Bu** 36(3):126  
 Dixon, P. **Bu** 36(4):176  
 Downe, A.E.R. **Bu** 35(1):59  
 Downes, J.A. **On** 9(1):3  
 Duchesne, R.-M. **An** 10(1):12
- F  
 Fairey, D.T. **Bu** 35(3):148  
 Fallis, A.M. **Bu** 35(4):209  
 Fields, P. **Mn** 29(1):2  
 Fischer, A. **Bo** 21(1):10  
 Fisher, R.W. **Bu** 33(1):37  
 Fitzpatrick, S. **Bu** 37(3):148  
 Floate, K.D. **Bu** 33(1):42  
 Francœur, A. **An** 9(3):21  
 Fraser, H. **On** 6(2):4; **On** 9(2):3  
 Fréchette, M. **An** 12(2):12  
 Fredeen, F.J.H. **Sn** 24(1):1
- G  
 Gariépy, T. **Sn** 24(1):2  
 Gharalari, A.H. **Mn** 32(1):4  
 Giberson, D. **Ace/giberson.html**  
 Gibson, G. **On** 10(1):4  
 Gilkinson, G.L. **Sn** 25(1):1  
 Gill, B.D. **On** 6(2):3  
 Goodfellow, S. **On** 8(2):4  
 Graham, K. **Bo** 23(1):12; 24(1):5; **Bu** 36(3):125  
 Greenbank, D.O. **Bu** 37(2):108  
 Gruszka, J. **Mn** 32(2):6  
 Guppy, C.S. **Bo** 21(1):10  
 Gurba, J. **Abe/honmem.htm**  
 Gushul, E.T. **Abe/honmem.htm**
- H  
 Hallett, R. **On** 6(2):4  
 Hamilton, G.H. **Sn** 26(1):2  
 Harris, C.R. **On** 8(2):8  
 Hegedus, D. **Bu** 37(4):200  
 Helson, B. **On** 10(1):4  
 Hensel, H. **Ac** 2004:5; **Ace/hensel.html**; **Bu** 36(4):181  
 Heron, J. **Bo** 24(2):4  
 Heuppelsheuser, T. **Bo** 21(2):5  
 Higgins, R. **Bo** 21(1):10  
 Holliday, N. **Mn** 30(1):2  
 Huber, J.T. **On** 7(2):2; 9(2):2  
 Hudson, J.E. **Bu** 35(3):144  
 Hunter, F.F. **On** 8(2):2
- J  
 Judd, W.W. **On** 7(2):5

K

Kenner, R. **Bu** 35(4):205; 36(1):24  
Kevan, P.G. **On** 8(2):2; **Bu** 37(4):198  
Kondla, N.G.F. **Bo** 21(1):11  
Kozak, P. **Mn** 32(2):4  
Kullik, S. **On** 9(2):4

L

Lamb, R. **Bu** 34(4):205  
Landry, B. **An** 8(1):12  
Larochelle, C. **Bo** 21(2):6  
Larson, R. **Abe/honmem.htm**  
Lavallee, S. **Bo** 24(2):5  
Laverty, T.M. **On** 9(2):9  
Le Tirant, S. **An** 11(2):14  
Lehr, P.A. **Bo** 25(2):33  
Lilly, C.E. **Bu** 34(1):20

M

MacCarthy, H.R. **Bo** 24(1):3; **Bu** 36(3):124  
Martin, A. **On** 6(2):5  
Mason, P.G. **On** 6(2):4  
Mattila, H. **On** 7(2):4  
Mauffette, Y. **Bu** 36(4):174  
McDonald, H. **Bu** 33(1):35  
McLaine, L.S. **Bu** 33(2):90  
McLeod, B. **Bu** 37(3):172  
McMahon, S. **Mn** 30(2):6  
McNeil, J.N. **Bu** 36(4):174  
Meyers, J.H. **Bu** 36(4):178  
Moreau, G. **Bu** 37(4):211  
Morris, R.F. **Bu** 36(2):84  
Myers, J.H. **Bo** 24(2):11  
N  
Nelson, W.A. **Bu** 35(1):60

O

Ostermann, D.J. **Mn** 31(2):8  
Otvos, I.S. **Bo** 24(2):20; **Bu** 36(4):177

P

Pachagounder, P. **Mn** 32(2):6  
Patenaude, A. **Mn** 32(2):5  
Paul, L.C. **Bu** 37(1):50; **Sn** 26(1):1  
Pengelly, D.H. **Bu** 37(3):170; **On** 9(3):3  
Perry, J. **Bo** 21(2):6  
Peters, E. **Sn** 26(2):2  
Philogène, B.J.R. **Bu** 33(1):39

Pickles, M. **On** 9(2):3  
Pielou, D.P. **Bu** 33(1):35  
Polavarapu, S. **Bu** 37(1):51  
Prebble, M.L. **Bu** 33(2):91  
Proctor, H. **Bu** 35(4):203  
Putnam, L. **Sn** 22(1):2

R

Randell, R.L. **Bu** 36(3):116  
Richards, M. **On** 7(2):3  
Ricker, W.E. **Bo** 21(2):11  
Riegert, P.W. **Bo** 22(1):25; **Sn** 23(1):1  
Riley, K. **Mn** 31(1):10  
Rooney, R. **Mn** 31(2):10  
Roughley, R. **Bu** 36(4):176  
Roy, M. **An** 11(1):14  
Rumph, J.A. **Bo** 21(2):7  
Rutgers, A. **On** 7(2):4  
Ryall, K. **Bu** 36(4):175; **On** 6(2):5  
Ryan, K. **Mn** 30(2):6

S

Sanders, C.J.R. **On** 7(2):5; 10(2):8; **Bu** 37(4):216  
Schaafsma, A. **On** 10(1):5  
Scudder, G.G.E. **Bo** 22(1):25  
Seckar, D. **Mn** 31(1):10  
Shemanchuk, J.A. **Abe/honmem.htm**  
Shepard, J.H. **Bo** 21(2):7  
Shepard, S.M. **Bo** 21(2):8  
Shore, T. **Bu** 37(3):147; **Bo** 21(1):12  
Shorthouse, J.D. **On** 6(2):3  
Smirnoff, V.A. **Bu** 33(1):36  
Smith, D.S. **Bu** 33(1):34  
Smith, G. **Bo** 24(2):19  
Spence, J.R. **Bu** 33(4):187  
Stjernberg, A. **Mn** 32(1):5  
Stulz, H. **Bu** 35(2):93  
Sullivan, C.R. **Bu** 35(3):145

T

Tahmasbi, G. **Mn** 31(2):9  
Taylor, M.E. **Bu** 35(3):147; **Sn** 24(1):1  
Thielman, A. **On** 10(1):6  
Thompson, W.R. **Bo** 21(1):21  
Thomson, A. **Mn** 32(2):5  
Timms, L. **On** 8(2):4; 9(2):4; 10(1):5  
Tothill, J.D. **Bo** 21(1):22

## U

- Umphrey, G.J. **On** 8(2):3  
 Underwood, G.R. **Bu** 33(3):129  
 Underwood, R. **Bu** 34(4):209  
 Urquhart, F. **Bu** 37(1):48

## V

- Vance, C.C. **On** 6(2):5  
 VanLaerhoven, S. **On** 10(1):5  
 Vincent, C. **An** 11(3):12

## W

- Wheeler, T.A. **On** 9(2):2  
 Winston, M. **Bu** 36(4):175

## Y

- Yack, J. **On** 9(2):3

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Steve Marshall

*Tabanus superjumentarius* (Diptera: Tabanidae)

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# The Buzz / Bourdonnements

By Kevin Floate, Editor / Rédacteur



Paul Coghlin

I recently returned from a trip to Mexico with a much greater appreciation of being an entomologist. While dining at a fine restaurant, I observed an aphid gingerly crawling out from under a spinach leaf in my salad. Closer examination revealed other aphids, including (alas) one that had perished in salad dressing. During that same meal, a lovely scarab flew through an open window to land in my glass of red wine. After saving the poor creature from inebriation and admiring its markings, I ushered it back out the window. Later that evening, I marvelled at a large centipede discovered in the bathroom. The return flight produced one more pleasant surprise in the form of a photograph in the airline's inflight magazine (see p. 3).

In sharp contrast, many of my fellow travelers were oblivious to such events or viewed them with horror. Even worse, some parents were passing their entomophobia to their young children. I feel fortunate, therefore, that I am a member of a national society that views insects – not with fear, but with wonder. I am doubly fortunate that I can promote this wonder as the new Editor of the *Bulletin*. Past-Editor, Paul Fields, set a very high standard. With your help, our Society can maintain this standard in future issues. If you have ideas for submissions, photographs, or news of upcoming meetings, retirements, appointments,

awards and other noteworthy events, please bring them to my attention. If you wish to contribute but are not sure how, also feel free to drop me an email.

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**J**e suis revenu récemment d'un voyage au Mexique en appréciant davantage le fait d'être entomologiste. Lors d'un repas dans un restaurant raffiné, j'ai observé un puceron grim pant délicatement sur le revers d'une feuille d'épinard dans ma salade. Un examen minutieux révéla d'autres pucerons, incluant (hélas) un qui avait péri dans la vinaigrette. Au cours du même repas, un joli scarabée vola par la fenêtre et atterri dans mon verre de vin. Après avoir sauvé la pauvre créature de l'ébriété et admiré ses traits, je l'ai fait sortir par la fenêtre. Plus tard dans la soirée, je me suis émerveillé devant un large mille-pattes découvert dans la salle de bain. Le vol de retour me procura une autre agréable surprise sous la forme d'une photographie aperçue dans la publication de la compagnie aérienne (voir p. 3).

Au contraire, plusieurs de mes compagnons de voyage étaient inconscients de ces événements ou les percevaient avec horreur. Encore pire, certains parents transmettent leur entomophobie à leurs enfants. Je me sens donc chanceux d'être un membre d'une Société nationale qui voit les insectes non pas avec peur mais avec émerveillement. Je suis doublement chanceux de pouvoir promouvoir cette merveille en tant que nouveau Rédacteur du *Bulletin*. Le Rédacteur sortant, Paul Fields, a établi un très haut standard. Avec votre aide, votre Société peut maintenir ce standard dans les prochains numéros. Si vous avez des idées pour des soumissions, des photographies ou des nouvelles de réunions à venir, des départs à la retraite, des rendez-vous, des prix et d'autres événements dignes de mention, faites-le moi savoir. Si vous désirez contribuer, mais n'êtes pas certains de la façon de procéder, sentez-vous bien libre de m'envoyer un courriel.

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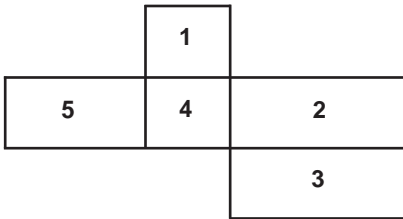
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## Images

**On the spine:** The mountain pine beetle, *Dendroctonus ponderosae* Hopk. (Curculionidae), an eruptive bark beetle that periodically kills large areas of pine forests in western North America. Photo: D. Linton.

**Beneath the title:** The white underwing, *Catocala relictata* Wlk. (Noctuidae), feeds on poplars, aspens, and willows. Photo: A. Carroll.

**Photos on front cover:**

1. Collecting bark beetles (Curculionidae) from a Lindgren funnel trap at Angstad Creek near Merritt, British Columbia. Photo: J. Smith.

2. *Leptomantispa pulchella* (Banks), photographed at Ojibway Prairie in Windsor, Ontario. This species is otherwise known in Canada only from the Okanagan Valley. Photo: S. Marshall.

3. A Cooley spruce gall adelgid, *Adelges cooleyi* (Gill.) (Adelgidae), parthenogenetic exulis with its eggs on Douglas-fir. Photo: B. Bains.

4. *Formica aserva* Forel (Formicidae), an aggressive ant that nests in large pieces of woody debris throughout Canada, carrying a pupa. Photo: R. Higgins.

5. Female wheat midge, *Sitodiplosis mosellana* (Géhin) (Cecidomyiidae). Photo: R. Lamb.

**Back cover:** *Tetragnatha viridis* Walck. (Tetragnathidae), the only bright green longjawed orb-weaving spider found in Canada, ranges from eastern Ontario and Nova Scotia south to the northern coast of the Gulf of Mexico. Photo: M. Larrivée.

Français à l'intérieur de la couverture avant