

Bulletin

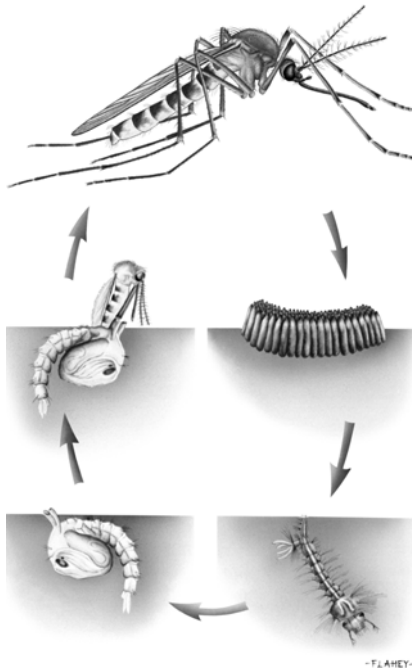
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Entre Alep, Brisbane et Frelighsburg

J'écris ces lignes entre deux activités professionnelles à Alep (Syrie) et Brisbane (Australie). Alep est considérée comme étant la plus vieille cité continuellement habitée du monde. Il y a très longtemps, les habitants de cette région (la Mésopotamie) inventait l'agriculture et l'écriture. Alep était l'hôte de la Seconde conférence sur les Sunn Pest. L'espèce la plus fréquente, *Eurygaster integriceps* Puton (Pentatomidae), cause d'important dommages au blé (50-90%) et à l'orge (20-30%) cultivés sur une vaste région comprenant la Roumanie, la Turquie, la Syrie, la Russie méridionale, l'Iran, l'Ouzbekistan, le Tajikistan et le Kazakstan. Durant trois jours, les quelques 150 participants ont partagé leurs trouvailles entomologiques de façon très professionnelle. Les mots clés ici étaient: gros problèmes entomologiques et bonne volonté.

Le XXIIe Congrès international d'entomologie se tiendra à Brisbane du 15 au 21 août 2004. L'événement attire ordinairement environ 3000 entomologistes du monde entier. Les mots clés ici seront: sujets de pointe en entomologie et bonne volonté. Plusieurs entomologistes canadiens ont démontré du leadership scientifique en organisant des symposia. Bien plus encore ont été invités à faire des présentations. Nous devrions être fiers de cela. Le président de la Société australienne d'entomologie, James Ridsdill-Smith, a invité les présidents des Sociétés d'entomologie à une rencontre. Le mot clé ici sera une aptitude dans laquelle les canadiens excellent: le réseautage.

Entre ces deux activités professionnelles, me revoici dans mon verger à Frelighsburg, une ferme expérimentale d'Agriculture et agro-alimentaire Canada située à environ 10 km de la frontière du Vermont. La végétation est verdoyante et je pense que nous sommes chanceux de travailler en entomologie, une science dont on a besoin partout de par le monde.

Au plaisir de vous rencontrer en octobre prochain à Charlottetown (I.P.E.) à la Réunion



Benoit Rancourt

Between Aleppo, Brisbane and Frelighsburg

I am writing these lines between professional assignments in Aleppo (Syria) and Brisbane (Australia). Aleppo is considered one of the oldest continuously-inhabited cities of the world. Long time ago, people in that region (Mesopotamia) invented agriculture and writing. Aleppo was the host of the 2nd International Conference on Sunn Pest. The most commonly encountered Sunn pest, *Eurygaster integriceps* Puton (Pentatomidae), causes important damage to wheat (50-90%) and barley (20-30%) cultivated in a vast region that spreads from Romania, Turkey, Syria, Southern Russia, Iran, Uzbekistan, Tajikistan and Kazakstan. During three days the 150 participants shared their entomological findings in a very professional manner. The key words here were: big entomological problems and good will.

The XXII International Congress of Entomology will be held in Brisbane from 15-21 August 2004. Typically the venue attracts ca. 3000 entomologists worldwide. The key words in Brisbane should be: cutting edge entomological issues and good will. Several Canadian entomologists showed scientific leadership in organizing symposia. And even more have been invited to give talks. We should be proud of that. The President of the Australian Entomological Society, James Ridsdill-Smith, has invited Presidents of Entomological Societies for a meeting. The key word here should be a skill in which Canadians excel: networking.

In between these assignments, I am back to my orchard in Frelighsburg, an Agriculture and Agri-

conjointe de la Société d'entomologie du Canada et de la Société acadienne d'entomologie, ce qui inclut le "party de cuisine" qui suivra le banquet. Les mots clés devraient être: bonne science et bon temps. D'ici là, je vous souhaite du bon temps cet automne.

Sites Web/ Related Websites:

<http://www.uvm.edu/~entlab/sunnpest/index.html>

<http://www.ccm.com.au/icoe/home/default.htm>

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

Food Canada experimental farm located ca. 10 km from the Vermont border. The vegetation is deep green and I am reflecting that we are lucky to work in entomology, a science that is needed all across the world.

I am looking forward to the meeting in October at the Joint meeting of the Entomological Society of Canada and the Acadian Entomological Society in Charlottetown, P.E. I., including the "down-home kitchen party" following the banquet entertainment. The key words should be: good science and a good time. I wish you a nice time in this Fall.

Moth balls / Boules à Mites

By Andrew Bennett

Taxonomy: A dying profession?

I am often asked by well-meaning relatives and friends, "What *exactly* do you do"? Depending on the tone of the question (and my mood at the time), I sometimes take it to mean, "Wow! Your job sounds so interesting. Please explain everything you do (in excruciating detail) because it seems so important to society!" Generally; however, I answer the question in a more circumspect fashion; assuming that what is really meant is, "My tax dollars are being spent how?"

Forgive me for sounding cynical about the current perception of taxonomy, but it seems that the latter interpretation of the question usually reflects people's reason for asking. I mostly blame mammalogists and ornithologists for this.

Case in point: consider the taxonomy of elephants.

Number of extant, described species - two: *El-*



phas maximus (the Asiatic elephant) and *Loxodonta africana* (the African elephant).

Chance of discovering a new, extant species of elephant: Zero (not considering all this recent murmuring about forest elephants being a distinct species).

Chances somebody will be paid to search for new species of elephants. Close to zero (at least, I sincerely hope so).

The same goes for birds. Do we really need to pay somebody to hack through jungles in search of the elusive, lesser-spotted tit? Most biology departments seem to think not, at least while people are dying of cancer and heart disease. Of course, taxonomy comprises more than just naming new species (e.g., determining evolutionary relationships), but to the average person, this prob-

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

ably seems even less useful than description of new species.

But what about insects? From my own example, the family I study (ichneumonid wasps) is the most species rich in Canada with 2,766 species recorded (compared to 214 species of mammals). Previous surveys have estimated that less than half of the species of ichneumonids in Canada are described. But does this really matter? Next time you are worried about pesticide residue on your lettuce or bite into an organic apple and find a juicy caterpillar, consider that this pest might have been controlled by introduction of an ichneumonid as a biocontrol agent - if only we knew their names (let alone their biology)...

But the problem for entomological taxonomists is that if you ask people to name an animal, over 90% will name a mammal or a bird. And we know almost all of the species of mammals and birds, so why do we still need taxonomists? And if you think that this perception is only among the general populace, try looking at the composition of your average Canadian university biology department. Thirty years ago, the majority of professors were taxonomists. Now, only the largest universities have more than one token taxonomist on staff. And often these taxonomists are smart enough (or sneaky enough) to study something like tropical bryozoans (with an obligatory field season from early January to the end of March).

Is there any future for taxonomy in Canada? Actually, there is. Last year, for the first time in nearly fifteen years, Agriculture and Agri-Food Canada hired not one, but three new scientists at the Canadian National Collection of Insects and Arachnids in Ottawa. This brings us back up to the same number of taxonomists as were working at the Collection in the 1950's, but it's three steps in the right direction! So, is it worth paying for taxonomists in Canada? With increasing globalization and the concomitant increase in invasive species such as Asian Long Horned Beetle and Emerald Ash Borer (not to mention West Nile Virus), we can't afford not to have a few people who can identify pests (both described and new) as well as their potential natural enemies.

I wonder if there are any marine ichneumonids associated with tropical bryozoans? Unlikely, but you never know...

For more information on the Canadian National Collection of Insects, see <http://www.canacoll.org>

Join me next time as *Moth balls* continues to dissect out the entrails of taxonomy

Postdoctoral Fellowship

I am seeking a postdoctoral fellow to work on voraxin: the recently characterized protein produced by the gonad of male ticks which stimulates the female to engorge (see Weiss & Kaufman, 2004, *PNAS* 101: 5874-5879). The ideal candidate will have worked on ticks or insects, and will have significant experience in the following areas: standard biochemical and molecular techniques, tissue/organ culture, immunohistochemistry and electron microscopy.

This 2-year position is contingent upon the successful outcome of a major grant application, a decision being anticipated during the autumn of 2004. Candidates for this position should be available as soon as possible after funding is secured.

Please send your expression of interest to:

W. Reuben Kaufman,

Department of Biological Sciences

University of Alberta, Edmonton, AB

Canada T6G 2E9

E-mail: reuben.kaufman@ualberta.ca

Change is inevitable, adaptation and survival are optional.

What is an insect? Teaching kids about insects.

By Robyn Underwood

The Youth Encouragement Committee of the Entomological Society of Manitoba, which is made up mostly of graduate students, faculty members, and entomologists working for the government, visits schools and other groups as often as possible. There is more demand than we can handle! I mean, with such a fascinating subject, what do you expect!?

I have personally been teaching kids about insects for about ten years. Here are a few tips that have helped me along the way.

1. Don't talk too much. Let the audience do the talking and let the insects do the teaching. By all means, answer questions and give out interesting facts. However, don't plan an hour-long slide show with the lights out! The interactive experience is the best teaching tool. You can have a short slide show to introduce them to the basics of entomology or even the types of metamorphosis, but leave it at that.

2. Bring drawers of pinned specimens of insects that are native to your area along with the amazing tropical specimens. When members of the audience see insects they actually recognize

Robyn Underwood is a graduate student in the Department of Entomology at the University of Manitoba working on the control of varroa mites on honey bees. She served as the Chair of the Entomological Society of Manitoba's Youth Encouragement Committee for two years, has been a member of the committee for four additional years, and has made over 100 presentations to school children. She was awarded the 2002 Norman Criddle Award for this work. Contact information: Department of Entomology, University of Manitoba, Winnipeg MB R3T 2N2, e-mail: underwoodrm@yahoo.com.

from their backyard, it really helps them to internalize and relate to what you're teaching.

3. Bring live insects! The star of every presentation is the live insect that everyone got to touch or hold. However, many people are initially afraid. I always start with a small unimposing insect such as a mealworm larva. Once they get over holding that and feeling it wiggle in their hands they are ready for something bigger.

My favorite large insect is the Madagascar hissing cockroach (which I keep covered until the time is right as not to ruin the surprise). They can't fly away because they don't have wings, they are very slow and won't bite, and they make a really great hissing sound that gets everyone excited. It's amazing how quiet a rowdy group will get if you tell them there's something worth listening to. They are also available in pet stores, so when the people fall in love with them, which they will, they can be directed to your local dealer.

In the classroom, noise is often a problem.



Lisa Babey

Robyn Underwood with Charlie Hisser and grade 4 students from Linwood School in Winnipeg, MB.

Therefore, before I show the kids the roach for the first time, I have them put one hand over their heart and one in the air and repeat after me: "I promise"..."not to scream." It really helps! Also, I never get out more than one roach at a time and never let a kid walk away with one. If one does, she/he'll inevitably go shove it in another kid's face. Not nice!

4. Always communicate with the teacher/group leader about what you'll be doing and what you expect. You need to lay out the rules. Make sure the teacher knows that you are not a disciplinarian and that you need someone to be present with you at all times. In addition, ask the teacher about his or her feelings toward insects. There's nothing worse than a petrified, squeamish teacher to scare the kids away from touching the insects. She or he can stay on the outskirts of the group and keep quiet.

5. Don't be afraid to use real scientific terms. Teachers, especially, appreciate it when you teach the kids new words and don't baby talk too much. I mean, you can talk in simple terms to get across the meaning of a word, but then give them the real word and use it in conversation. Exoskeleton, metamorphosis, larva, pupa, eusocial, biological control, taxonomy....go for it!

6. Don't try to do a craft. While the resulting object might be adorable, the time it takes to create it is immense. The visit turns into a lesson in following directions instead of a fun time learning about science. If you have an idea for a craft that you're just dying to share, leave it with the teacher as a follow-up to your visit.

I hope these suggestions help in your quest to educate the world about the interesting world of entomology! Personally, I am always interested in hearing about the things that help others in their teaching, so please feel free to contact me.

Thirteen steps to better instructional visuals for electronic presentation

By Dave Pavlik

Understand the media

Well-designed graphics can greatly hasten and increase understanding and improve retention of information. Electronic presentations have great promise for utilizing graphics and some important potential pitfalls to consider. Well designed presentations use consistent format, wisely chosen colors and type fonts. Poor choices not only communicate poorly but also can distract from your message and you.

Simplify general composition

Keep content simple and short. Use key words instead of complete sentences. Text on each slide should reflect the main points of your presentation.

Bulleted items can introduce or summarize key points. Text should not recite verbatim what you plan to say. Plan on spending 2-5 minutes or less verbally presenting the content of each slide.

Don't squeeze too much info on the page

Five to seven words per line and five to seven lines per page is a good starting place. Twenty five words per page is a good guideline. Headings should be short. Spread your information over multiple "slides" rather than crowding words and graphics on a single slide. Since no two TV's reproduce images the same you must leave at least a 10% blank or "safe area" around your text and pictures.

Dave Pavlik was working at the Instructional Technology Center, Iowa State University, when he wrote this several years ago. It was originally published on the Entomological Society of America's web page.

Organize a basic presentation outline.

- A. Presenter name, topic, class, etc.
- B. Objectives so audience knows where you are taking them.
- C. Body of material.
- D. Repeat list of objectives for group review.
- E. Summary of required action or assignments.

Limit colors and control contrast

Color can be a powerful visual tool. Use it sparingly. Avoid large areas of heavily saturated (over 80%) colors like red or orange since they are difficult to reproduce electronically. Ensure adequate contrast between text color and background color. Use light letters, like white or pale yellow against a dark-colored background like blue or green. Use only a few color choice “templates” per presentation. What you see on your computer screen may not be what you see on the actual presentation equipment. Highly textured, multi-color fills and loud backgrounds can be distracting. Avoid white backgrounds which can strain viewer’s eyes in a darkened room.

Select a type face appropriate for electronic media

Typeface style in instructional visuals can promote visual variety, increase learner understanding and gain or engage learner attention. Fonts should enhance the presentation without being the focus. There is a good deal of disagreement about what are the best type fonts for electronic media. The most legible fonts are those that have strokes with the similar thickness at all points. Helvetica or Arial are good examples. Faces such as Times with very thin strokes do not work well. Fancy or ornate type faces can be hard to read and reproduce poorly on video. Save them sparingly for title slides and headings. Use normal, bold, or extra bold (black) versions of the some type face to visually separate elements. Limit typefaces, sizes and weights to 2 or 3 and retain these throughout the presentation. Some kinds of typeface are specifically designed for electronic presentation like Microsoft’s Trebuchet MS (Truetype) and Verdana (Truetype). Some typefaces which work well for electronic presentations are: Avenir, Arial, Bookman, Old Style, Chicago, Comic Sans,

Geneva, Helvetica, Lubalin Graph, Avant, Monaco, Newtext, Korrina, Optima, Univers. Start the main body of your text at a 36pt typeface and adjust up or down from there. Test your font sizes to make sure people in the back or sides of the room can easily read your text. Differentiate headings from the main body by using larger type or a different font. Use standard upper and lower case letters for best readability.

Keep transitions between slides smooth

Be consistent from slide to slide. Subtle transitions work better. Fancy transitions attract too much attention away from your message and require lots of computer processing power. Simple transitions use less compute memory and won’t slow the pace of your presentation. Clip Art, Pictures, Graphs and Diagrams—Always attempt to substitute pictures, tables, or charts for words they can convey complicated information quickly and efficiently. Keep drawings simple and lines bold. Make line size at least 4pt. Solid fills work best. Stay away from screened fills, patterns and broken or thin lines which cause annoying TV screen flicker. Use light, bright colors for illustrated graphics and dark backgrounds. Always label charts and diagrams with horizontal text to avoid audience fatigue. Don’t clutter graphs with text and footnotes. Reserve detailed data for handouts. Put footnotes in small text in the lower left hand corner.

Scan images for best resolution

Optimal settings for digitized photos, slides and printed materials is 72 dots per inch resolution and a color palette between 256 and 1000 colors. Anything greater is beyond the resolution of TV and will create huge presentation files. Use a “universal” color palette to ensure image colors remain consistent when transferred across computers. Scan images at 75% to 50% actual screen size. This will save disk space and leaves an area surrounding the image for headings, labels, etc. If you are unsure about copyright clearance get permission or find an alternative image.

Use spread sheets and instructional software with care

When converting computer generated graphics to a TV signal as much as 75% of the image resolution can be lost in the process. All of the above rules apply, especially the need for reasonable contrast between lettering and background. Never use patterns, screens or anything with a line weight of less than 6 pixels, or severe screen flicker will occur. Many software programs can be enhanced for TV viewing by increasing line weights, converting backgrounds from white to light colors, increasing font size and using a simple bold typeface.

Carefully select 35mm slides

Try to use horizontal compositions. Vertical slides are always cropped by TV's 3x4 ratio leaving wide blank margins on each side of the slide. Make sure letter size is adequate for reproduction on video. Word slides do not convert well to TV viewing. Consider converting text slides to a computer presentation, printing them out on paper or having your TV specialists recreate them using a character generator. Dark or out-of focus slides will look significantly worse on television. Expect a significant drop in resolution when reproducing 35mm slides on TV.

Choose appropriate printed visuals and transparencies

Materials shaped in TV's horizontal format of 3 units high by 4 units wide work best. An 8 1/2" by 11" paper is close enough to this size. Graphics for TV should be created in the horizontal (landscape) format rather than the vertical (portrait) format. Using a consistent size for all graphics eliminates the need to continually zoom the graphics camera in and out when dealing with different sizes of paper.

Use pastel or light-colored paper (light-blue or light-green, for example) to avoid extreme contrast between the letters and the paper. This should make the graphics more "viewable" by both the camera and the participants. White paper with dark letters will fatigue the eyes. Transparencies will work, but are usually marred by wrinkled or

glossy acetate, which may pick up glare from overhead lights. Using matte acetate or copying transparencies to light-colored paper will eliminate this problem.

Hand lettered visuals can still work

For hand lettering, see the notes above and print legibly with a medium point, dark colored felt-tip marker on light-colored paper. Preprinted lined paper with 3/4" spacing can be used to help guide penmanship.

And finally, to prevent embarrassment

Double check spelling, grammar and numbers. Assume there will be technical problems to work out. Arrive early enough at the presentation room to test all visuals and equipment. If you're using nonstandard fonts bring along copies or embed (save) them in your presentation. Always bring printed copies of your visuals for backup if all else fails



Pat MacKay

Ground beetle attacking grasshopper, Riding Mountain National Park, Manitoba.

statistics /stctwstwks/ n.pl. Aaaaaagh!

By Marg Smith

Planning and conducting a new research project is an exciting prospect for the average entomologist. For me, having completed data sets and sitting down to do the analysis is at least as exciting, but I realize that this enthusiasm is not shared by all my colleagues. But now that computers take care of the rather onerous mathematics, statistics need not conjure up dread.

“Statistics” is derived from the Latin word for “state”, reflecting the historical importance of the state as data gatherers, particularly through the use of the census for collecting taxes. The dictionary (contrary to the title), defines statistics as “the objective evaluation of conclusions based on data”. The earliest developments of statistical methods were centred around attempts of individuals to improve their odds in games of chance. Blaise Pascal was among the first to formalize the mathematics of probability. Most of us probably don’t realize that Florence Nightingale was a noted statistician of her day, developing meticulous record keeping for public health records and innovating epidemiological methods. In 1858, she was elected the first female member of the Statistical Society of London.

Much of the statistical theory for the methods

Marjorie Smith is a Biologist with Agriculture and Agri-Food Canada in Winnipeg. She conducts research on the wheat midge and collaborates with wheat breeders to develop and manage new sources of resistance to the wheat midge. Most recently she has designed and implemented a population genetics simulation model to explore interactions between wheat midge and resistant wheat. Contact information: msmith@agr.gc.ca, telephone: 204-984-4889. Cereal Research Centre, Agriculture & Agri-Food Canada, 195 Dafoe Road, Winnipeg, Manitoba, Canada R3T 2M9.

we rely on in research was developed by the early 1900’s, but it is only recently that technological advances have enabled us to use these methods more fully to our advantage. Technology has had an enormous effect on all aspects of scientific research, from planning to data gathering and analysis. It has changed the scale of the projects we handle, and the kinds and complexity of data we can collect. Most of us probably use SAS (Statistical Analysis System) or another similar major software package for analyzing data. SAS can also provide you with experimental designs and tools for examining data.

We have all been through the experience of learning statistical methods for designing a research study, collecting and analyzing data – fading into the past for some of us. What I present here are some tips – I’m not sure if they’re tricks – that I have learned over the years, most by experience, that can make life, if not pleasant, at least simpler when it comes time to analyze data. If you get *deja vu* it’s because you’ve heard it all before in your methods class.

The time to start thinking about how your data will be analyzed is when you are planning your experiment. Most of us don’t feel a need to apply statistics to our project until after data are collected, but if statistics are considered at the beginning many, if not most, problems can be avoided or minimized. Write down your specific objectives before you begin the research. As much as possible, put each in the form of a hypothesis, and think about what test will be appropriate. This is a good way of forcing yourself to think about what exactly it is you want to accomplish. Then do some specific planning. What data are required to answer your questions? Where and when will the samples be collected or observations made? What resources are involved in obtaining an observation? How many samples / replicates will you need? In terms of data analysis, think about degrees of freedom of the test you plan to use. If you have *n* data points, how different will observations have to be before you can declare a significant difference? Do you want more replicates or more samples per replicate? Here, there is no replacement for your own understanding of the insects you are studying, and the kinds of varia-



tion you are likely to encounter.

I was fortunate to learn a valuable lesson in planning near the beginning of my research career. When I presented my research proposal to my PhD supervisor, Pat MacKay, she read it carefully and then suggested, "Now I'd like you to do detailed protocols for your experiments: how many aphid clones, how many replicates for each, how many dishes you need, the handling time and space required for each step in the experiment." First I needed to do a couple of small preliminary experiments, mainly to figure out the handling times and resource needs; they also provided me with some idea of the range of responses I might expect. By the time I'd finished a protocol for just the first objective, I realized that I might accomplish my thesis proposal if I used all the space in the lab for the next ten years!

Later on I'd learn how important it is to annotate data records, having fallen victim to the "Oh, I'll remember that" syndrome. No, you will not remember that, at least not the way it happened. Somewhere, there are some data sheets from the first set of experiments I did for my PhD, but no one will ever know what they mean because there were no notes and, several months later, I could

not remember the details of some problems I'd encountered which would explain some anomalous results. So plan what data you will collect and how it is best recorded. Make up a data sheet or plan a data record book, and have a column for notes. Data will be quicker to enter and more readable. Keep a file of notes on everything that is done differently from the original protocol and why, and other information that may be related to your results. Then get the data into electronic format, or else make a photocopy of your data records and notes and keep them elsewhere. If you record data into an electronic device, copy the data as soon as possible. Recent computers can copy large amounts of data quickly onto a CD.

Take a look at the patterns in your data before doing a formal analysis. Use technology to your advantage here to sort data and calculate descriptive statistics such as means and variances. Use of statistical software on the computer not only makes this task quicker, but also more accurate than on a calculator because errors due to rounding are minimized. I find visual presentations such as scatter plots, frequency histograms or box-and-whisker plots helpful to examine patterns in

the data. The SAS procedure PROC UNIVARIATE provides a lot of descriptive statistics that give you a good idea of how the data are distributed; it's a good way of picking out anomalies and outliers. It might also tell you whether data transformations may be needed. Many times data transformations are done either as a matter of course, or are ignored. The purpose of data transformation is to re-scale data that violate the assumptions of the statistical test, so that they conform to the assumptions more closely. Analysis of variance, for example, assumes that data for each factor level are randomly selected from a normal population, that these populations have the same variance, and the effects of the factor levels are additive (linear). If your data already meet these assumptions, transformation could negate this, and if your data show large deviations from the assumptions, the analysis results may not be valid. If you're doing an analysis of variance, plots of variance versus mean usually give you a good idea of whether variances are independent of means, and might also give an indication of non-additivity (non-linearity) of factor effects.

With sophisticated statistical software, such as SAS, readily available, the mechanics of doing the calculations are a thing of the past, so we generally need help with choosing an appropriate analysis rather than how to do the calculations. Where to go for help? We tend to go to a statistician or a colleague who is knowledgeable in the type of analysis we need. Think like a journalist and have the why, where, when, how and what at hand when you go for help. The peculiarities of your insect or how you made your measurements can influence how the data are analysed. If you did a formal experiment, have a rough diagram for the layout. If you know what kind of test you need to do, and are using SAS or another statistical software package, familiarize yourself with the manual or help notes so you know what is being done with your data. Manuals can be intimidating, and for a while after SAS documentation went online, I shrunk away from it. But it is worth the effort to learn to navigate the main parts you'll need, such as SAS language reference and SAS/

STAT. Most of the procedures have options which can be used to clarify the resulting output, or to customize the procedure to your type of data. There is also a large library of sample programs.

Reading is another source of help. A particularly helpful series of papers on statistical topics was written by D.J. Finney (references listed below), who has distilled almost 50 years of experience teaching statistics and offering guidance to researchers. Although the papers are written from the point of view of agricultural research, much of the advice is generally useful. The later papers are more technical than the first two, but these can offer useful advice even if the technical bits are skimmed over.

Since the development of increasingly fast computers and efficient analysis programs, doing data analysis need not be the burdensome task it once was. Plan and think about data analysis at the beginning, not just the end of your project. Acquaint yourself with what statistical tests do and why, and leave the math to your computer. Happy analysing!

- Finney, DJ. 1988. Was this in your statistics textbook? I. Agricultural scientist and statistician. *Experimental agriculture* **24**: 153-161
- Finney, DJ. 1988. Was this in your statistics textbook? II. Data handling. *Experimental agriculture* **24**: 343-353
- Finney, DJ. 1988. Was this in your statistics textbook? III. Design and analysis. *Experimental agriculture* **24**: 421-432
- Finney, DJ. 1989. Was this in your statistics textbook? IV. Frequency data. *Experimental agriculture* **25**: 11-25
- Finney, DJ. 1989. Was this in your statistics textbook? V. Transformation of data. Agricultural scientist and statistician. *Experimental agriculture* **25**: 165-175
- Finney, DJ. 1989. Was this in your statistics textbook? VI. Regression and covariance. *Experimental agriculture* **25**: 291-311

Entomologically-significant data sets: Should ESC offer to maintain a data archive for our members?

The Executive of ESC has an ongoing discussion on benefits that our Society can offer to members. One proposal is that ESC provide a searchable archive on its web site, to permanently store the large digitally-formatted data sets that are generated by entomological studies.

For example, a number of recent studies have documented the diversity of insects in boreal forest habitats, and analyzed the environmental factors that affect this diversity. A summary of the results and conclusions may be published in journals such as *The Canadian Entomologist*, but journals cannot print all the records that contribute to the conclusions, because they may number in the thousands. The conclusions reached in any such study, however thoughtful and thorough, can never capture all the subtleties of the data; future developments will offer new perspectives. If such data is not available to scrutiny by the entomological community a valuable resource is lost. In theory, scientific research is repeatable, but collecting pinning and naming the large numbers of insects from a series of light or pitfall traps over two or three seasons is a task only to be undertaken if the study warrants repeating, not because data is inaccessible.

The value of retaining and making available data from biodiversity studies in a digital form is obvious, but other types of large entomological data sets probably also would be useful if widely available. Think of the time and effort spent collecting and analyzing your own data, and how you promised yourself to return to that data for another purpose sometime later - and never got to it. Database methods now allow you and your colleagues to mine that data, and perhaps test hypotheses that you never considered, or examine it from a completely new perspective.

Of course, setting up such an archive is not a trivial matter. Do members have data that they

want to store, and make available to their colleagues? Should only members of ESC be allowed to store data, or should any entomologist with data of interest to ESC members be allowed access to such a service? Should the archive be readable only by members or by everyone? What file formats should be used, and how do we maintain an archive in perpetuity? How much documentation on the data and methods of collection should be included? Do we archive only data collected for a paper published in *The Canadian Entomologist*? How do we minimize the burden for our colleagues who have volunteered to oversee Society publications or websites? Are there copyright issues that need to be in place to protect ESC and contributors of data? Would the costs of an archive be an unacceptable burden for ESC, or is there an effective cost recovery approach we could adopt? Do other organizations already offer such a service that precludes the need for ESC to take on the task?

The simplest way to establish such an archive would be to negotiate the service as part of our contract with NRC Press, which currently prints *The Canadian Entomologist*. NRC Press provides a link for computer files or sends out paper copies of supplementary data for research papers published in some of their journals, e.g. *The Canadian Journal of Zoology*. Supplementary data are not reviewed, and archived data are subject to a release of copyright. In the case of paper copies of a data base, the cost is recovered on a fee for service basis by NRC Press. ESC could negotiate a similar service for papers published in *The Canadian Entomologist*, but this service is not now available to members. Based on current practices, this service would only be available to authors in *The Canadian Entomologist*, who need not be members, not any member. The data would be available to anyone, not just members.

If you have views on the value of such an archive, or on how the ESC might implement an archive useful to our members, please submit those ideas to the *Bulletin*, the Chair of Publications Committee, or to myself.

Bob Lamb

First Vice-President

rlamb@agr.gc.ca

Le labo de Jacques Brodeur

Le laboratoire de Jacques Brodeur est situé au magnifique Pavillon de l'Environnement, Centre de recherche en horticulture, sur le campus de l'Université Laval à Québec. Une équipe dynamique d'étudiants gradués, de chercheurs post-doctoraux et de professionnels de recherche s'activent au quotidien à réaliser des projets de recherche en écologie des insectes et en lutte biologique. Les thématiques sont diversifiées : relations hôtes-parasitoïdes, interactions trophiques et intraguïdes, écologie saisonnière des espèces invasives, écologie urbaine, lutte biologique aux ravageurs des cultures. Les travaux s'articulent autour de plusieurs modèles bi-

ologiques (parasitoïdes de pucerons et de l'arpenreuse de la pruche ; prédateurs de pucerons et de mouches blanches ; insectes ravageurs des cultures serricoles, des petits fruits, des plantations de sapins de Noël et des gazons) et se réalisent au laboratoire, en serre mais de préférence en milieu naturel.

Jacques Brodeur; professeur,

jacques.brodeur@plg.ulaval.ca

J'ai complété un baccalauréat en biologie à l'Université du Québec à Rimouski, un doctorat en biologie à l'Université Laval et un stage post-doctoral à l'Université de Wageningen aux Pays-Bas. Depuis 1992, je suis professeur au Département de phytologie de l'Université Laval. En 2000,



L'équipe du laboratoire de Jacques Brodeur au jardin botanique Roger-Van den Hende. De la gauche vers la droite : première rangée : Simon Boudreault, Marc Rhainds, Louis Simard; deuxième rangée : Jacques Brodeur, Annie-Ève Gagnon, Renée Lalancette, Sophie Rochefort, Julie Blais et troisième rangée : Payse Mailhot et Élisabeth Taschereau.

j'ai savouré une année sabbatique à l'Université de Californie à Davis. Je suis actuellement directeur du Centre de recherche en horticulture et membre des regroupements de recherche suivants : Réseau Biocontrôle du Canada, Centre de recherche en amélioration végétale, Réseau québécois de recherche en phytoprotection. Hors du laboratoire, j'adore être en famille, jouer et entraîner les tous-petits au hockey, rouler à vélo, dormir sous la tente, et siroter un café sur une terrasse.

Simon Boudreault; professionnel de recherche, Simon.boudreault@bio.ulaval.ca

En 1999, j'ai obtenu mon baccalauréat en biologie à l'Université Laval. Mon premier emploi en entomologie a été l'élevage du doryphore de la pomme de terre et de la punaise masquée pour Conrad Cloutier. J'ai par la suite travaillé dans différents domaines de la biologie (herpétologie, foresterie, mycologie...), pour mieux revenir aux "bibittes" -comme le dit mon garçon. Je partage maintenant mon temps entre le labo de Jacques où je suis "l'homme à tout faire" et celui de Conrad. Je m'occupe principalement du bon fonctionnement du labo, initie les étudiants à diverses techniques de recherche et veille à l'harmonie de l'équipe. Je prends également soin des lézards, coquerelles de Madagascar, grillons, phasmes, mantes religieuses et autres mascottes du laboratoire. Et si le temps me le permet, je parasite et dissèque quelques pucerons.

Renée Lalancette; professionnel de recherche, reneelalan7@hotmail.com

Récemment détentrice d'un diplôme de maîtrise en agronomie, je me suis jointe à l'équipe de Jacques dans le cadre d'un projet qui vise à évaluer des modes de gestions écologiques des pelouses urbaines. Mon rôle dans le projet est de participer à la production d'un programme de gestion différenciée des pelouses de la Ville de Québec. Nos objectifs sont principalement de caractériser les espaces verts et de réduire les surfaces de tonte. Un autre volet important du projet est de vérifier les impacts de certains bio-pesticides sur les insectes ravageurs des gazons, de là mon lien avec le merveilleux monde de l'entomologie.

Marc Rhainds; chercheur post-doctoral, fsaamrh@hermes.ulaval.ca

As a PhD student at Simon Fraser University, I investigated the ecology of tropical insects in Costa Rica, Indonesia, Peninsular Malaysia, Borneo and China. I graduated in 1999, and have been working as a post-doc since then at Cornell University, Agriculture and Agri-Food Canada in Harrow, and University of Hawaii. I recently came back to Quebec, and enjoy the opportunity to collaborate with Jacques on the ecology of soybean aphids. The major objective of my research is to quantify the feeding impact of soybean aphids in relation with the density of aphids, timing of infestation, incidence of predators, movements of aphids between plants, as well as attributes of host plants (phenological stage, water stress, density of seedlings). In the long term, I seek permanent employment as a research entomologist, preferably in Canada.

Julie Blais; étudiante à la maîtrise, julblais@yahoo.fr

J'ai été amenée à côtoyer les étudiants gradués de Jacques au cours de mes quatre années de baccalauréat en agronomie à l'Université Laval. Travailler avec les insectes m'a grandement fasciné. J'ai alors décidé de poursuivre mes études graduées sous la supervision de Jacques et du Christian Hébert, Centre de Foresterie des Laurentides. Depuis les six derniers mois, je m'intéresse particulièrement à l'influence de la température sur le cycle saisonnier et le parasitisme des œufs de l'arpenreuse de la pruche, *Lamdbina fiscellaria* (Geometridae) par *Telenomus coloradensis* (Scelionidae). Mes objectifs sont de (i) caractériser le statut reproducteur du parasitoïde par l'étude du développement ovarien, (ii) établir le patron saisonnier de parasitisme dans différentes régions du Québec, et (iii) modéliser les réponses thermiques du parasitoïde et de l'hôte.

Mylène Blais; étudiante à la maîtrise, mylene.blais.1@ulaval.ca

J'ai obtenu un BSc en agronomie à l'Université Laval et j'ai ensuite travaillé quatre ans comme agronome. Mon projet de recherche se penche sur deux ravageurs qui peuvent causer



Milène Blais, Marie-Pierre Mignault et Roselyne Labbé au party de Noël.

d'importants dommages aux fraisières et qui sont encore mal connus au Québec, voire même au Canada : le charançon de la racine du fraisier, *Otiorhynchus ovatus* et le charançon noir de la vigne, *Otiorhynchus sulcatus*. Mes deux objectifs principaux 1) Établir, pour les principales régions productrices de fraises au Québec, le statut de chacune des deux espèces de charançon 2) Caractériser la biologie saisonnière du ravageur. Pour ce dernier objectif j'ai pu, grâce à l'expertise des chercheurs Richard Trudel et Robert Lavallée du Centre de foresterie des Laurentides, procéder à la dissection de plusieurs individus tout au long de l'été afin d'observer le stade de développement du système ovarien. Les résultats m'ont permis d'identifier l'intervalle de temps où la majorité des adultes ont émergé mais n'ont pas encore initié la ponte; moment propice pour effectuer un traitement contre les adultes. Et maintenant, dernière étape de ce long processus, la rédaction.

Anne-Marie Fraser; étudiante à la maîtrise, anne-marie.fraser.1@ulaval.ca

Après avoir obtenu mon diplôme de Baccalauréat en Agronomie, à l'Université Laval, j'ai décidé de poursuivre mes études et de faire une maîtrise. J'ai donc entrepris, sous la direction des docteurs Dominique Michaud et Michèle Roy, une maîtrise en entomologie à l'été 2003. Subventionné par le Ministère de l'Environnement, mon projet porte sur les impacts des cultures de maïs transgéniques (maïs *Bt*) au niveau des insectes.

L'objectif principal de l'étude est de démontrer que la toxine Cry IAb contenue dans le maïs génétiquement modifié (maïs *Bt*) n'a pas d'impact sur les insectes non-ciblés en champ, c'est-à-dire, sur les insectes autres que la pyrale du maïs. L'étude comprend trois volets; un premier volet en champ qui s'échelonne sur deux étés (deux essais : St-Hyacinthe & St-Augustin), un premier volet en champ qui s'échelonne sur 2 étés (2 essais : St-Hyacinthe & St-Augustin), un deuxième volet en serre (étude d'une interaction tritrophique spécifique), et finalement, un troisième volet en laboratoire (protéomique). Au terme de cette étude, nous espérons apporter quelques réponses aux nombreuses questions soulevées par les OGM.



Anne-Marie Fraser au jardin botanique Roger-Van den Hende.

Roselyne Labbé; étudiante à la maîtrise, roselabb@hotmail.com

J'ai obtenu en 2001 un baccalauréat en Écologie et Évolution à l'University of Western Ontario. Dans le cadre du Réseau Biocontrôle du Canada, j'ai initié des études graduées à l'Université Laval



Marie-Pierre Mignault à la recherche de pucerons du soya.

sous la direction de Jacques et de Conrad Cloutier. Mes travaux de recherche portent sur les interactions intra-guildes entre trois types d'ennemis naturels de la mouche blanche, *Trialeurodes vaporariorum* soit le prédateur zoophytophage, *Dicyphus hesperus*, le champignon entomopathogène, *Beauveria bassiana*, et le parasitoïde, *Encarsia formosa*. Un premier objectif était d'évaluer la capacité discriminatoire du prédateur envers des proies infectées ou parasitées. Le second objectif réalisé en collaboration avec le Dave Gillespie, Agriculture and Agroalimentaire Canada, Agassiz, consistait à caractériser en serre les interactions entre les agents biologiques et leur impact sur les populations de mouches blanches. Je termine actuellement la rédaction de mon mémoire et travaille à l'Institut de recherche en biologie végétale de Montréal.

Marie-Pierre Mignault; étudiante à la maîtrise, marie-pierre.mignault.1@ulaval.ca

Suite à l'obtention d'un baccalauréat en agronomie à l'Université Laval, j'ai entrepris au printemps 2001 un projet de maîtrise en deux volets sur le puceron du soya, *Aphis glycines*, une espèce d'origine asiatique qui a été observée

pour la première fois en Amérique du Nord en 2000. Le premier objectif de ma recherche visait à caractériser en 2002 et 2003 la distribution spatiale du ravageur, quantifier les fluctuations de ses populations à travers le Québec et évaluer la diversité des prédateurs foliaires associés au puceron du soya. Le deuxième volet consistait à évaluer, en laboratoire, les capacités de développement et de reproduction sur le puceron du soya des trois espèces de coccinelles les plus fréquemment observées dans les champs de soya: la coccinelle asiatique, *Harmonia axyridis*, la coccinelle maculée, *Coleomegilla maculata*, et la coccinelle à 14 points, *Propylea quatuordecimpunctata*. J'en suis présentement à l'étape de la rédaction de mon mémoire. Je suis désormais établie dans la région de Montréal où je travaille au développement de la lutte biologique au Biodôme.

Payse Mailhot; étudiante à la maîtrise, payse.mailhot.1@ulaval.ca

Je suis biologiste, diplômée de l'Université de Sherbrooke. Dans le cadre de ma maîtrise, j'étudie les interactions entre la cécidomyie du sapin (*Paradiplosis tumifex*) un insecte galligène et ses ennemis naturels. Le diptère *P. tumifex* provoque

la formation d'une galle sur les aiguilles du sapin et leur chute prématurée. Les objectifs de ma recherche sont de déterminer la phénologie saisonnière de la galle et d'identifier les mécanismes de régulation des populations de *P. tumifex*. Avec l'aide de Conrad Cloutier (co-directeur et professeur au Département de biologie) et de son équipe, j'ai suivi la progression des galles de sapin dans une plantation, de leur formation à la chute des aiguilles. En disséquant les galles, nous avons observé le contenu de chacune d'entre-elles. Ces informations nous permettront de mieux comprendre les interactions entre les parasitoïdes, une espèce inquiline et la cécidomyie du sapin et leurs conséquences sur la dynamique des populations des espèces. L'étude visait également à identifier la communauté de parasitoïdes associée aux cécidomyies galligène et inquiline.

Sophie Rochefort; étudiante au doctorat, sophie.rochefort@crh.ulaval.ca

Après huit années sur le marché du travail, j'ai effectué un retour aux études afin d'approfondir mes connaissances en recherche, en particulier dans le secteur de l'écologie urbaine. L'expertise que j'ai développé ces dernières années dans ce domaine a guidé mon choix vers un projet de doctorat qui aborde deux aspects de l'entretien des surfaces gazonnées. Le premier aspect porte sur l'impact de différents types d'entretien de pelouses sur l'abondance et la diversité des arthropodes et des mauvaises herbes, ainsi que sur la qualité des surfaces gazonnées. Parmi les types de traitements évalués, il y a entre autres un entretien dit 'écologique' où seules des méthodes alternatives aux pesticides sont utilisées pour lutter contre les organismes nuisibles. Le deuxième aspect de mon projet évalue l'effet des graminées endophytiques sur les populations de la punaise velue, *Blissus leucopterus hirtus*, et de l'anneleur de la canneberge, *Chrysoteuchia topiaria*. Les endophytes sont des champignons symbiotiques qui procurent à la plante une protection contre les insectes phytophages en produisant des substances toxiques ou répulsives.

Louis Simard; étudiant au doctorat, simardl@hotmail.com

I received a BSc in biology from University of Sherbrooke in 1998 and a Bsc in agronomy from Laval in 2004. I also completed my MSc in nematology at Laval University, Québec, in 2001. I am now writing a PhD thesis on the seasonal ecology of insect pests and the development of integrated pest management on golf courses. Specifically, I have studied various aspects of the population dynamics of the black cutworm, the black turfgrass ateniens, and the annual bluegrass weevil, three major insect pests on golf courses in Quebec. During my graduate studies, I had the opportunity to spend one year at the University of Guelph in Julie Dionne's lab and three months at the University of Arizona in Yves Carrière's lab. I am currently working part time as research assistant at Agriculture and Agri-Food Canada in Saint-Jean-sur-Richelieu in nematology. I am also visiting golf courses across Québec this summer as the coordinator of the Coalition for Responsible Golf, an environmental and research program for golf courses in Québec.



Sophie Rochefort au travail.

Élisabeth Taschereau; étudiante à la maîtrise, elisabeth.taschereau.1@ulaval.ca

Suite à l'obtention d'un Baccalauréat en biologie de l'Université de Sherbrooke, j'ai entrepris une maîtrise en entomologie sous la direction de Jacques et de Julie Dionne, Royal Canadian Golf Association. J'en suis déjà à ma deuxième saison d'échantillonnage. Je travaille sur la tipule européenne, *Tipula paludosa* (pour les intimes), un insecte qui cause des dommages aux graminées à gazon en Colombie Britannique, en Ontario et dans les maritimes. Il a fait son apparition au Québec au début du nouveau siècle. En plus de se nourrir du feuillage et des racines des graminées à gazon, les larves ont la malencontreuse manie de se retrouver sur la trajectoire des balles de golf au grand dam des adeptes de ce sport. J'échantillonne sur quatre terrains de golf de la région de Québec à mes risques et périls afin d'identifier le complexe d'espèces de Tipulidae, de caractériser le cycle saisonnier de la tipule européenne, de connaître sa distribution sur le terrain et d'identifier les paramètres biotiques et abiotiques qui favorisent le développement des populations. Ces informations permettront l'élaboration d'une stratégie de gestion des populations de la tipule européenne de façon à réduire les applications d'insecticides.

Annie-Ève Thibodeau Gagnon; étudiante à la maîtrise, annie-eve.thibodeau-gagnon.1@ulaval.ca

Ayant terminé une technique en aménagement de la faune, j'ai décidé de parfaire mes connaissances en complétant un Baccalauréat en Biologie à l'UQÀM. Durant ces années, j'ai eu la chance de travailler dans le laboratoire de Daniel Coderre et Éric Lucas. Ma passion pour les insectes s'est alors concrétisée. Pour ma troisième année de baccalauréat, je me suis déplacée à Québec pour suivre des cours d'entomologie à l'Université Laval. J'ai pu connaître le laboratoire de Jacques Brodeur. C'est donc en mai dernier que j'ai commencé une maîtrise avec Jacques comme directeur et George Heimpel de l'Université du Minnesota en co-direction. Mon sujet porte sur les

prédateurs du puceron du soya, un nouveau ravageur en Amérique du Nord. J'entreprends cet été un échantillonnage des prédateurs au sol et foliaires. Je me pencherai plus particulièrement sur les interactions intraguilides entre plusieurs espèces de coccinelles prédatrices. Je procéderai à des analyses moléculaires du contenu gastrique des coccinelles afin de déterminer la présence de la prédation intraguilde dans les champs de soya. Des études au champ seront aussi réalisées l'année prochaine, à l'aide de cages d'exclusions.



Un dragon d'Élisabeth (un derrière de larve de tipule!).

The student wing / L'aile étudiante

By Tonya Mousseau

If you haven't noticed, the list of ESC students on the website has been growing! Check out who we are at <http://esc-sec.org/gradstud.htm>.

The Student Affairs Committee has decided to take upon itself the task of updating the Directory of Entomological Education in Canada (<http://esc-sec.org/students.htm>). Thank-you to all the students who are helping with this project.



M. Alperyn

Thesis roundup / Un foisonnement de thèses

Alperyn, Michael; malperyn@hotmail.com, MSc, May 2004. *Factors affecting community ecology of predacious water beetles (Coleoptera: Dytiscidae) in lentic habitats across southern Manitoba.*

Supervisor: Rob Roughley, University of Manitoba, Department of Entomology.

Crowe, Michael; michael.crowe@lakelandc.ab.ca, MSc, September 2003. *Ecological interactions between insect herbivores and their host plant in a weed biocontrol system.* Supervisors: Rob Bouchier & Ralf Cartar, University of Lethbridge.

Questions and answers / Questions et réponses

Where can I find information on sources of funding for entomology students studying arthropod biodiversity? **Jase Manson**, University of Victoria

A couple of years ago Terry Wheeler wrote a document for the Biological Survey on funding sources for graduate students in arthropod biodiversity. As well as providing specific sources of funding, the article gives general advice on preparing applications. You can view the article on the Survey's website at <http://www.biology.ualberta.ca/bsc/english/funding.htm>. **Susan Goods**, Biological Survey of Canada

I am interested in becoming more involved in ESC. How did you get your position as student representative? Does the ESC student committee need more volunteers? **Sarah Jandricic**, University of Guelph

It is wonderful that you would like to become more involved in the ESC. I became the ESC student representative after joining the ESC student committee and Jade Savage stepped down as the representative. We are always looking for more volunteers to join the committee. The committee is responsible for student activities such as webpages, student information and student events. **Tonya Mousseau**, ESC Student Representative

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

Annuel

Bourses pour étudiants post-gradués

La Société d'entomologie du Canada (SEC) offre deux bourses d'une valeur de 2000 \$ chacune pour aider des étudiants qui débudent des études post graduées et des recherches en vue de l'obtention d'un diplôme d'études supérieures en entomologie (habituellement une à un(e) étudiant(e) à la maîtrise et l'autre à un(e) étudiant(e) au doctorat). Les bourses seront accordées aux étudiants ou étudiantes en raison des seuls critères de réussite académique. **Date limite : juin 2005**

Subventions de recherche-voyage au niveau des études supérieures

Deux subventions de recherche-voyage, pouvant atteindre 2000 \$, sont offertes pour aider les étudiants et étudiantes à élargir le champ de leur formation supérieure. Les bourses seront accordées aux étudiants ou étudiantes en raison des seuls critères de réussite académique. **Date limite : février 2005**

Spécial et nouveau cette année!!

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

Une ou plusieurs bourses de 500 \$ chacune seront offertes pour aider les étudiant(e)s, membres de la SEC, à assister à la réunion annuelle. Pour être admissible, les étudiant(e)s doivent faire une présentation ou présenter une affiche lors de la réunion annuelle. Les bourses seront accordées aux étudiants ou étudiantes en raison des seuls critères de réussite académique. **Date limite : juillet 2005** (le même date limite que celle pour soumettre un résumé). Note : Les récipiendaires seront avisés en août, ce qui leur donnera amplement le temps de planifier leur voyage.

Bourse de la Commission biologique du Canada

En reconnaissance de la Commission biologique du Canada, la SEC offre une bourse d'étude supérieure de 1000 \$ pour aider un(e) étudiant(e)

à entreprendre des études supérieures sur le sujet de la biodiversité des insectes ou arthropodes terrestres au Canada. Cette bourse sera accordée aux étudiants ou étudiantes selon des critères de réussite académique et d'excellence en faunistiques, et sera offerte une année sur deux en alternance avec la Bourse Keith Kevan en systématique. **Date limite : juin 2006**

Consulter <http://esc-sec.org/students.htm> pour les détails ou le *Bulletin de la SEC* 2003 35(4) 188-191 ou contacter :

Brian Van Hezewijk

Présidente Comité des prix aux étudiants de la SEC

Agriculture et Agroalimentaire Canada

Case postale 3000, Lethbridge, AB T1J 4B1

Courriel : VanHezewijkB@agr.gc.ca

Consulter aussi le site Internet de la SEC et la section du *Bulletin* dédiée au congrès annuel conjoint pour les informations au sujet de la Bourse CRSNG du Réseau de Biocontrôle (i.e., pour des présentations étudiantes sur le biocontrôle)

Special

Bourse Keith Kevan en systématique

En mémoire du D. Keith McE. Kevan, la Société d'entomologie du Canada offre une bourse d'étude de 1000 \$ pour aider les étudiant(e)s post-diplômé(e)s qui entreprennent des études en taxonomie des insectes. Cette bourse sera accordée, les années impaires, selon des critères d'excellence académique et de la prééminence en taxonomie des insectes. **Disponible en 2005**

Bourse John Borden

Créée en 2000, cette bourse a été instituée en l'honneur de John Borden, dont l'enseignement et la recherche en écologie chimique ont influencé internationalement la lutte contre les insectes ravageurs et l'entomologie. Cette bourse de 1000 \$, pour souligner une recherche innovatrice en lutte intégrée, La première bourse sera **offerte en 2005**.

Entomological Society of Canada awards and scholarships

Annual

Postgraduate awards

Two postgraduate awards of \$2000 will be offered to assist students beginning study and research leading to a post-graduate degree in entomology (normally one to a MSc, and one to a PhD student). The postgraduate awards will be made on the basis of high scholastic achievement.

Deadline: June 2005

Research-travel scholarship

Two research-travel scholarships of a maximum of \$2000 each will be awarded to help students increase the scope of their graduate training. Applications will be judged on scientific merit. **Deadline: February 2005**

Special and new this year!!

Student conference travel awards

One or more awards of \$500 each to be awarded as financial assistance for travel to the annual meeting by student members of ESC. To be eligible, students must present a paper or poster at the annual meeting. Applications will be judged on academic merit. **Deadline: July 2005** (same as deadline for abstracts to annual meeting). Note: winners will be notified in August, so travel plans can be made.

Biological Survey of Canada scholarship

In recognition of the Biological Survey of Canada, the ESC is offering one postgraduate award of \$1000 to assist a student in a postgraduate program who is studying insect or terrestrial arthropod biodiversity in Canada. The award will be made on the basis of high scholastic achievement and excellence in faunistics, and will be offered in alternate years to the Keith Kevan Scholarship. **Deadline: June 2006**

See <http://esc-sec.org/students.htm> for complete details or *Bulletin ESC* 2003 35(4) 188-191, or contact:

Brian Van Hezewijk
Chair ESC Student Awards Committee
Lethbridge Research Centre
Agriculture and Agri-Food Canada
P.O. Box 3000
Lethbridge, Alberta T1J 4B1
Email: VanHezewijkB@agr.gc.ca

Also watch the ESC website and *Bulletin* closer to the Joint Annual Meeting for information on the NSERC Biocontrol Network Award (i.e., for student presentations on biocontrol)

Special

Keith Kevan scholarship in systematics

In memory of D. Keith McE. Kevan, the Entomological Society of Canada offers a scholarship of \$1000 to aid students undertake postgraduate studies in insect taxonomy. This scholarship will be awarded in odd numbered years, with the selection criteria being academic excellence and taxonomic ability. **Available in 2005**

John Borden scholarship

Created in 2000, this scholarship was established in honour of John Borden, who's teaching and research in chemical ecology is recognized around the world for its impact on pest control and entomology. This scholarship of \$1000 will be offered to students to encourage innovative research in the field of IPM. The first scholarship will be **offered in 2005**.

ESC would like to thank BASF Inc for contributing \$ 750 to the graduate student travel scholarship fund.

Members in the news / Membres faisant la manchette

Robert Latham Randell: Tribute on his retirement

By Cedric Gillott and Lorraine Braun

More than 60 family members and friends gathered in the University of Saskatchewan's Natural Sciences Museum on 24 June 2004, to wish Bob a long and memorable retirement after 34 years on the Biology Department Faculty. Cedric Gillott led the tributes by offering a short biography that highlighted Bob's achievements. Dan Johnson offered personal congratulations, noting that Bob had been the single most-influential person in his own career development. Dennis Lehmkuhl completed the formalities by engaging in a dialogue with Bob - in Japanese! - and presenting a variety of gifts.

Bob was born in Vancouver in May 1937, but at the age of 18 months his family moved to England where they spent the next seven years. It was during this period that young 'Bobbie' had his first brush with the law - in the form of P.C. Peter Crisp. 'PCPC', as he was known, was a family friend and an avid collector of butterflies and moths. He had wonderful trays of these insects at his home, where Bob became a frequent visitor. Naturally, Bob began his own collection, but for reasons that even today he keeps a well-guarded secret, he concentrated on wood lice and snails!

Perhaps sadly for the British Natural History Museum, Bob's family were repatriated to Winnipeg early in 1945. This did not deter the young naturalist who not only continued his invertebrate collecting activity but even in junior high school became a volunteer at the Winnipeg Museum (now the Museum of Man and Nature).

In the fall of 1951, Bob's family moved again, this time to Montreal. In Grade 10, at Lachine High, he came under the influence of a teacher named 'Miss Bunting'. As the daughter of the Professor of Agronomy at McGill University, she obviously wielded immense power and secured Bob a volunteer position at Macdonald College

with Professor Frank Morrison who was conducting an insect survey of some nearby woods. Simultaneously, Bob obtained a paid position in the Poultry Science Department, 'mucking out' the chicken coops, the remuneration for which apparently just covered the bus fare between home and St. Anne de Bellevue!

Probably to no-one's surprise, Bob entered McGill University's BSc (Agr.) Program at the Macdonald College campus. He graduated in 1958 as the top student in the entomology option, for which he received the Lockhead Memorial Prize. It was as a senior undergraduate that he became fascinated with crickets, when he began working for Professor Robert Bigelow.

He subsequently took an MSc under the supervision of Bigelow, studying the karyotypes of certain species of *Gryllus* (Gryllidae: Ensifera) as an aid to determining their taxonomic relationships.

Bob also undertook his PhD at Macdonald College, starting in 1961 under Professor Keith Kevan, who had recently joined the faculty. For his PhD, he moved from 'unseen' to 'unsightly' reproductive structures - the external genitalia of male crickets. He used these to clarify the taxonomic relationships of the Gryllinae. As a component of his work on this difficult group, Bob described three new genera and several new species. It is worth noting (especially by any PhD students reading this article) that Bob finished his PhD within 3 years, a remarkable feat considering that, during this time, he also began teaching the Insect Course to the Macdonald College diploma students. Bob's reward for this achievement was the prestigious Henry Ford Memorial Post-doctoral Fellowship, worth \$6000, tax free! McGill awarded only one such fellowship annually, with the competition open to students from all its faculties.

In 1964, facing the prospect of a real job for the first time, Bob had to make a difficult decision - was it to be Saskatoon or Addis Ababa? Apparently, the thought of Prince Haile Selassie walking his lions on the university grounds convinced him that joining the Canada Agriculture Research Station was a better option. However, on arrival



Bob Randell, Denis Lehmkuhl and Dan Johnson (from left) at Bob's retirement party, June 2004.

in Saskatoon, this young taxonomist was told politely but firmly 'no private insect collection and no taxonomy!' He was also asked to stay away from any attempted correlation between grasshopper abundance and weather, a topic to which the Research Station was 'highly sensitive.' Thus, between 1964 and 1970 Bob developed mathematical models for predicting grasshopper outbreaks, using bionomic data such as hatch dates, development rates and population densities (Randell, 1972). Remarkably, to do this, Bob had to teach himself Fortran, so that he could generate computer programs for his models. Probably, however, Bob's most-often cited contribution to entomological science from this era is the paper reporting the development of a non-diapause strain of the migratory grasshopper, *Melanoplus sanguinipes* (Pickford and Randell, 1969). Cultures of this strain have been widely distributed across North America and elsewhere for use in physiological and other types of research.

In 1970, Bob was invited to join the Grasslands Project, part of the International Biological Program, under the direction of Professor Robert Coupland, a plant ecologist at the University of Saskatchewan. His role would be to carry out the modeling and data analysis that this huge interdisciplinary study required. Bob requested, but was refused, a 2-year leave of absence from the Research Station, and briefly it appeared as though the IBP would have to make do without his expertise. However, Coupland managed to persuade the university to fund a new position, with the result that Bob resigned from the Station - much to everyone's surprise - and joined the Depart-

ment of Biology.

Thus began a 34-year association with the Department, with Bob playing a diverse role in its affairs. He served on advisory committees for a wide variety of graduate students, who took advantage of his expertise in entomology, ecology, biomathematics, and modeling. He participated in many departmental committees, while teaching a remarkable range and number of courses (13 in total, comprising 8 undergraduate and 4 graduate courses, plus a course to the University's Diploma in Agriculture students). Bob also did yeoman 'extension service' for the Department, fielding thousands of queries about all sorts of creepy crawlies.

Though retired, Bob has not been lost to the Department, which has appointed him 'Honorary Curator' of its Insect Collection. Bob also intends to continue his interest in modeling, though rather than energy flow in grassland ecosystems the focus now will be on miniature railroads and Japanese gardens.

Pickford R, Randell, RL. 1969. A non-diapause strain of the migratory grasshopper, *Melanoplus sanguinipes* (Orth.: Acrid.), *The Canadian Entomologist* **101**: 894-896.

Randell R.L. 1972. Some recent advances in the application of high-speed computing equipment to grasshopper forecasting and the study of grasshopper ecology in Saskatchewan. in CF Heming, THC Taylor (Eds), *Proceedings of the International Study Conference on Current and Future Problems in Acridology*, Centre for Overseas Pest Research, London.

Joint annual meeting of The Entomological Society of Canada and The Acadian Entomological Society



Insects in the landscape

Rodd Charlottetown Hotel

Charlottetown, P.E.I., 15-18 October 2004

On behalf of the Acadian Entomological Society and the Entomological Society of Canada, we are pleased to invite you to the 2004 Joint Annual Meeting which will be held in the Rodd Charlottetown Hotel, Charlottetown, PEI. The theme for the meeting is "Insects in the Landscape", and we are confident that the symposia, workshops, and submitted papers will lead to an interesting and informative meeting.

The 2004 meeting will depart from tradition a bit, and begin on Friday evening, running through the weekend. The meeting will wind up with submitted papers on Monday afternoon. This should allow members who have teaching or other commitments through the week to attend, and also allow members to take advantage of "Saturday stay-over" seat sales to attend the meeting. Please ensure that you take this into account when you make your travel plans.

The Rodd Charlottetown Hotel was built as a CN hotel in 1931 and has been extensively renovated and decorated with replicas of period furnishings. It is a modern hotel though, complete with pool and fitness centre. Parking is complementary for those that wish to drive, and downtown Charlottetown is located only minutes from the Charlottetown airport. For more information on the hotel, check out: <http://www.rodd-hotels.ca/ourhotels/charlottetown.html>. The Rodd Hotel is offering us a special conference rate for the hotel of \$99.00 per night (for up to two people in a room, plus taxes), and suites are also available. Be sure to mention the Entomological Society of Canada Conference when booking to get the conference rate.

The Rodd Hotel is located in historic downtown Charlottetown (<http://www.visitcharlottetown.com>), only a few minutes walk from Province House (where Confederation was born), the Confederation Centre Art Gallery, and numerous fine shops and restaurants. The hotel is also located near several wonderful old Victorian homes that are now Bed and Breakfast establishments. For information about how to get to PEI, options for alternate accommodation, and information on what to do while here, go to the PEI Government Tourism guide, at <http://www.gov.pe.ca/visitorsguide/index.php3>. Air Canada and Jetsgo fly directly to Charlottetown; alternatively you can fly to Moncton (2 hours drive, over the Confederation Bridge) or Halifax (3.5 hours drive), and rent a car to see some wonderful Atlantic Canadian scenery on your way here.

In addition to the JAM, there are several additional meetings and workshops scheduled to enable entomologists to get the best bang for their travel dollar. Contact the programme committee if you have any other suggestions for activities at the meeting. We are also going to try to put together a "down home kitchen party" following the banquet entertainment, so bring your voices or your instruments and be prepared for some fun. Please visit our webpage for more information and all the news as it develops about the meeting: <http://www.acadianes.org/>

For more information contact:

Donna Giberson, giberson@upeji.ca

Chair of the Organizing Committee

or

Jon Sweeney, jsweeney@nrcan.gc.ca

Program Chair

Congrès conjoint des Sociétés d'entomologie du Canada et Société acadienne d'entomologie

Les insectes et le paysage
L'hôtel Rodd Charlottetown
Charlottetown (Î.-P.-É.)
15 au 18 octobre 2004



Au nom de la Société acadienne d'entomologie et de la Société d'entomologie du Canada, nous sommes heureux de vous inviter à la réunion conjointe annuelle de 2004, qui se tiendra à l'hôtel Rodd Charlottetown, à Charlottetown, à l'Î.-P.-É. La réunion aura pour thème « Les insectes et le paysage ». Nous sommes convaincus que le colloque, les ateliers et les communications donneront lieu à une réunion intéressante et informative.

La réunion de 2004 se distinguera quelque peu des réunions précédentes en ce sens qu'elle débutera vendredi soir et qu'elle se poursuivra toute la fin de semaine. La réunion se terminera lundi après-midi par les communications. Cette formule permettra aux membres qui doivent enseigner ou qui ont d'autres engagements dans la semaine d'assister à la réunion. Certaines personnes pourront également ainsi profiter des billets d'avion à prix réduit vendus moyennant un séjour d'un samedi soir obligatoire. N'oubliez pas de tenir compte de cela lorsque vous planifierez votre voyage.

L'hôtel Rodd Charlottetown a été bâti en 1931 pour la Compagnie des chemins de fer nationaux du Canada (CN). Il a depuis été entièrement rénové et orné de répliques de mobiliers d'époque. Il s'agit tout de même d'un hôtel moderne et l'on y trouve notamment une piscine et un centre d'entraînement. Le stationnement est gratuit, et le centre-ville de Charlottetown n'est situé qu'à quelques minutes de l'aéroport de Charlottetown. Pour obtenir de plus amples renseignements sur l'hôtel, consultez son site Web, à l'adresse : <http://www.rodd-hotels.ca/ourhotels/charlottetown.html>. L'hôtel Rodd nous offre un tarif spécial pour la conférence à 99 \$ par nuit (pour deux personnes au plus par chambre, taxes en sus). Vous pouvez également choisir de louer une suite. Pour bénéficier du tarif spécial, n'oubliez pas de mentionner que vous participez à la Conférence de la Société d'entomologie du Canada au moment de réserver.

L'hôtel Rodd est situé dans le centre-ville historique de Charlottetown (<http://www.visitcharlottetown.com>), à quelques minutes de marche de la Province House (lieu de naissance de la Confédération), du Confederation Centre Art Gallery et de nombreuses boutiques et restaurants haut de gamme. L'hôtel est également situé près de plusieurs magnifiques maisons victoriennes qui ont été transformées en gîtes du passant. Pour savoir comment vous rendre à l'Î.-P.-É., pour connaître d'autres possibilités d'hébergement et pour obtenir des renseignements sur les activités à faire pendant votre séjour, consultez le Guide touristique de l'Î.-P.-É., à l'adresse : http://www.gov.pe.ca/visitors-guide/f_index.php3?. Air Canada et Jetsgo offrent des vols directs vers Charlottetown. Vous pouvez également prendre l'avion jusqu'à Moncton (deux heures de route) ou jusqu'à Halifax (3,5 heures de route), louer une auto, traverser le pont de la Confédération et admirer le magnifique paysage de la région de l'Atlantique.

Plusieurs autres réunions et ateliers sont prévus en marge de la réunion annuelle conjointe pour offrir aux entomologistes le meilleur rapport qualité-prix. Si vous avez d'autres suggestions d'activités pour la réunion, transmettez-les au comité du programme. Nous aimerions également organiser une « soirée musicale » après le banquet. Alors, apportez vos instruments de musique et soyez prêts à chanter et à vous amuser! Consultez notre page Web pour obtenir tous les renseignements de dernière heure sur la réunion : <http://www.acadianes.org/>

Pour obtenir des détails, veuillez communiquer avec la présidente du comité organisateur, Donna Giberson (giberson@upe.ca), ou avec le président du programme, Jon Sweeney (jsweeney@nrca.gc.ca).

**Meeting Theme:
Insects in our Landscape**

Tentative Symposia

Insects in the Landscape

Organizer: Gilles Boiteau

Insect Vectors and Human Health

Organizer: Chris Lucarotti

Insect Population Dynamics

Organizer: Dan Quiring

**Insects of the Canadian Arctic Central
Barrens**

Organizers: Doug Currie and

Donna Giberson

Graduate Student Symposium

Organizer: Heather Proctor

**Thème de la réunion:
Les insectes et le paysage**

Liste préliminaire des Symposia

Les insectes et le paysage

Organisateur: Gilles Boiteau

Les insectes vecteurs et la santé humaine

Organisateur: Chris Lucarotti

La dynamique des populations d'insectes

Organisateur: Dan Quiring

**Les insectes des zones arides de l'arctique
centrale canadien**

Organisateurs: Doug Currie et

Donna Giberson

Le symposium des étudiants gradués

Organisatrice: Heather Proctor

Graduate Student Symposium

The main goal of this symposium is to give a profile to graduating students as they move to the next stage in their careers and allow them a longer time slot to talk about their research. To be eligible, students must have either defended their thesis in the past 3 years or be planning to defend within 1 year of the meeting. Ideally, the topic of the presentation should be related to the theme of the meeting: *Insects in our Landscape*.

Le symposium des étudiants gradués

Le but principal de ce symposium est de mettre en valeur les étudiants au moment où ils entament la prochaine étape de leur carrière, en leur donnant plus de temps pour présenter les résultats de leur recherche. Les étudiants admissibles auront défendu leur thèse dans les trois dernières années ou ont l'intention de défendre leur thèse avant octobre 2005. On souhaite que la présentation soit reliée avec le thème du congrès : *Les insectes et le paysage*.

Joint Annual Meeting of the Entomological Societies of Alberta and Saskatchewan

Lloydminster, Alberta, 28 - 30 October 2004

Contact: Heather Proctor, hproctor@ualberta.ca

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

51st Annual Meeting of the Entomological Society of America

Salt Lake City, Utah, USA, 14-17 November 2004

http://www.entsoc.org/annual_meeting/2004/index.html

International Symposium Ecology and Management of *Lygus* Plant Bugs

Ottawa, Ontario, Canada, 30 January- 3 February 2005

Contact: Peter Mason, Lygus_Symposium@hotmail.com

New Division Editor, *TCE*

It is with great pleasure that I announce the appointment of Jens Roland, Department of Biological Sciences, University of Alberta, as the next Division Editor in Ecology of *The Canadian Entomologist* (*TCE*). It is also with great regret that I have to announce the "retirement" of Robert Lamb, the former editor in ecology --- but that is another story!

I have known Jens for many years as an insect ecologist, first as a member of his supervisory committee (Judy Myers at UBC was his supervisor at the time) and, subsequently, as an enthusiastic observer of his developing career as an insect ecologist in Canada. Thus I know whereof I speak! Jens's career has taken him from UBC to Imperial College, London at Silwood Park (and who has to ask where that is?) and thence to positions as a Research Scientist with both Agriculture Agri-Food Canada (in Vancouver) and the Canadian Forestry Service in Sault Ste. Marie (more affectionately known as Forestry Canada!). So he has certainly covered all the bases even before he was appointed to the Department of Biological Sciences at the University of Alberta. Since then, Jens has become a full Professor at the U. of A., has taught a wide variety of courses in ecology at the university, and has supervised more than 15 graduate and postdoctoral fellows-- not to mention all the supervisory committees he has served upon.

In addition to these academic achievements, he has been on the editorial board of the journal *Biological Control Theory and Application*, and has



Jens Roland of the University of Alberta has been appointed Divisional Editor in Ecology of *The Canadian Entomologist*.

been a regular contributor as a reviewer to journals such as *TCE*, *Journal of Animal Biology*, *Journal of Applied Biology*, *Journal of Applied Ecology*, *Oikos*, *Oecologia*, *Ecoscience*, *Environmental Entomology*, *Conservation Biology*, etc., etc. It also takes a special combination of talents to organize national/international symposia in insect ecology, such as those at JAM in Kelowna, B.C. (2003) and at International Congress of Entomology in Brisbane, Australia (2004).

It remains my privilege to present to you Jens Roland, University of Alberta, as our next Division Editor for Ecology in *TCE*.

Sincerely,
Richard A. Ring
Editor-in-Chief

Invasive Arthropods in Agriculture: Problems and Solutions. Hallman, Guy J., Schwalbe, Charles P. (eds.) 2002. Science Publishers, Inc., Enfield, NH, USA. xiv + 447 pp. 19 chapters. ISBN 1-57808-172-6. <http://www.scipub.net>, (US\$99.50 cloth).

As the title suggests, this book concerns itself primarily with invasive arthropods in agriculture; however, it also has a lesser emphasis on forestry pests and other types of invasive species. It is a distinctly topical subject these days what with media attention given to recent findings of the Asian long-horned beetle in southern Ontario, and concerns over the potential for release of alien species by bioterrorists.

The book has a strong North American emphasis, with three-quarters of the 28 contributors being based in the USA and one in Canada. Several chapters cover the history of regulatory plant health, regulatory enforcement and environmental and economic costs of alien arthropods and other organisms in the USA. The history of attempts made at halting the advance of gypsy moth from its initial source of infestation in the USA, and of successive efforts to eradicate fruit flies in various American jurisdictions, are well documented although there is some repetition due to this material being covered in several chapters by different authors.

Some chapters deal with methods of quarantine, control and eradication of invasive species. Innovative methods discussed include the use of attractants and of bait matrices for novel toxicants. Other chapters address means of introduction, prediction of invasive potential of arthropods and forecasting of potential geographic distribution. This material makes especially interesting reading as it provides a background to pre-emptive measures against introduction of invasive pests.

Chapter 4, for example, examines pathways of arrival of pests that were not imported deliberately. Chapter 7 looks at conditions for invasion, characteristics of invasive insects, habitats likely to be invaded, data requirements for improved prediction and methodological approaches that

assist prediction of insect invasion. Chapter 11 examines methods used to predict the establishment and limits to potential distribution of alien crop pests in new areas. Included is an extensive discussion of ecological and intrinsic factors limiting the distribution of alien arthropods, and the means by which endangered areas can be mapped.

Chapter 13 gives a summary of the various types of treatments that can be applied in order to disinfest produce of invasive quarantined pests so as to permit it to be shipped across quarantine barriers.

Each chapter includes an extensive reference section and there is an index at the end of the volume. The text includes tables and figures, some of which are useful colour maps.

This book would be of value to several categories of readers. For example, it would serve as a good general background text to those who are new to the field of invasive arthropods and it would also serve as a good text for a graduate level course in this area. Those working in inspections and in research in invasive arthropods will also find it contains much useful background information as well as the aforementioned reference lists.

C.P. Dufault
Pest Management Regulatory Agency
Ottawa, Ontario

The Canadian Entomologist and past issues of the *Memoirs* are available from the Ottawa office, and may be purchased by Mastercard, Visa, cheque or money order.

Just living is not enough, said the Butterfly. One must have sunshine, freedom, and a little flower.
Hans Christian Andersen (1805-1875)

Books to be reviewed

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

Anderson NM, Weir TA. 2004. *Australian water bugs: Their biology and identification (Hemiptera-Heteroptera, Gerromorpha & Nepomorpha)*. Apollo Books, CSIRO Publishing, Australia. 344 pp.

Basset Y, Novotny V, Miller CE, Kitching RL (Editors). *Arthropods of tropical forests: Spatiotemporal dynamics and resource use in the canopy*. New York NY: Cambridge University Press.

Hajek A. 2004. *Natural enemies: An introduction to biological control*. Cambridge University Press, New York, NY. 378pp.

Held LI Jr. 2002. *Imaginal discs: The genetic and cellular logic of pattern formation*. New York NY: Cambridge University Press. 450 pp.

Heckman CW. 2003. *Encyclopedia of South American aquatic insects: Plecoptera*. Dordrecht, The Netherlands: Kluwer Academic Publishers. 329 pp

Morón MÁ (Editor). *Atlas de los escarabajos de México. Coleoptera: Lamellicornia. Vol. II familias Scarabaeidae, Trogidae, Passalidae y Lucanidae*. Barcelona, Spain: Argania editio, S.C.P. 227 pp.

van Emden HF, Service MW. 2004. *Pest and vector control*. Cambridge University Press, New York, NY. 349 pp.

Zhang Z-Q. *Mites of greenhouses: Identification, biology and control*. Cary, NC: Oxford University Press. 244 pp.

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

Allan Carroll

506 West Burnside Rd, Pacific Forestry Centre
Victoria, BC, Canada V8Z 1M5

Tel: (250) 363-0639, Fax: (250) 363-0775

E-mail: acarroll@pfc.cfs.nrcan.gc.ca

The American Arachnological Society is pleased to announce an up-coming publication *Spiders of North America: An identification manual* by D. Ubick, P. Paquin, P.E. Cushing and V. Roth (eds). Over 40 arachnologists are contributing to this beautifully illustrated manual. The book will allow professionals and amateurs to accurately identify spiders to the generic level, for all of North America, north of Mexico. It also includes detailed instructions for collecting spiders, dealing with spider taxonomy, and contains a complete glossary. The manual also has a unique etymological dictionary explaining the derivation of spider scientific names.

The society is currently promoting a special pre-publication offer. The manual will be published early in 2005, and pre-publication cost is \$30 USD for members of the American Arachnological Society, or \$35 USD for non-members (plus shipping and handling). Please visit the following link for additional information, and for ordering information: <http://faculty.vassar.edu/suter/spidermanual/>



Bob Lamb

Spider found in Experimental Lakes Area, near Kenora, Ontario

H. R. 'Mac' MacCarthy 1911-2004

H. R. 'Mac' MacCarthy was a rancher during the depression and served in the army for six years before going to the University of B.C. and the University of California at Berkeley. He joined Agriculture Canada and worked for twenty years at the Vancouver Research Station on the UBC campus and as an adjunct professor at UBC. After retirement he served as the Acting Director of the Master of Pest Management Program at Simon Fraser University and as the thesis editor and mentor to numerous graduate students there.

I first met Mac in the summer of 1976, when he became the coordinator of the SFU Master of Pest Management summer courses after retiring at age 65 from Agriculture and Agri-Food Canada. At that time, I was taking the Agricultural Pest Management summer course (BISC 603 for those who care), and I was immediately impressed by Mac's keen knowledge of agricultural pests, and his gripping tales of various research endeavours and battles against pestilence in BC. It was not just the stories that impressed me but the way that he told them, with his perfect, clear and enthusiastic 'Henry Higgins-like' command of the English language. Over the years, I would hear the same stories from Mac, and almost always they were told in the same clear way and with the same relish. What impressed me about Mac was that he was always consistent and dependable, always fair, always giving, always interesting, and for some reason never seemed to age.

Mac was actively involved in the executive of the Entomological Society of BC (ESBC) for the majority of his professional career. He was a past president and the editor of the *Journal of the Entomological Society of BC* for an incredible 34 years (1955-1988). I cannot think of another individual who has given so much to ESBC since its inception. As editor, Mac would go over each and every manuscript with a fine toothed comb, and I'm sure that all of us who published during that time benefited greatly from his comments and critiques. From time to time, even into the 1990s, I would pass various manuscripts by



Mac for review. Although most of us despise being asked to review a paper, Mac actually seemed to enjoy the task and within a day or two I would get a call from him saying "Are you ready to do battle?" I would then take the short drive to his house, which was close to the Vancouver Research Station, feeling rather like a student going to see the results of his English final exam. We would then sit down at his incredibly uncluttered desk or kitchen table and literally word-by-word plod through the manuscript. When we came to the disputed text, which was quite plentiful (usually beginning with the title), sometimes he would give me the opportunity to defend myself, or sometimes simply and matter-of-factly insult my "Germanic" style of writing. He would write his "suggested" revisions on the paper in perfectly crafted handwriting that you just don't see anymore. I never once saw him stroke out what he had written, and I often marvelled at what an organized and concise mind he had. At the end of the "Battle", in which I was always thoroughly defeated, he would lead me to his basement and give me a bottle of his homemade Sherry. A peace offering I'm sure. I would then go back to my office and place my paper in a

filing cabinet under "Miscellaneous MacCarthy Massacres", which I still refer to today. I would drink the Sherry later of course. He was a maker of fine wines. He learned and mastered the art of Bonsai, and established a formidable collection (somewhere between 50 and 100 as I recall) which he simply gave away to his friends and family when he downsized from house to apartment. I remember him handing me a Giant Sequoia that was over 20 years old and a whopping 1 foot high. Mac was a mentor to me and many others, and he will be sincerely missed.

In 1990, the H.R. MacCarthy Pest Management Lecture was launched at Simon Fraser University, and featured Marcos Kogan as the inaugural speaker. The lecture was founded by a

number of Mac's colleagues and friends to honour his broad contributions to Entomology and Pest Management and included: the Entomological Society of B.C.; the Professional Pest Management Association of B.C.; Agriculture and Agri-Food Canada; the Centre for Pest Management, SFU; Faculty of Agricultural Sciences, UBC; the Association of Professional Biologists of B.C.; and numerous donations from private individuals. Needless to say, Mac was very proud to have been given this honour, and attended the lectures until poor health eventually overtook him.

Mac will be remembered for his generosity, integrity, intelligence and wit.

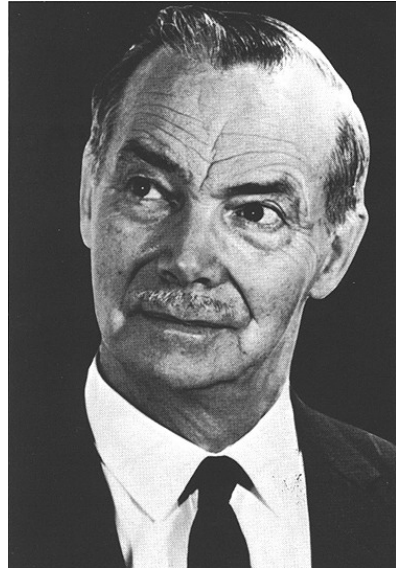
Bob Vernon
Agassiz, BC

Kenneth Graham 1911-2004

Ken Graham, Professor Emeritus from the Faculty of Forestry at UBC, passed away peacefully on Sunday 6 June 2004 after a brief illness.

Ken received his BA (UBC) in 1933; his MSc (McGill) in 1937 and his PhD (Toronto) in 1945. Ken was associated with the University of Toronto from 1937-1940 and 1943-1944. From 1931-1948 he conducted research in forest entomology for the Dominion Department of Agriculture, and was a research consultant for the Division of Forest Biology from 1949-1954. Ken Graham joined the UBC Zoology Department as a forest entomologist in 1948 and transferred to the Faculty of Forestry in 1951. Ken's main research interest was in the area of *Trypodendron* behaviour. Ken was an accomplished illustrator and a prolific writer. He authored the text book *Concepts of Forest Entomology*, a text considered well ahead of its time when it was published in 1963.

At UBC Ken taught forest entomology in the core forestry program. He was chair of the curriculum committee during a major revision to the Faculty's curriculum in the sixties. He retired from UBC in 1977 after thirty years of service. Ruth Graham, Ken's wife of 37 years, died on 1 January 2003. Ken had been living in Crofton Man-



ner since this time.

A memorial scholarship in Ken's name has been set up for graduate students in the Faculty of Forestry at the University of British Columbia. Donations can be made by contacting Katrina Evans, Senior Development Officer in the Faculty of Forestry, e-mail: katrina.evans@ubc.ca or phone 604-822-8716.

Sue Watts
Saanichton BC

Leo Arthur Dionne 1918-2004

Leo Dionne died at Fredericton, New Brunswick, 2 September 2004 after a long illness. Leo started his professional career in 1944 at the Fredericton Field Crop Insect Laboratory under Jean Adams (Bulletin 20:150; 29:67) about the time Jean succeeded R.P. Gorham as Officer-in-Charge. He left the federal service for the Biology Department at the University of New Brunswick about 1967.

Leo was a plant geneticist, although his contribution to entomology was considerable. He worked very closely with Ellen MacGillivray in the search for overwintering hosts of aphids, particularly those attacking potatoes, such as *Myzus persicae*. To paraphrase Ellen, he was a congenial and knowledgeable person to work with. He knew well the flora of New Brunswick and Ellen says she learned a great deal from him.

Leo did not hold the common attitude among plant breeders that if the quality and yield were good, one didn't have to be concerned about insects and diseases; sprays would look after them. Leo worked closely with the pathologists as well as entomologists in his potato breeding work.

In retirement, Leo took great pride in his successes breeding hardy roses. He was once cited



as having said that with adequate financing he could produce a good wine grape for the New Brunswick climate from the hardy but acid native *Vitis riparia*.

Leo was very active in the community, as an ordained Unitarian minister, in Home and School, Y's men, ethics counselling and teaching dyslectic children to read. He was predeceased by his wife Peg, in 1978, and is survived by two daughters and a son.

D.C. Eidt and M.E. MacGillivray
Fredericton



Bob Lamb

Forficula auricularia L., female European earwig guarding eggs

Recently deceased

Compiled by Ed Becker

Rosemonde Perron, wife of Paul Perron, #137--855, rue Choquette, St.-Jean-sur-Richelieu QC, J3A 1S9, (450) 348-4470 died nearly two years ago. Paul recently sent me the sad news.

Sridhar Polavarapu died on 7 May 2004. He was a very hard worker and a student of Bill Seabrook at the University of New Brunswick in the early 1990s. He was listed in the 1996 membership list of the Ent. Soc. Can. and in the 1992 membership list of the Ent. Soc. Amer. He worked in berry pest management at Rutgers University after he received his PhD at UNB. There is an obituary at the following webpage: <http://www.oznet.ksu.edu/aiena/obituary/htm>.

Charlie Devlin, husband of Gertrude, 1409 Main St. East, Saskatoon SK S7H 3C5, (306) 373-4064, died on 1 July 2004, at age 91. He worked at the Canada Agriculture Research Station at Saskatoon for 36 years specializing in cutworm research. He served in the Canadian Armed Forces during WWII and was a survivor of Dieppe, but later was injured at Normandy. He was very community minded and was a charter member of the Royal Canadian Legion Nutana Branch (he received the Life Time Service Award from the Legion). He spent considerable time talking to school children about Dieppe. Charlie coached baseball, was affiliated with the Saskatoon Lions Speed Skating club, and had a great passion for gardening, hunting, and fishing.

Tom Burnett, husband of the late Jean, died in Ottawa on 1 July 2004, just a few days after turning 89. Tom, worked for many years at the Belleville Laboratory. When the laboratory closed, Tom came to Ottawa and worked with Doug Harcourt until retirement. Tom's son Richard (Rick) lives at 164 Fanshaw Ave., Ottawa ON K1H 6C9, (613) 733-6637.

Bill Baldwin died on 26 July 2004. He was a member of the Ent. Soc. Can. for many years and he was president for 1970-1971.



Bob Lamb

Macrosiphum euphorbiae (Thomas), potato aphid, green ovipara with eggs



Pat MacKay

Moth found in Riding Mountain National Park, Manitoba.

Standing committees / Comités permanents

Nominations / Nominations

S. Smith, Chair, Toronto
R. Bennett, Victoria
J. Delisle, Ste.-Foy
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Elections / Élections

R. Hallett, Chair, Guelph
C. Cutler, Guelph
S. Goodfellow, Guelph
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Continuing committees / Comités en cours

Achievement Awards / Prix d'excellence

R. Lamb Chair, Winnipeg
S. Fitzpatrick, Agassiz
Y. Pelletier, Fredericton
R. Roughley, Winnipeg
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Annual Meeting / Réunion Annuelle

T. Shore, Chair, Victoria
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Bilingualism / Bilinguisme

M. Roy, Chair, Québec
H. Chiasson, St.-Jean-sur-Richelieu
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Bylaws, Rules & Regulations / Règlements

R. Footitt, Chair, Ottawa
G. Gerber, Winnipeg
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu
R. West, *ex officio*, Portugal Cove-St Philips

Finance / Finance

P. Bouchard, Chair, Ottawa
P. Mason, Ottawa
D. Parker, Ottawa
M. Sarazin, Ottawa
G. Gibson, Treasurer, Ottawa
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Fund Raising / Levée de fonds

N. Bostanian, Chair, St.-Jean-sur-Richelieu
G. Pohl, Edmonton
D. Giberson, Charlottetown
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Headquarters / Siège social

V. Behan-Pelletier, Chair, Ottawa
J. Cumming, Ottawa
G. Gibson, *ex officio*, Ottawa
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Heritage / Patrimoine

C. Gillott, Chair, Saskatoon
E. Becker, Ottawa
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Insect Common Names / Noms communs d'insectes

C. Buddle, Saint-Anne de Bellevue
H. Goulet, Ottawa
M. Roy, Ste.-Foy
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Marketing / Comité du marketing

O. Olfert, Chair, Saskatoon
H. White, Winnipeg
L. Braun, Saskatoon
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Membership / Adhésion

J. Sweeney, Chair, Fredericton
L. Braun, ESS, Saskatoon
D. Giberson, AES, Charlottetown
D. Hunt, ESO, Harrow
N. Laroque, SEQ, Laval
P. MacKay, ESM, Winnipeg
G. Pohl, ESA, Edmonton
T. Shore, ESBC, Victoria
C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Publications / Publications

A. Carroll, Chair, Victoria
 R. Bennett, Victoria
 G. Boivin, St.-Jean-sur-Richelieu
 P. de Groot, Sault Ste. Marie
 L. Gilkeson, Victoria
 P. Kevan, Guelph
 P. Fields, *ex officio*, Winnipeg
 B. Lyons, *ex officio*, Sault Ste. Marie
 J. Turgeon, *ex officio*, Sault Ste. Marie
 C. Vincent, *ex officio*, St.-Jean-sur-Richelieu
 R. Ring, *ex officio*, Victoria

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

D. Quiring, Chair, Fredericton
 Y. Pelletier, Fredericton
 T. Shore, ESBC, Victoria
 R. Bourchier, ESA, Lethbridge
 L. Braun, ESS, Saskatoon
 P. MacKay, ESM, Winnipeg
 D. Hunt, ESO, Harrow
 N. Larocque, SEQ, Laval
 D. Giberson, AES, Charlottetown
 C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Student Affairs / Affaires étudiantes

T. Mousseau, Chair, Winnipeg
 A. Henderson, Vancouver
 M. Marcotte, Quebec City
 J. Peterson, Vancouver
 J. Perry, Vancouver
 J. Savage, Montreal
 S. Wilkerson, Victoria
 R. De Clerck-Floate, *ex officio*, Lethbridge
 C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Student Awards /**Prix aux étudiantes et étudiants**

R. De Clerck-Floate, Chair, Lethbridge
 J. Delisle, Ste Foy
 J. Myers, Vancouver
 N. Holliday, Winnipeg

T. Wheeler, Ste-Anne-de-Bellevue
 D. Currie, Toronto
 D. Larson, St. John's
 C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

**Ad hoc Committees /
Comités ad hoc****Joint Meeting Document /
Document du congrès conjoint**

T. Shore, Chair, Victoria
 J. Sweeney, Fredericton
 C. Vincent, *ex officio*, St.-Jean-sur-Richelieu

Awards Committee

Judith Myers was approved as the 2004 Gold Medal Recipient. There will be no C. Gordon Hewitt Award winner for 2004. The guidelines for the Hewitt Award are under review.

**54th Annual general meeting
and governing board meeting**

The Annual General Meeting of the Entomological Society of Canada will be held at The Rodd Charlottetown Hotel, Charlottetown PEI on Sunday, 17 October 2004 at 16:00. The Governing Board Meeting will be held at the same location on Friday, 15 October from 8:30 to 17:00. Matters for consideration at either of the above meetings should be sent to Rick West, Secretary of the ESC.

**54^e L'assemblée générale
annuelle et la réunion du comité
directeur**

L'Assemblée générale annuelle de la Société d'entomologie du Canada aura lieu au Rodd Charlottetown Hotel, Charlottetown IPE, le dimanche, 17 octobre 2004 à 16 h 00. La Réunion du comité directeur de la SEC aura lieu au même endroit le vendredi 15 octobre 2004 de 8 h 30 à 17 h 00. Veuillez faire part au secrétaire, Rick West, de tout sujet pouvant faire l'objet de discussion à ces réunions.

Biological Survey of Canada: Terrestrial Arthropods

Survey Report

The Scientific Committee met in Ottawa on 22-23 April 2004. A more detailed account of the meeting appears in the *Newsletter of the Biological Survey of Canada (Terrestrial Arthropods)* 23(2), 2004, which is also on the BSC website at http://www.biology.ualberta.ca/bsc/news23_2/contents.htm

Scientific projects

1. Grasslands

Chapters for the first grasslands volume - *Ecology and interactions* - have been submitted, and others are in progress. A list of potential authors for the second volume - *Arthropods in altered grasslands* - and a preliminary list of authors for the third faunistic volume are being compiled. The 2004 grasslands focus trip is at Aweme, MB in June.

2. Insects of Newfoundland and Labrador

The project continues to be active mainly due to the efforts of David Larson. Work is in progress on keys, photographs, a database of relevant entomological literature, and a database of NF/LB taxa and general collection localities. The entire Memorial University of Newfoundland collection has been relocated to the Northern Forestry Centre, CFS, Edmonton on long-term loan, although the collection will move back to Newfoundland in the future. An article in the *BSC Newsletter* describes the project and encourages participation, and the BSC website was also updated including a list of families of NF/LB insects, number of taxa per family and availability of keys.

3. Forest arthropods

A forest arthropod project inventory showing 65 projects to date has been updated and is accessible on the BSC website. That website now has a fuller description of the project. A *Forest Arthropods Newsletter* will be published through the Canadian Forest Service, Northern Forestry Centre in electronic format. Ideas for a symposi-

um at the 2005 Joint Annual Meeting of the Entomological Societies are still being developed. Other project activities are in varying stages of development.

4. Insects of the arctic

Black fly records from the 2003 expedition have been incorporated into the *Black Flies of North America* and a major paper synthesizing the biogeography and composition of northern black flies is planned. Other key areas will be explored in 2004 and 2005. A symposium at the 2004 ESC annual meeting will focus on results from the arctic project.

Other scientific priorities

1. Invasions and reductions

A workshop to consider science issues (rather than policy) may be held in about 2 years pertaining to invasive alien species. A subproject on coccinellid beetles continues to focus on the introduced species of coccinellids and the potential effect on native species, and perhaps including a more public component.

2. Endangered species

Issues related to endangered species include the possibility of writing a status report for a whole group rather than a species, and the value and potential disadvantages of a list of potentially rare or endangered insects. COSEWIC will soon appoint two arthropod co-chairs. Smaller initiatives will be undertaken by the BSC before any national project on endangered species.

3. Arthropods of the Gulf of St. Lawrence Islands

A project was established, involving several co-operators, aimed at producing synthetic publications (e.g. on biogeography, size, and distance from potential sources of colonists) as well as graduate theses and undergraduate projects.

4. Survey website

The BSC website has about 20,000 visits per year, and is well received. It continues to be up-

dated. Recent updates include new sections for the Forest arthropod project, the Terrestrial arthropods of Newfoundland project, and results of the Survey review. Publications recently posted include newsletters and the French translation of the voucher brief.

5. Survey poster

A poster outlining the work of the Survey has been completed and is available to Committee members for download.

6. Databasing

Several recent grant proposals to digitize collections have not been successful. The fact was noted that proper maintenance and handling of specimens, especially identification, is far more important than what most people perceive as the task of databasing a collection. The feasibility of developing a database of common collecting locations, especially cryptic localities, will be explored.

7. Monitoring of continuing priorities

Some other Survey interests were reviewed, including arthropods of aquatic habitats, arthropod ectoparasites of vertebrates, arthropods of special habitats, and agroecosystems.

8. Other priorities

The Committee also considered actions and information about the project on keys to the families of terrestrial arthropods in Canada, wider distribution of French translations of selected briefs, arthropods and fire, the faunal analysis project, advice for a list of insect common names, and other topics.

Liaison and exchange of information

1. Canadian Museum of Nature

Roger Baird, Director, Collection Services, reported new developments. Renovations of the Victoria Memorial Museum Building are advancing. The first major phase will be complete in May 2006 with the opening of a renovated fossil gallery. The Federal Biodiversity Information

Partnership (FBIP) is continuing with its collaborative work with the various federal science departments, working on proofs of concept on how to share and exchange data or provide interoperability of data from the different departments. Some conversions of existing information and gathering of new information have been completed. Ownership of the data will continue to reside with each institution. Significant developments in the U.S. include funding for the Barcode of Life project, and FBIP will monitor these developments. The CMN received the succession plan report for the Head of the Secretariat and continues to look at options. The work of the BSC, the way information is shared and exchanged and the Museum's role in facilitating that work is an important part of the Museum's strategic direction. The Museum believes that it gains high value in its relationship with the scientific community through the BSC model, and wants to continue to build on that model with the broader scientific community. Further steps in that direction will be taken, including discussions with other professional societies and government departments.

2. Agriculture and Agri-Food Canada

Jean-François Landry reported on developments from Agriculture and Agri-Food Canada. Reorganization continues and it has re-emphasized biodiversity in research. The Agriculture Policy Framework now guides all research. Research groups are aligned across the country rather than locally, and the Biodiversity Theme leader is now Lianne Dwyer, the current Director of Eastern Cereal and Oilseed Research Centre in Ottawa. All the insect taxonomists fall under the arthropod biodiversity group. Biological collections and their importance were emphasized in a significant way at a recent meeting on the Biodiversity Theme. Two committees are especially active within the taxonomist group at ECORC. The curatorial committee has been revitalized and new members appointed. The committee is hoping to promote the establishment of a collection manager position for the CNC to oversee the day to day operations of the collections. A handbook committee has been reborn to deal with the Insects and Arachnids of Canada Handbook series (now

revived by NRC Press), with the agreement and collaboration of the Press. The committee will establish new guidelines and discuss priorities for continuing and updating the series. It will also serve as scientific advisor for the handbook series. A number of handbooks are in progress. Members of the Committee commented that the handbook series has had a very significant impact on entomology in Canada, as the first source of information for many groups.

3. Entomological Society of Canada

Charles Vincent, President, Entomological Society of Canada, announced that the new BSC scholarship will be in place by the time of the annual meeting in Charlottetown. Two other new ESC scholarships are also being implemented. The Society is trying to increase membership by attracting more young people. Overall membership numbers are more-or-less stable. The new editor of *The Canadian Entomologist*, Richard Ring, is becoming familiar with production of the journal; the Publications Committee and he are developing a proposal for various changes to the journal. Planning for the joint ESC/AES meeting is progressing well.

4. Canadian Forest Service

Brenda McAfee, CFS Science Advisor for Biodiversity, noted that the Canadian Forest Service is also undergoing a reorganization. A new national forest strategy is being implemented. Actions and priorities are still being determined and therefore the department is currently in a transition year, but biodiversity will be one of the science priorities. Some of the issues under consideration include growing links between environment and trade, management and sustainability of the diversity of the forest landscape, increasing frequency and impact of forest disturbance (fires and insects), the growing threat from non-native invasive pests, and a better need for understanding the role of forests in global cycles. There is some opportunity for focus on work relevant to the Biological Survey. There will be a coordinated approach to invasive pests and a new approach to natural disasters, liability and risk management. Innovative solutions are required

to address increasing threats to public forests, such as invasive pests, which seem likely to be a priority. A biodiversity working group of several departments has put forward a draft national strategy for addressing the threat of alien invasive species. In addition, a Memorandum to Cabinet is being drafted to address forest pests. The focus will be on protection, prediction, detection, mitigation and control. Taxonomy is essential for detection. Regional consultations are currently being held for the Invasive Alien Species strategy; members of the Survey will attempt to comment on the strategy. It was confirmed that CFS is a science-based policy organization, not a science organization. In other words science has to be done that can be translated into policy.

5. Biodiversity Convention Office

Ole Hendrickson noted that the BCO is the focal point for the Convention on Biological Diversity. At the meeting next year of the Conference of the Parties and the 2 science bodies, the Global Taxonomy Initiative will undergo a major review. There has been little progress with the GTI but there is a realization that taxonomy can not be viewed just as an add-on to a forestry or fisheries program. The process of reviewing the global taxonomy initiative will bring more attention to taxonomy at the international level. Mark Graham, Canadian Museum of Nature will be coordinating Canada's participation in the upcoming international meetings. At the national level the BCO tries to help stimulate the implementation of work done under the Convention on Biological Diversity. A federal-provincial-territorial process identified priorities including invasive species. Other initiatives involve stewardship, science and information, and monitoring of status and trends. The ESC and others had pointed out the need for a science advisory body for biodiversity but support has not been forthcoming for such an initiative within Environment Canada. It is difficult to push the biodiversity science agenda because of various interests of the provinces, which manage crown lands and forests, and to get this agenda elevated to a status that will attract new funding. John Herity, the former Director of BCO, has left the department. David

Brackett is currently Acting Director. Recently, the province of Alberta tabled a proposal for an Alberta biodiversity monitoring program. Hendrickson distributed a concept paper to the Committee and welcomed comments on whether the federal government should try to promote this sort of program nationally. After prolonged discussion by the Committee about the history of the program and potential weaknesses or alternatives, the Committee agreed to prepare a brief point-of-view about the concept paper.

6. Parasitology module, Canadian Society of Zoologists

David Marcogliese reminded the Committee that the parasitology module is based on the concept of the terrestrial arthropod module but operates without any official recognition or support. Last year the Canadian Society of Zoologists passed a resolution at its annual meeting last year that stated: "The Canadian Society of Zoologists urges the government of Canada to establish a national science council on biodiversity, a "think tank" of our best scientists in evolution, ecology and systematics, that would help set the research agenda for biodiversity science and advise on its application to policy". Marcogliese observed that there is a partitioning of issues under the national biodiversity agenda. Economic or political issues such as alien species are being dealt with individually in various departments without support for a cohesive package.

Other items

1. BSC award

Arrangements to establish the BSC award - for faunal studies in Canada - have been completed with the Entomological Society of Canada. Capital funds have been secured to assure the future of the award, and smaller donations are being sought to fund the first year's award.

2. Regional developments

Information of potential interest from different parts of the country was reported, including current projects and changes in personnel. Among many other news items, in British Columbia initiatives to undertake a biodiversity strategy in-

clude an examination of richness and rarity areas and threats such as roads, alien species, pollution, disruption of habitat, and logging. At the Royal BC Museum there was a display on giant robotic insects as well as a display highlighting entomological work in B.C., and the entomological work received much more positive public appreciation than the robotic display. In the Prairies, a national project is looking at the interface between agriculture and forestry. Efforts are underway to restore the Criddle laboratory in Aweme, and a historical record database on the insects of Aweme is being built. EMEND (Ecological Management Emulating Natural Disturbance) sites in northwestern Alberta recently received funds to establish permanent facilities. In Ontario, the Royal Ontario Museum is approaching its fundraising goal for the renovation of the museum and new galleries. *The Black Flies (Simuliidae) of North America* has been published. The CNC website has been updated and moved to the CanaColl Foundation's site. In Quebec, among other projects the Association des entomologistes amateurs du Québec is involved with producing an updated checklist of the beetles of Quebec, including extensive new surveying and collecting in southern Quebec. In Newfoundland and the Maritimes the University of Prince Edward Island is undergoing extensive renovations, and the biology building is being gutted and rebuilt although personnel are not being relocated in the interim. The Acadian Entomological Society is starting an online regional peer-reviewed journal. For the arctic, entomological work in 2004 is at Rankin Inlet and the Arctic and Boreal Entomology course at Churchill. NSERC has re-implemented its northern supplement.

3. Other matters

The Survey also considered the draft Annual Report to the CMN, further use of Survey review documents, and recent Survey publications. The Annual General Meeting of the Biological Survey Foundation was held.

AUDITORS' REPORT

To the Members,
Entomological Society of Canada.

We have audited the non-consolidated balance sheet of the Entomological Society of Canada as at December 31, 2003 and the non-consolidated statements of revenue and expenditure - General Fund, surplus and cash flows for the year then ended. These financial statements are the responsibility of the Society's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

The Society accounts for its investment in a joint venture using the cost method. Canadian generally accepted accounting principles require that investments in joint ventures be accounted for using the proportionate consolidation method. Had the proportionate consolidation method been used, assets would have increased by \$1,087, liabilities would have increased by \$239 and equity would have increased by \$26,803.

In our opinion, these non-consolidated financial statements present fairly, in all material respects, the financial position of the Society as at December 31, 2003 and the results of its operations and cash flows for the year then ended in accordance with Canadian generally accepted accounting principles, except that they are not prepared on a proportionate consolidated basis as described in note 5. As required by the Canada Corporations Act, we report that, in our opinion, these principles have been applied on a basis consistent with that of the preceding year.

McCay Duff & Company

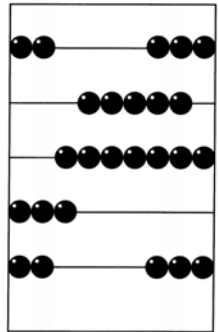
Chartered Accountants

Ottawa, Ontario,
March 3, 2004.

**MCCAY, DUFF
& COMPANY LLP**
CHARTERED ACCOUNTANTS

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ROBERT D. SHANTZ, B.Math, CA
MARGARET N. EGAN, B.Admin, CA, C.I.M.



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ENTOMOLOGICAL SOCIETY OF CANADA
BALANCE SHEET

AS AT DECEMBER 31, 2003

	ASSETS				2003 Total	2002 Total
	General Fund	Endowment Fund	Building Fund	Scholarship Fund		
CURRENT						
Cash	\$ 147,121	\$ 11,683	\$ -	\$ 16,848	\$ 175,652	\$ 218,633
Term deposit	114,377	-	-	6,548	120,925	83,201
Accounts receivable	15,037	-	-	-	15,037	11,793
Accrued interest receivable	3,457	1,313	-	1,336	6,106	6,275
Interfund balances	5,702	-	-	(5,702)	-	-
Prepaid expenses	2,208	-	-	-	2,208	3,552
	<u>287,902</u>	<u>12,996</u>	<u>-</u>	<u>19,030</u>	<u>319,928</u>	<u>323,454</u>
INVESTMENTS (note 4)	203,615	64,749	-	120,636	389,000	356,627
INVESTMENT IN BOOK PROJECT (note 5)	25,955	-	-	-	25,955	30,555
CAPITAL ASSETS (note 6)	-	-	154,515	-	154,515	159,287
	<u>\$ 517,472</u>	<u>\$ 77,745</u>	<u>\$ 154,515</u>	<u>\$ 139,666</u>	<u>\$ 889,398</u>	<u>\$ 869,923</u>
LIABILITIES						
CURRENT						
Accounts payable and accrued liabilities	\$ 28,182	\$ -	\$ -	\$ -	\$ 28,182	\$ 31,429
Deferred revenue	112,485	-	-	-	112,485	97,967
	140,667	-	-	-	140,667	129,396
SURPLUS						
BALANCE - END OF YEAR	376,805	77,745	154,515	139,666	748,731	740,527
	<u>\$ 517,472</u>	<u>\$ 77,745</u>	<u>\$ 154,515</u>	<u>\$ 139,666</u>	<u>\$ 889,398</u>	<u>\$ 869,923</u>

Approved on behalf of the Board:

Governor

Governor

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
STATEMENT OF SURPLUS
FOR THE YEAR ENDED DECEMBER 31, 2003

	<u>General Fund</u>	<u>Endowment Fund</u>	<u>Building Fund</u>	<u>Scholarship Fund</u>	<u>2003 Total</u>	<u>2002 Total</u>
BALANCE - BEGINNING OF YEAR	\$ 370,611	\$ 77,077	\$ 159,287	\$ 133,552	\$ 740,527	\$ 706,225
Net revenue (expenditure) for the year	9,635	668	(8,213)	6,114	8,204	34,302
Interfund transfers	(3,441)	-	3,441	-	-	-
BALANCE - END OF YEAR	<u>\$ 376,805</u>	<u>\$ 77,745</u>	<u>\$ 154,515</u>	<u>\$ 139,666</u>	<u>\$ 748,731</u>	<u>\$ 740,527</u>

ENTOMOLOGICAL SOCIETY OF CANADA
STATEMENT OF REVENUE AND EXPENDITURE - GENERAL FUND
FOR THE YEAR ENDED DECEMBER 31, 2003

	Canadian Entomologist		Memoirs and Other Publications		Society		2003		2002	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
REVENUE										
Regular membership	\$ 14,400	\$ 14,110	\$ -	\$ -	\$ 14,400	\$ 14,110	\$ 28,800	\$ 28,220	\$ 28,220	\$ 28,960
Student membership	800	810	-	-	1,800	1,750	2,600	2,560	2,560	2,580
Emeritus	-	-	-	-	840	460	840	840	460	760
Subscriptions	95,080	97,345	-	-	23,770	14,810	118,850	112,155	112,155	123,210
Reprints	10,000	12,692	-	-	-	-	10,000	12,692	10,000	11,209
Page charges	30,240	33,758	-	-	-	-	30,240	33,758	30,240	32,129
Back issues/Royalties	-	-	-	-	2,500	2,959	2,500	2,959	2,500	2,545
Sales of Memoirs	-	-	2,000	3,489	-	-	2,000	3,489	2,000	1,746
Sales of Arctic										
Arthropods and										
Bibliography	-	-	100	320	-	-	100	320	100	150
Gain (loss) on										
currency exchange	-	-	-	-	-	(610)	-	(610)	-	14,599
Translation/Extras	5,500	10,350	-	-	-	-	5,500	10,350	5,500	6,798
Office postage	-	-	-	-	4,500	2,977	4,500	2,977	4,500	3,318
Miscellaneous	-	-	-	-	11,000	172	11,000	172	11,000	3,165
REVENUE										
- Carried Forward	\$ 156,020	\$ 169,065	\$ 2,100	\$ 3,809	\$ 58,810	\$ 36,628	\$ 216,930	\$ 209,502	\$ 216,930	\$ 231,169

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
STATEMENT OF REVENUE AND EXPENDITURE - GENERAL FUND
FOR THE YEAR ENDED DECEMBER 31, 2003

	Canadian Entomologist		Memoirs and Other Publications		Society		2003		2002	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
REVENUE - Carried forward	\$ 156,020	\$ 169,065	\$ 2,100	\$ 3,809	\$ 58,810	\$ 36,628	\$ 216,930	\$ 209,502	\$ 231,169	
EXPENDITURE										
Publishing and mailing	110,600	107,145	-	-	-	-	110,600	107,145	105,022	
Reprint costs	9,500	8,791	-	-	-	-	9,500	8,791	8,968	
Bulletin publishing and mailing	-	-	-	-	17,000	19,902	17,000	19,902	20,487	
Salaries and benefits	17,895	17,897	-	-	17,895	17,897	35,790	35,794	34,900	
Editor's expenses	5,000	2,689	-	-	5,000	-	10,000	2,689	3,614	
Office	5,000	4,502	-	-	4,500	4,502	9,500	9,004	9,594	
Online access	8,000	5,775	-	-	-	-	8,000	5,775	-	
Professional fees	2,500	1,900	-	-	2,500	2,850	5,000	4,750	4,700	
Prizes, awards, brochure	-	-	-	-	2,000	1,207	2,000	1,207	977	
Honoraria	2,000	1,000	-	-	2,750	3,750	4,750	4,750	3,625	
Committees	-	-	-	-	1,500	677	1,500	677	-	
Other organizations/Societies	-	-	-	-	1,850	500	1,850	500	2,170	
Annual Meetings:										
Grant	-	-	-	-	4,000	-	4,000	-	2,500	
Honorees	-	-	-	-	2,000	302	2,000	302	-	
Governing Board:										
Interim meeting	-	-	-	-	2,500	2,591	2,500	2,591	1,778	
Annual meeting	-	-	-	-	6,000	7,259	6,000	7,259	7,488	
Other meetings	-	-	-	-	1,000	373	1,000	373	1,402	
President's discretionary expenses	-	-	-	-	-	-	-	-	-	
General	-	-	-	-	2,000	200	2,000	200	100	
	<u>160,495</u>	<u>149,699</u>	-	-	<u>72,495</u>	<u>63,376</u>	<u>232,990</u>	<u>213,075</u>	<u>208,136</u>	
EXCESS REVENUE (EXPENDITURE) FROM OPERATIONS	(4,475)	19,366	2,100	3,809	(13,685)	(26,748)	(16,060)	(3,573)	23,033	
Interest on investments	-	-	-	-	13,000	13,639	13,000	13,639	13,496	
Gain (loss) on sale of investment	-	-	-	-	-	(431)	-	(431)	150	
NET REVENUE (EXPENDITURE) FOR THE YEAR	<u>\$ (4,475)</u>	<u>\$ 19,366</u>	<u>\$ 2,100</u>	<u>\$ 3,809</u>	<u>\$ (685)</u>	<u>\$ (13,540)</u>	<u>\$ (3,060)</u>	<u>\$ 9,635</u>	<u>\$ 36,679</u>	

MCCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2003

	<u>2003</u>	<u>2002</u>
CASH PROVIDED BY (USED FOR)		
OPERATING ACTIVITIES		
Net revenue (expenditure) for the year		
- General Fund	\$ 9,635	\$ 36,679
- Endowment Fund	668	1,377
- Building Fund	(8,213)	(7,709)
- Scholarship Fund	<u>6,114</u>	<u>3,955</u>
	8,204	34,302
Items not involving cash		
- amortization	4,771	4,970
- gain/loss on sale of investments	<u>431</u>	<u>(300)</u>
	13,406	38,972
Net change in non-cash working capital balances related to operations		
- accounts receivable	(3,244)	3,095
- accrued interest receivable	169	(118)
- prepaid expenses	1,344	2,282
- accounts payable and accrued liabilities	(3,247)	(20,016)
- deferred revenue	<u>14,518</u>	<u>(18,456)</u>
	<u>9,540</u>	<u>(33,213)</u>
	22,946	5,759
INVESTING ACTIVITIES		
Purchase of investments	(124,803)	(52,097)
Proceeds on disposal of investments	92,000	40,000
Decrease in Investment in Book Project	<u>4,600</u>	<u>7,000</u>
	<u>(28,203)</u>	<u>(5,097)</u>
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS DURING THE YEAR	(5,257)	662
Cash and cash equivalents - beginning of year	<u>301,834</u>	<u>301,172</u>
CASH AND CASH EQUIVALENTS - END OF YEAR	<u>\$ 296,577</u>	<u>\$ 301,834</u>
CASH AND CASH EQUIVALENTS		
Cash	\$ 175,652	\$ 218,633
Term deposit	<u>120,925</u>	<u>83,201</u>
	<u>\$ 296,577</u>	<u>\$ 301,834</u>

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2003

1. PURPOSE OF ORGANIZATION

The purpose of the Organization is to study, promote and advance the study of entomology through meetings, symposia and the publication of original research results. Entomological Society of Canada is incorporated without share capital under Part II of the Canada Corporations Act and is exempt from income taxes.

2. SIGNIFICANT ACCOUNTING POLICIES

(a) Accrual Basis of Accounting

Revenue and expenditure are recorded on the accrual basis, whereby they are reflected in the accounts in the period in which they have been earned and incurred respectively, whether or not such transactions have been finally settled with the receipt or payment of money.

(b) Investments

Investments are recorded at cost, which is not in excess of market value.

(c) Capital Assets and Amortization

Capital assets are stated at cost, less accumulated amortization. Amortization is being claimed on the building at the rate of 4% on the reducing balance basis. All other capital asset additions are expensed as they are incurred.

(d) Volunteer Services

The Organization receives volunteer services, the value of which cannot be reasonably estimated. Therefore, no representation of these costs are reflected in the financial statements.

(e) Fund Accounting

The purpose of each fund is as follows:

General Fund

This fund accounts for the Society's primary operating activities.

Endowment Fund

The direction of the bequest, by which this fund was founded, states that without imposing any legal obligation, hope is expressed that the principal will not be eroded and that the income will be utilized to aid in the publication of the Canadian Entomologist.

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2003

2. SIGNIFICANT ACCOUNTING POLICIES (Cont'd.)**(e) Fund Accounting (Cont'd.)****Building Fund**

This fund was created through an appropriation from the General Fund to recognize the expenses of the building independent of operational expenditures. Prior Board approval has been given to appropriate from the General Fund an amount equal to the current year net expenditure in the Building Fund, excluding amortization on the building.

Scholarship Fund

This fund was created with the objective of awarding scholarships for post-graduate studies in entomology. The fund derives its revenue from donations and from the interest on the invested capital. The money is awarded in three different forms: scholarship for post-graduate studies, travel grant to subsidize student travel expenses incurred in relation to their post-graduate studies; or the Keith Kevan Scholarship which is a scholarship for post-graduate studies oriented toward systematics.

3. FINANCIAL INSTRUMENTS**Interest Rate Risk and Credit Risk**

The Society's financial instruments consist of cash, term deposit, accounts receivable, accrued interest receivable, investments, investment in book project and accounts payable and accrued liabilities. Unless otherwise noted, it is management's opinion that the Society is not exposed to significant interest rate or credit risk.

Currency Risk

Currency risk is the exposure to the Society's financial instruments due to changes in exchange rates. The Society is exposed to currency risk through its subscription revenues. The Society monitors its foreign subscription rates to minimize its risk.

Fair Values

The carrying amounts reported in the balance sheet for cash and term deposits, accounts receivable, accrued interest receivable, investments, investment in book project and accounts payable and accrued liabilities approximate fair values due to the immediate or short-term maturities of these financial instruments. Long-term investments are recorded at cost with market value reported in note 4.

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2003

4. INVESTMENTS

	<u>2003</u>	<u>2002</u>
General Fund		
Bonds, at cost (market value 2003 - \$213,894, 2002 - \$201,833)	\$ <u>203,615</u>	\$ <u>191,868</u>
Endowment Fund		
Bonds, at cost (market value 2003 - \$69,688, 2002 - \$70,767)	\$ <u>64,749</u>	\$ <u>64,749</u>
Scholarship Fund		
Bonds, at cost (market value 2003 - \$126,052, 2002 - 105,644)	\$ <u>120,636</u>	\$ <u>100,010</u>

5. INVESTMENT IN BOOK PROJECT

The Entomological Society has invested in the joint project for the publication of "Diseases and Pests of the Vegetable Crop in Canada" in conjunction with the Canadian Phytopathological Society. Both revenue and expenditure are to be shared in an equitable manner. The investment is recorded using the cost method. For the December 31, 2003 fiscal period no accrual was made for sales net of costs as it will be recognized as received. The remaining investment is expected to be recovered over the next few years.

6. CAPITAL ASSETS

	<u>2003</u>			<u>2002</u>
	<u>Cost</u>	<u>Accumulated Amortization</u>	<u>Net</u>	<u>Net</u>
Land	\$ 40,000	\$ -	\$ 40,000	\$ 40,000
Building	<u>202,799</u>	<u>88,284</u>	<u>114,515</u>	<u>119,287</u>
	<u>\$ 242,799</u>	<u>\$ 88,284</u>	<u>\$ 154,515</u>	<u>\$ 159,287</u>

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
SCHEDULE OF ENDOWMENT FUND REVENUE AND EXPENDITURE
FOR THE YEAR ENDED DECEMBER 31, 2003

	<u>2003</u>	<u>2002</u>
REVENUE		
Interest revenue	\$ 4,731	\$ 4,557
EXPENDITURE		
Page charges and reprints	<u>4,063</u>	<u>3,180</u>
NET REVENUE FOR THE YEAR	<u>\$ 668</u>	<u>\$ 1,377</u>

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
SCHEDULE OF BUILDING FUND REVENUE AND EXPENDITURE
FOR THE YEAR ENDED DECEMBER 31, 2003

	<u>2003</u>		<u>2002</u>
	<u>Budget</u>	<u>Actual</u>	<u>Actual</u>
REVENUE			
Rental income	\$ 6,650	\$ 6,760	\$ 6,585
EXPENDITURE			
Amortization	5,100	4,772	4,970
Insurance	930	1,227	1,051
Property taxes	5,000	5,012	5,040
Repairs and maintenance	3,180	1,991	1,767
Utilities	<u>2,100</u>	<u>1,971</u>	<u>1,466</u>
	<u>16,310</u>	<u>14,973</u>	<u>14,294</u>
NET RENTAL REVENUE (EXPENDITURE)			
FOR THE YEAR	<u>\$ (9,660)</u>	<u>\$ (8,213)</u>	<u>\$ (7,709)</u>

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
SCHEDULE OF SCHOLARSHIP FUND REVENUE AND EXPENDITURE
FOR THE YEAR ENDED DECEMBER 31, 2003

	<u>2003</u>	<u>2002</u>
REVENUE		
Interest revenue	\$ 4,891	\$ 6,930
Recovery of award	-	165
Donations	10,248	4,710
Gain on sale of investment	<u>-</u>	<u>150</u>
	15,139	11,955
EXPENDITURE		
Scholarship awards and travel grants	9,000	8,000
Service charges	<u>25</u>	<u>-</u>
	<u>9,025</u>	<u>8,000</u>
NET REVENUE FOR THE YEAR	<u>\$ 6,114</u>	<u>\$ 3,955</u>

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

AUDITORS' REPORT

To the Members,
Entomological Society of Canada.

We have audited the balance sheet of the Entomological Society of Canada - Scholarship Fund as at December 31, 2003. This financial statement is the responsibility of the Fund's management. Our responsibility is to express an opinion on this financial statement based on our audit.

Except as explained in the following paragraph, we conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In common with many charitable organizations, the Fund derives revenue from donations, the completeness of which is not susceptible to satisfactory audit verification. Accordingly, our verification of this revenue was limited to the amounts recorded in the records of the organization and we were not able to determine whether any adjustments might be necessary to donation revenue, net revenue for the year, assets and surplus.

In our opinion, except for the effect of adjustments, if any, which we might have determined to be necessary had we been able to satisfy ourselves concerning the completeness of donations referred to in the preceding paragraph, this financial statement presents fairly, in all material respects, the financial position of the Fund as at December 31, 2003 and the results of its operations for the year then ended in accordance with Canadian generally accepted accounting principles.

M'cay Duff & Company LLP

Chartered Accountants

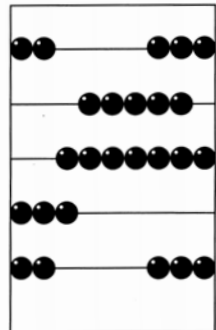
Ottawa, Ontario,
March 3, 2004.

**MCCAY, DUFF
& COMPANY LLP**

CHARTERED ACCOUNTANTS

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**ENTOMOLOGICAL SOCIETY OF CANADA
SCHOLARSHIP FUND**

BALANCE SHEET

AS AT DECEMBER 31, 2003

	<u>2003</u>	<u>2002</u>
ASSETS		
CURRENT		
Cash	\$ 16,848	\$ 27,416
Term deposit	6,548	4,283
Accrued interest receivable	<u>1,336</u>	<u>1,843</u>
	24,732	33,542
INVESTMENTS (note 2)	<u>120,636</u>	<u>100,010</u>
	<u>\$ 145,368</u>	<u>\$ 133,552</u>
LIABILITIES		
CURRENT		
Due to Entomological Society - General Fund	\$ 5,702	\$ -
SURPLUS		
BALANCE - BEGINNING OF YEAR	133,552	129,597
Revenue		
Interest	4,891	7,080
Recovery of award	-	165
Donations	<u>10,248</u>	<u>4,710</u>
	15,139	11,955
Expenditure		
Scholarship awards and travel grants	9,000	8,000
Service charges	<u>25</u>	<u>-</u>
Net revenue for the year	<u>6,114</u>	<u>3,955</u>
BALANCE - END OF YEAR	<u>139,666</u>	<u>133,552</u>
	<u>\$ 145,368</u>	<u>\$ 133,552</u>

Approved on behalf of the Board:

Director

Director

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA
SCHOLARSHIP FUND

NOTES TO FINANCIAL STATEMENT

DECEMBER 31, 2003

1. SIGNIFICANT ACCOUNTING POLICIES

(a) Accrual Basis of Accounting

Revenue and expenditure are recorded on the accrual basis, whereby they are reflected in the accounts in the period in which they have been earned and incurred respectively, whether or not such transactions have been finally settled with the receipt or payment of money.

(b) Volunteer Services

The Fund receives volunteer services, the value of which cannot be reasonably estimated. Therefore, no representation of these costs are reflected in the financial statement.

2. INVESTMENTS

	<u>2003</u>	<u>2002</u>
Bonds, at cost (market value 2003 - \$126,052, 2002 - \$105,644)	\$ <u>120,636</u>	\$ <u>100,010</u>

3. FINANCIAL INSTRUMENTS

The Organization's financial instruments consist of cash, term deposits, accrued interest receivable and investments. Unless otherwise noted, it is management's opinion that the Organization is not exposed to significant interest rate, exchange rate or credit risks arising from these financial instruments.

Fair Values

The carrying amounts reported in the balance sheet for cash, term deposits and accrued interest receivable approximate fair values due to the immediate or short-term maturities of these financial instruments. Long-term investments are recorded at cost with market value reported in note 2.

4. STATEMENTS OF INCOME AND CASH FLOWS

These statements have not been prepared as all the relevant information is apparent from the other financial statement.

McCAY, DUFF & COMPANY LLP, CHARTERED ACCOUNTANTS

Bulletin of the Entomological Society of Canada

Editor: Paul Fields
Assistant Editor: Lucie Royer

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

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

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Bulletin de la Société d'entomologie du Canada

Rédacteur : Paul Fields
Rédactrice adjointe : Lucie Royer

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

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

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prochain numéro :
31 octobre 2004**

The Buzz / Bourdonnements

Paul Fields, Editor / Rédacteur



Do you laugh while you work? I hope so, because humor and science are intimately linked. Years ago, my wife, Lorraine, had me read *The Art of Creation* by Arthur Koestler (1964). It had been required reading in a theater course. Science, and by extension entomology, at its best is a creative undertaking. I am not talking about the creative writing that goes into grant applications and the composition of one's CV. Rather, I am referring to those Eureka moments when you discover something new. All of a sudden you see an old problem from a new perspective. You have a shift in paradigm that you have been using to deal with the concept. At these moments, I often chuckle.

Koestler links humor, art and science through these creative moments. For the joke it is the punch line. For art it is the climax of the story. For science it is the eureka moment that sends scientists running naked from their bath tubs to tell the world their new discovery.

How can we cultivate creativity? Koestler has a number of suggestions. Think visually. Step back from the problem, get out of the office, get out of the lab, sleep on it, take a holiday, go on sabbatical. Take time to be alone. Cultivate doubt. Be playful, get some Lego or playdough. Have confidence in your intuition. Seek out diversity, in the books you read, the people you meet, your hobbies.

As entomologists, I figure we are lucky. We have 75% of the animal kingdom to play with, and many species haven't even been described yet. There is a very large entomological world waiting to be discovered: how insects do the incredible things they do.

Est-ce que vous riez en travaillant? Je l'espère car l'humour et la science ont des liens intimes. Il y a longtemps de cela, ma femme, Lorraine, m'a fait lire *L'Acte de création* d'Arthur Koestler (1964), ouvrage qu'elle avait lu dans un cours d'art dramatique. La science, et donc l'entomologie, est idéalement une entreprise créative. Je ne parle pas de la créativité qu'on applique à la rédaction de demandes de subvention ou du CV. Je pense plutôt aux moments « eureka », de découverte subite. Tout à coup un vieux problème paraît sous un angle nouveau; il s'agit d'une révolution conceptuelle. À ces moments, il m'arrive de pouffer de rire.

Pour Koestler, cet instant de création est le lien entre l'humour, l'art et la science. C'est le punch d'une farce, le point culminant d'un roman et le moment « eurêka » qui fait sortir le chercheur tout nu de sa baignoire pour courir les rues en criant sa découverte au monde entier.

Comment peut-on cultiver sa créativité? Koestler a de nombreuses suggestions : penser en termes visuels; prendre du recul; sortir du bureau ou du labo; partir en vacances; prendre une année sabbatique. La nuit porte conseil. Il faut se réserver du temps seul. Cultiver le doute. Jouer; s'amuser avec du Lego ou de la pâte à modeler. Se fier à son intuition; chercher la diversité dans ses lectures, ses rencontres, ses activités.

En tant qu'entomologistes, nous sommes très chanceux. Nous avons pour nous amuser 75 % du royaume animal, où de nombreuses espèces restent à décrire. Tout un monde de découverte s'ouvre à nous, à savoir comment les insectes peuvent-ils faire les choses incroyables qu'ils font?

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Illustrated on the front cover is the life cycle of the northern house mosquito, *Culex pipiens*. Mosquitoes have always been a topic of conversation in Canada, but with the advent of the West Nile Virus, mosquitoes have been even more prevalent in discussions. *Culex pipiens* is a major vector of both St. Louis equine encephalitis and West Nile Virus in central and eastern North America. Drawing by B. Flahey. Reproduced with permission from Department of National Defence, Canada.

La page couverture illustre le cycle biologique du moustique domestique boréal, *Culex pipiens*. Les moustiques ont toujours fait l'objet de discussions au Canada, mais encore plus depuis l'apparition du virus du Nil occidental. *Culex pipiens* est un vecteur important de l'encéphalite équine de Saint-Louis et du virus du Nil occidental dans le centre et l'est de l'Amérique du Nord. Dessin par B. Flahey. Reproduit avec la permission du ministère de la Défense nationale, Canada.

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