

Bulletin

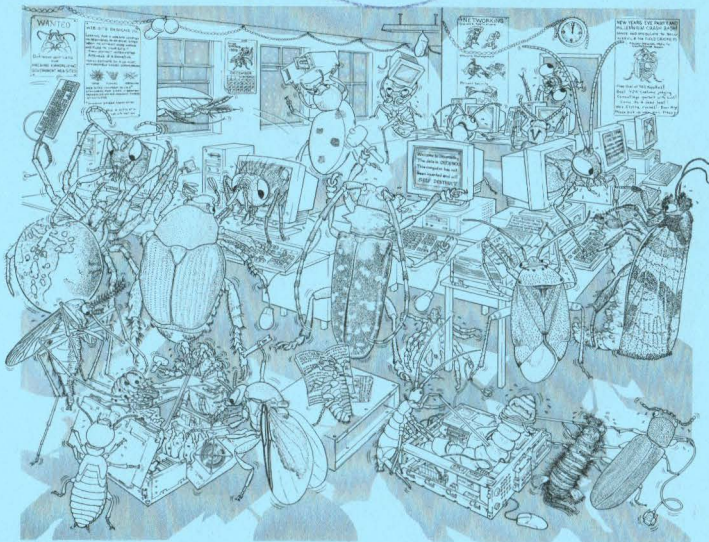
Entomological Society
of Canada

Société d'Entomologie
du Canada

Volume 32

No. 1

Mar/mar 2000



Entomological Society of Canada
Société d'Entomologie du Canada

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des matières sur la couverture-arrière

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Web Page for the ESC: <http://www.biology.ualberta.ca/esc.hp/homepage.htm>

E-mail: entsoc.can@sympatico.ca

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.

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

Illustrated on the front cover is a whimsical drawing entitled "The Millenium Bugs." It depicts the chaos and disruption that might have ensued from the inability of computers infected with "Y2K bugs" to roll-over to the year 2000. All insects shown are well established in Canada, except for one which recently invaded North America from Asia. [Drawing courtesy of Barry Flahey, Manotick, Ontario.]

L'illustration de la couverture est un dessin fantaisiste intitulé : "Les bogues du millénaire". Il représente le chaos et le bouleversement qui auraient pu découler de l'incapacité des ordinateurs contaminés par les "bogues de l'an deux mille" à franchir ce passage fatidique. Tous les insectes représentés sont bien établis au Canada, à l'exception d'un qui est originaire d'Asie et a récemment envahi l'Amérique du Nord. [Dessin de Barry Flahey, Manotick, Ontario.]

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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.

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.

SOCIETY BUSINESS/AFFAIRES DE LA SOCIÉTÉ

Notice of Executive Council Meeting

The mid-term meeting of the Executive Council will be held at the Entomological Society of Canada office in Ottawa on April 15, 2000.

La réunion de mi-session du Conseil Exécutif aura lieu au Siège social de la Société d'entomologie du Canada le 15 avril, 2000.

50th Annual General Meeting

The Annual General Meeting of the Entomological Society of Canada, will be held at the *Palais des Congrès de Montréal* in Montreal, Quebec on December 6, 2000.

La réunion annuelle générale de la Société d'entomologie du Canada, aura lieu au *Palais des Congrès de Montréal* à Montréal, le 6 décembre, 2000.

Governing Board Meeting

The Annual Meeting of the Governing Board will be held at the *Palais des Congrès de Montréal*, in Montreal, on December 2, 2000.

La réunion annuelle du conseil d'administration se tiendra au *Palais des Congrès de Montréal* à Montréal, le 2 décembre 2000.

Matters for consideration at any of the above meetings should be sent to the secretary at the address below:

Veuillez faire part au secrétaire de tout sujet pouvant faire l'objet de discussion à l'une ou l'autre de ses réunions en communiquant à l'address suivante:

Dr. Rick West
Box 515, Portugal Cove
Newfoundland AOA 3K0
phone and fax: 709-895-2734
email: reely.west@roadrunner.nf.net

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

<i>Please send all correspondence concerning the Bulletin to:</i>	<i>Please send all correspondence concerning Book Reviews for the Bulletin to:</i>
Dr. Hugh J. Barclay Bulletin Editor Pacific Forestry Centre 506 West Burnside Road Victoria, B.C. V8Z 1M5 Tel: (250) 363-0736 Fax: (250) 363-0775 E-mail: hbarclay@pfc.forestry.ca	Dr. Vince Nealis Chair, Publications Committee Pacific Forestry Centre 506 West Burnside Road Victoria, B.C. V8Z 1M5 Tel: (250) 363-0663 Fax: (250) 363-0775 E-mail: vnealis@pfc.forestry.ca

The deadline for submissions to be included in the next issue (Vol. 32(2)) is **May 1, 2000**

La date limite pour recevoir vos contributions pour le prochain numéro (Vol. 32(2)) est le **1 mai 2000**

**Entomological Society of Canada / Société d'entomologie du Canada
Committees and Representatives for 1999-2000 / Comités et représentants 1999-2000**

A-Standing Committees / Comités permanents

Nominating/Nominations

L. Gilkeson, Chair, Victoria
R. Cannings, Victoria
T. Wheeler, St. Anne de Bellevue
D. Johnson, ex officio, Lethbridge

Elections/Elections

R. Hallett, chair
D. Stanley-Horn
D. Johnson, ex officio, Lethbridge

B-Continuing Committees / Comités en cours

Achievement Awards/Prix d'excellence

R. Footitt, chair, Ottawa
C. Vincent
P. MacKay
D. Johnson, ex officio, Lethbridge

Bilingualism/Bilinguisme

L. Royer, chair, Corner Brook
D. Johnson, ex officio, Lethbridge

Bylaws, Rules and Regulations/Règlements

M. Goettel, chair
G. Boiteau, Fredericton
N.J. Holliday, Winnipeg
D. Johnson, ex officio, Lethbridge

Finance/Finance

J.E. O'Hara, chair, Ottawa
Parker, Ottawa
G. A. P. Gibson, ex officio, Ottawa
(R. Footitt, acting)
D. Johnson, ex officio, Lethbridge

Headquarters/Siège social

TBA
J.M. Cumming, Ottawa
G.A.P. Gibson, ex officio, Ottawa
D. Johnson, ex officio, Lethbridge

Heritage/Héritage

D.C. Eidt, Fredericton, Chair
P. Riegert, Regina
E.C. Becker, Ottawa
D. Johnson, ex officio, Lethbridge

Insect Common Names/Noms communs d'insectes

J. Garland, chair, Ottawa
H. Chiasson, Montreal
D. Johnson, ex officio, Lethbridge

Marketing/Comité du marketing

L. Braun, Saskatoon
T.P. Danyk, Lethbridge
K. Floate, Lethbridge
D.R. Gillespie, Agassiz
D. Johnson, ex officio, Lethbridge

Membership/Adhésion

R. Bennett, chair, Saanichton
AES: R.F. Smith
ESBC: T.L. Shore, Victoria
ESM: R.J. Lamb
ESO: D.B. Lyons
ESS: O. Olfert
SEQ: J. Brodeur
Troy Danyk
D. Johnson, ex officio, Lethbridge

Publications/Publications

V. Nealis, Chair, Victoria
G. Boivin, St Jean sur Richelieu
D.C. Eidt, Fredericton
A.B. Ewen, Dalmeny
A. Keddie, Edmonton
R. Bennet, Victoria
Gilkeson, ex officio, Victoria
J. Turgeon, ex officio, Sault Ste. Marie
H. Barclay, ex officio, Victoria
B. Lyons, ex officio, Sault Ste. Marie
D. Johnson, ex officio, Lethbridge

Science Policy and Education/Politique scientifique et éducation

B. Roitberg, Chair, Burnaby
K.G. Davey, Downsview
P. Kevan, Guelph
R.F. Smith, AES, Kentville
D.W. Langor, ESA, Edmonton
T.L. Shore, ESBC, Victoria
R.J. Lamb, ESM, Winnipeg
D.B. Lyons, ESO, Sault-Ste-Marie
O. Olfert, ESS, Saskatoon
C. Cloutier, SEQ, Québec
R. Footitt, ex officio, Ottawa
D.L. Johnson, ex officio, Lethbridge

Student Affairs/Affaires étudiantes

TBA

T.P. Danyk, Lethbridge

P. Lomic, Toronto

S. Lindgren, ex officio, Prince George

D. Johnson, ex officio, Lethbridge

Student Awards/Prix aux étudiantes et étudiants

S. Lindgren, Chair, Prince George

J. Delisle, St. Foy, Quebec

D. Quiring, Fredericton

B. Mitchell, Edmonton

D.C. Currie,

D.J. Larson

T.A. Wheeler, Ste. Anne de Bellevue

D. Johnson, ex officio, Lethbridge

Web/Web

D.B. Lyons, Chair, Sault-Ste-Marie

T.P. Danyk, Lethbridge

D.L. Johnson, Lethbridge

W. Riel, Victoria

D. Johnson, ex officio, Lethbridge

C Ad hoc Committees / Comites ad hoc

Joint Meeting Document

T. Shore, Chair, Victoria

J. Sweeney

D. Johnson, ex officio, Lethbridge

Bulletin and Website Content

R. Lamb, Chair

V. Nealis

D. Johnson, ex officio, Lethbridge

National Insect Commemoration

H. Philip, Chair

P. Kevin

J. Sutcliffe

D. Johnson, ex officio, Lethbridge

Call for Nominations - Second Vice-President & Director-at-Large

Nominations for Second Vice-President and Director-at-Large must be signed by three members in good standing and received by 30 April, 2000 by the secretary, Dr. Rick West.

Nominations pour Deuxième Vice-Président et Directeur doivent être signée par trois membres de la Société et envoyée avant le 30 avril 2000 au secrétaire, Dr. Rick West.

Wanted

The following items pertaining to annual meetings are wanted for deposit in the National Archives of Canada: Gold Medal and Hewitt Award brochures for 1995, 96, 98, and 99; banquet menus and programs for the years 1992 to 98. Other items you feel would be of archival importance are welcomed. Please contact me at dugite@nbnet.nb.ca before shipping to prevent duplication.

The Committee thanks those who have already sent programs and other items. These have been forwarded to the National Archives. We also ask that future Program Committees keep the Heritage Committee in mind, and that Affiliates consider the importance of depositing such items either in the National, or perhaps more appropriately, provincial archives.

Doug Eidt, ESC Heritage Committee
dugite@nbnet.nb.ca
Snail mail: 150 Mactaquac Heights
Keswick Ridge, NB E6L 1P2
(506)363-4257

PERSONALIA

In Memory

René Martineau (9 mai 1915 - 29 avril 1998)

Diplômé de l'université Laval en Génie forestier et Arpentage en 1939. Il entre d'abord à l'emploi du ministère des Terres et Forêts du Québec.

Au cours des années 40, il entreprend des études graduées en entomologie forestière, tout d'abord à l'université de l'Illinois, puis à celle de Yale. Il obtient un diplôme de Maître es Sciences de chacune de ces universités. En 1952, il entre au service canadien des forêts comme chercheur scientifique en entomologie forestière, ce qui en fait un des pionniers du Centre de foresterie des Laurentides.

Au cours des 28 années qui ont suivi, il a mené de nombreuses recherches originales portant sur la biologie d'insectes ravageurs des forêts. Il a participé très activement au Relevé des insectes et maladies réalisé annuellement au Québec. De plus, il a assumé la direction de l'équipe de chercheurs et de cadres techniques impliqués dans ce domaine.

À la fin de sa carrière active, il a mis à profit sa vaste expérience en entomologie forestière et ses connaissances approfondies de la littérature dans son domaine de prédilection pour rédiger un volume portant sur les insectes nuisibles des forêts de l'est au Canada. Ce volume demeurera longtemps une référence majeure en entomologie forestière.

Robert Blais
Sainte-Foy, QC

In Memory of Dr. Klaus Rothfels (d. 1986)

Remembering Santa Klaus

While reflecting over a quasi autonomous career
In the true outdoors some folks in parts still revere
I recalled highlands, aquatic nymphs to bird's penquills
Carolinian forests, boreal fields and lesser ant hills.

Tranquil scenes familiar to a teacher mentor and friend
In search of nature's wisdom amid biology students
Who questioned assumptions with candor and benevolence
In the educative sense without egotistic pretence.

In his native twentieth-century old and war-tired Europe
He honed an attitude that revived later new hope
Following the watercourse with rejuvenated wisdom
As he searched for peace and truth in relative freedom.

He reflected often in solitude on quality controls
Thriving in parks with practical and academic goals
As his mature solicitude and family friendly attitude
Won praises beyond sib-species in diverse latitudes.

His studies in cellular diversity filled many files
Gleaned from glass slides before he passed on in mid '80s
Thirty years after a paper landmarked research in progress
Elucidating chromosome inversions and sex of flies.

Thus reflecting with studious and perceptive eye
On the nature of microscopic and magnified nuclei
He streamlined perspectives in modern autecology
With objective photolenses and refreshing field study
To enhance appreciation of life in its infinite diversity.

Victor I. Golini, Hamilton

Heritage Articles

Who was R.E. Balch?

The following article was written for the Atlantic Forestry Centre in-house newsletter *Out on a Limb* in celebration of the Canadian Forestry Service centennial, "A century of innovative solutions".

Reginald Ernest Balch was the Officer-in-Charge of the Forest Biology Lab., Fredericton, from 1930 to 1960 with the responsibility for forest entomology and pathology throughout the Maritime Provinces. Sounds dull, but he was a great deal more than that.

Balch was born in England in 1894 and came to Canada because he wanted to be a cowboy. He enlisted with the Canadian Field Artillery in 1914 because, as he said, he liked horses. He survived three years of the horrors of the western front, an experience that had a profound influence on his philosophy. George Strunz wrote: "'The species that survive' [Reg] says, referring to Darwin, 'have been those which could adapt to their environment and live in harmony with the other species in their environment'. These ideas were to occupy a central position in his philosophy of life and his work, and crystallized into a form lucidly available to the layman, in his five half-hour lectures collectively titled *The Ecological Viewpoint* broadcast on the CBC . . . in 1965." [The series was published and is available in the CFS library.]

Balch took charge of the Dominion Entomology Laboratory at Fredericton in February 1930. The year is sometimes given as 1929, and Balch told me 1931, but I stick by the date in the Annual Report for 1930. Balch succeeded John Tothill, after an interval in which Lee Simpson was acting in charge. (The title Officer-in-Charge wasn't used until 1941).

Among his accomplishments were directing the European spruce sawfly project to its successful conclusion, directing the first spruce budworm spray program while warning of the potential problems of such a tactic, persuading the City of Fredericton to adopt a sanitation program that saved many old elms even to this day, and conducting definitive research on the balsam woolly aphid, even while building and running a modern Forest Biology Laboratory.

Balch resisted every attempt to move him to a senior management position in Ottawa. He loved research and could not be budged. He was, however, the unofficial confidant and advisor of JJ deGryse, Chief of the Forest Insect Division from 1934 (later Forest Biology Division) until 1952.

I interviewed RE in 1987, (RE among staff, otherwise, Dr. Balch. Except by his personal friends, "Reg" was considered disrespectful.) Here are a few quotes:

On Tothill: "I still have a little scar from him. He had a double-bitted axe and we were looking at a tree when he suddenly decided he would chop off a bit of hardwood. I was right by him and he chipped a piece out of my hand."

On Baird: "Baird and I never saw eye to eye. Did you ever hear the story about the virus disease of the spruce sawfly? Baird, Gibson, and several other big shots got together one day when they had just

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received a package from a German forester (I forget his name) containing a lot of dead spruce sawflies which had obviously suffered some kind of virus disease. [The German] worked out the importance of this as a control factor (he had been collecting parasites) and he immediately turned his attention to this virus. He sent this shipment suggesting it be introduced in Canada. Well, I was told afterwards they had all put their heads together and all said, 'No, if we do that it will lock up our work on parasites.' So they put the package in the furnace. That's a story I think should be in print, but I don't have the facts".

On science: "You never prove anything in science. You only figure out the probabilities and sometimes they are so large that you say, 'This must be accepted', and sometimes you say 'They suggest that...' Evading the responsibility for doing something that is practically possible, that has some chance of success, on the grounds that it wouldn't be scientifically theoretic, is pure rubbish".

On introducing biological control agents: "I felt that you would never know enough to [weigh all the advantages and risks] and from a practical point of view, the best, and the most scientific thing to do, would be to introduce as many factors of potential control as possible and hope for the best.... I think there are some holes in my wild generalization, but I think if you have to say, 'Well now we'll never know everything about this.', and if we wait until we do, we will not do anything".

On Bt: "The implication that biological insecticides are all perfectly safe is ridiculous".

On ecology: "I went to some pains to try and define the word ecology. It seemed necessary at that time, but since then it has become sort of a household word, and God knows what it means".

On KC Irving: "He always got his way. He was a man of considerable power. I think a perfectly honest fellow. He was a tough man to have against you".

On forestry: "To talk about forestry in terms of anything less than 50 or 100 years is not forestry. Anyone who thinks of forestry only in terms of the financial profit of his company (or companies in general) in the next 2 or 3 years, is not a good scientist or a good forester".

On twins: "Craighead [A famous American forest entomologist for whom Balch worked as a student] had twins. Their mother couldn't tell them apart. If they did something and needed spanking, she would spank both of them".

On his doctorate: "I hold the North American record for the length of time between passing my oral and getting my degree. Twenty some years". [He was "too busy".]

On Carl Atwood: "He and his bride came with us up to Kamouraska ... where we were doing some work. We spent the night there in a sort of guest house. He and Margaret - I heard him laying the law down to her about something and she said, 'Carl, you sound just like my mother and I married you to get away from that.' As far as I can tell, Margaret Atwood, that is the famous one, the author, was conceived around that".

On politicians: "I remember yet, Hansen [Federal minister of something or other referring to Atwood's starting salary] saying '\$125 a month! Is this important to research?' I said, 'If you judge by the salary, no, but if you judge by the qualifications required, it is.'"

Balch wore many honours: Award of Achievement in Biological Research from the Society of American Foresters, Fellow of the Entomological Society of America, Fellow of the Entomological Society of Canada, Honorary Member of the Acadian Entomological Society, DSc (honoris causa) from the University of New Brunswick, Silver Medal of the Royal Society of Arts, Distinguished Citizen Award of the Fredericton Chamber of Commerce, Honorary President of the Conservation Council of New Brunswick, and more.

Dr. Balch died in 1994, aged 99. His portrait, a tribute by George Strunz, hangs in the Atlantic Forestry Centre on the west wall of the atrium, 3rd level.

References: *Bull. ESC* 26:81-82; *Bull. ESC* 29:70-73

Doug Eidt
Keswick Ridge, NB

What Was the Green River Project?

The following article was written for the Atlantic Forestry Centre in-house newsletter *Out on a Limb* in celebration of the Canadian Forestry Service centennial, "A century of innovative solutions".

Green River was a place where legends were spawned, a place where hundreds of university students in many disciplines had their first summer jobs - and learned the meaning of hard work, a place where blood thirsty flies hounded you day and night, a place where big forest science went on.

The Green River Project was born in 1944 in the wake of the great European spruce sawfly outbreak when the severe spruce budworm outbreak of the 40s and 50s was getting under way. The forests of northern New Brunswick were changing from the after effects of the sawfly, birch dieback, harvesting, and in some places, fire. The purpose was to learn to understand these processes of change and how to control them.

It was a cooperative project of the Forest Biology Division of Agriculture Canada and the Dominion Forest Service (CFS antecedents), New Brunswick Department of Lands and Mines (now Dept. of Natural Resources) and Fraser Companies Ltd. with RE Balch as Chairman. Frank Morris took charge of the Project in 1945.

The field headquarters was at Summit Depot of Fraser Cos. in the extreme northwest corner of New Brunswick. This was a land of forest and streams, high hills and deep gulches, interrupted only by a few lakes and Fraser's roads and logging facilities. Field plots were distributed over a large area of the upper Green River and Kedgwick watersheds.

Volumes of data were generated: weather, tree growth, stand characteristics, soils, plant communities, tree health, defoliation, budworm development, parasites, predators and so on. Hours and hours were spent crunching data with slide rules and mechanical calculators (can you imagine a world without computers?) Fly dope and food were consumed as if they were going out of style. Work started early in the morning and the generator was shut down by 10 pm.

What was the result? Hypotheses were formulated, tested, and more hypotheses were formulated. Better sampling methods were invented, ideas and conclusions were published for peer review, these were generated, and management plans were rewritten. Most significant of all was the classic spruce budworm Memoir, edited by Frank Morris, and written by Frank, C Derry, Dave Greenbank, BG Loughton, Ross Macdonald, Charlie Miller, Leo Mook, Gordie Mott, Murray Neilson, Ken Watt, Frank Webb, Al West, and typed by Rose Brown on a hand powered Underwood typewriter with umpteen carbon copies and precious few typos.

The Project ended in 1984. As with all good science, much of what was concluded has since been confirmed, refined, superceded, and even shown to be wrong, but this major multi-disciplined Project substantially expanded the foundation on which forestry and forest pest management are based today.

The article by the late Muriel Miller, *My Life With the Spruce Budworm* *Bull. ESC* 16:70-73, does not focus on the scientific work at Green River. It does give a taste of what life was like in a field station

where wives were (at first reluctantly) allowed to accompany their husbands. Times have changed, and it's worth reading again.

Doug Eidt
with thanks to Charlie Miller
Keswick Ridge, NB

PUBLICATIONS

Domingue, Charles. 1998. *Butterfly World, Jewels of the Sky*. Daval Productions Inc., 6th floor-1100 Melville St., Vancouver, BC, Canada, V6E 4A6, toll-free 1-800-561-4240 website info@davalproductions.com \$Can. 19.95 + \$4.00 shipping.

This charming, 35-minute video would be useful to entomologists who work with youth and an invaluable teaching tool for schools. It covers well the subject from legends to biological facts, and presents it in an interesting way using some excellent footage. Involvement by children in several scenes adds to its appeal.

The video is really about both moths and butterflies; it touches on their basic anatomy and explains the difference between them. Discussed are colours and patterns and their role in survival, migrations and navigation, sexual dimorphism and mating, metamorphosis, larval feeding and defence, butterfly gardens, butterfly watching, light trapping, butterflies as ecological indicators, butterfly houses, silk production, and more. For a short film it includes a lot of detail.

The Montreal Insectarium is featured, and Georges Brossard, its founder, is shown swinging his net in a variety of tropical habits, on foot, from a boat, and even from the back of an elephant.

The video is not without faults. Pollination is said to be the primary role of butterflies, but nothing is said about the impact the caterpillars can have on plants. Entomophagy is talked about, and grasshoppers and giant water bugs, but no caterpillars, are shown. While things such as protective colouration and transformation of butterflies are discussed, images of moths and butterflies are shown without saying which is which. A sequence on adult emergence is not identified as time lapse and switches back and forth between species. While talking about horns on caterpillars, spines and an evaginated osmeterium are shown.

Because of my background as a picky editor, I thought I heard "necter" for "nectar", "howse" and "owt" for "house" and "out", "antenni" for "antennae", and "antennae" used as a singular noun. "Probiscis" for "proboscis" was picked up by our office manager, Sandy Devine, who was assured it would be corrected. The "i" in *Bombyx mori*, was pronounced as the French "i". I believe the Latin is the same as the English "_".

In spite of these few faults, I would recommend this video to schools, and to entomologists who work with children. Although it would never replace a few field trips, it would make a good educational supplement for adults as well. Nature clubs would profit from it.

Doug Eidt
Fredericton

Daly, H.V., J.T. Doyen and A.H. Purcell, III. 1998. *Introduction to Insect Biology and Diversity*. Oxford University Press Inc., 198 Madison Avenue, New York, NY 10016. Hardcover ISBN 0-19-510033-6. \$103.95 U.S. 680 pages.

This textbook is divided into 2 main sections. The first section has two parts ("Insects as Organisms" and "Insect Ecology") that emphasize the major features of insects, and which could form the

core of introductory entomology lectures. The second section ("Insect Diversity") is appropriate for laboratory identification and is useful supplement for lecture material on insect biology.

"Insects as Organisms" has seven chapters that offer a comprehensive and well thought-out overview of insects. The section provides information on basic biology: anatomy, development and reproduction, nutrition, movement, nervous system and the integration of activities, and an informative section on social behaviour. The ability for students, and I dare say instructors, to digest this information is enhanced by the excellent illustrations, black and white photos, highlighted terms, and selected references that accompany each chapter. Forty-eight colour photos of exceptional quality provide effective examples of the wide variety of insect diversity and adaptation.

"Insect Ecology" is divided into seven chapters that cover basic population biology, habitat diversity, and the relationship insects have with other organisms. The last chapter in this section adds a brief but informative view of pest management and relates many applied principles to information in previous chapters. There are concepts in the chapters on Population Biology (chapter 8) and Diversity and Adaptations (chapter 9) where more information is needed to frame insects in the context of biological diversity and to relate the importance of insects to habitat, conservation, and biodiversity issues. For example, insects are an integral part of rainforests (they may comprise 80-90% of the total species), yet forest habitats are not mentioned. Perhaps (reviewer bias) an equally interesting habitat to explore is the high-canopy of ancient rainforests-- after all this uplifting experience captures a full range of concepts related to insect ecology and is as deserving of discussion as cave and desert habitats. The short section on sampling seems trivial and not altogether informative especially in light of the recent publications such as New, T.T. 1998. *Invertebrate Surveys for Conservation*, Oxford University Press. Historically, introductory courses in entomology have not linked sample design to development of scientifically sound population and community ideas. Why not introduce students to this diverse aspect of terrestrial ecosystems and take full advantage of the rich source of data insects can provide?

The second section (Insect Diversity) starts with a chapter outlining the evolution of insects. This chapter provides a factual basis for the classification system and the dichotomous keys used to identify the orders and families of Hexapoda. The key to orders is lucid and the reference to diagrams to clarify terminology in the couplets is helpful. Identification keys to the families of the four largest orders (Lepidoptera, Coleoptera, Diptera and Hymenoptera) are relatively easy to follow and clarify many reoccurring problems that students have with identifying families in these orders. My only quibble is that some couplets would be clearer if accompanied by diagrams throughout these family keys. For example, in the key to the families of Cynipoidea, couplet 2 refers to the "Gaster with segments strongly compressed in lateral plane, with sharp dorsal edge (Ibaliidae)" as opposed to "Gaster not strongly compressed; dorsal edge rounded (Liopteridae)". Students benefit from illustrations that clarify relative comparisons of morphological features. Summary tables on the biological characteristics of common families including details on larval and adult life histories are welcome additions. From an instructional point of view it is unfortunate that these summary tables are not used in all of the chapters. The final chapter on collecting and preserving insects is too basic and should include current trap designs and methods/techniques of proper insect curation. To meet the challenges and priorities of describing the Earth's insect diversity and the their pivotal ecological roles it is essential to convey this information as early (and often) as possible. Education, training and the removal of "the taxonomic impediment"-- a grand way to proceed in the new millennium. One correction-- "Lundgren traps" (pg. 605) should read Lindgren traps.

Notwithstanding, *Introduction to Insect Biology and Diversity* provides valuable information for introductory entomology courses, and is currently being used in two courses offered at the University of Victoria.

Neville N. Winchester
University of Victoria

Winston, Mark L. 1999. *Nature Wars: People vs Pests*. Harvard University Press, Cambridge, Massachusetts: 210pp, \$15.95 paperback.

In his book *Nature Wars*, Mark Winston, a full Professor of Biological Sciences at Simon Fraser University, has managed to make the topic of pest management fascinating even to those not working in the field. It is well researched, probing, and accessible.

Winston states that he wrote the book to explain new biological methods of pest control and "to explore the factors that influence our decisions about how to deal with pests". His overall message is that biologically based methods of pest control remain at the fringes of pest management, an area unfortunately still dominated by chemical pesticides.

The first chapter offers a fascinating account of the history of pest management. Examples are given of early pest control ranging from the Greek god Apollo having domain over mice and mildew, through ancient Syrians exorcising scorpions by burying a bronze figure, to the first recorded use of a pesticide (elemental sulfur) to control insects by the Sumerians in 2500 B.C. The book weaves its way through the issues involved in the following topics: the 1992 Gypsy Moth spray program in Vancouver B.C.; the overuse of chemicals to control "relatively harmless creatures" in areas occupied by humans or to achieve perfect fruit and vegetables; the Sterile Insect Release Program for codling moth in the Okanagan Valley B.C.; use of pheromones in pest management; natural predators; and transgenic plants.

The last two chapters describe the author's views of what is wrong with pest management today and prescribes a new pest management ethic in which we must change our fundamental ideas about pest control. Winston recommends that chemical pesticides should be used as a last resort, that the aim should be to manage not eradicate pests, and that management should be employed only when damage exceeds economic thresholds.

I love the language in this book, which contains delicious phrases such as "service to the squeamish", "Hollywood enhanced pest phobias", "alternative technologies only nibble at the edges of chemical pesticides". Each chapter is introduced by a quote, my favourite appearing in Chapter 4--- "You can't just let nature run wild"--- attributed to Walter Hickel, Governor of Alaska in 1992. The only drawback to the book is that it may be of regional interest as it tends to focus on B.C. issues although the author gives it wider appeal by inserting statistics pertaining to a much broader area.

Winston hits all the relevant scientific points and his folksy style presents them in language that anyone can understand. The book would be enjoyable to the scientist or any general reader interested in green issues.

Barbara Kukan
Burnaby, B.C.

Beaman, Mark and Steve Madge (1998). *The Handbook of Bird Identification for Europe and the Western Palearctic*. Princeton University Press, Princeton, NJ: 868 pp: \$99.50 US. Illustrators: Hillary Burn, Martin Elliott, Alan Harris, Peter Hayman, Laurel Tucker, and Dan Zetterström

Birdwatching ranks second only to gardening as the most popular recreational activity around the world. The publication in the past couple of decades of guides for the serious birder, such as this Handbook, are a good indicator and help support the habit.

For serious birders lucky enough to travel in the area covered by this book, this is the ultimate guide. Be prepared to absorb its contents beforehand, however. The formidable size and heft preclude casually referring to it as you're staring at a bird, binoculars in one hand, the book in the other.

Beaman and Madge are well equipped as its authors. The former is a world-wide birder, author of bird guides, and founder of Birdquest, one of Europe's largest bird tour companies. The latter is also an author of bird books and a partner in Limosa Holidays which runs world-wide bird tours.

The "Introduction" is almost a book in itself. The authors explain precisely their rationale for, and how to interpret, the information given on each species in Family and Species Accounts. A map is included along with an explanation of the area covered.

Pages 16 through 32, "Field Identification", opens with the sage observation that "Field identification is an acquired skill, but it helps if you have a natural aptitude. ... There is, however, no substitute for knowledge of the subject based primarily on field experience." Beaman and Madge then proceed to give the reader a mini course in ornithology covering Shape and Size, Bird Topography, Wing Topography, Moults and Plumage Terminology (three and a half pages), Feather Wear, Distance, Light and Other Factors, Bare Parts, Behaviour, Habitat, Distribution and Status, and Taxonomy and Scientific Nomenclature, all illustrated with copious beautiful illustrations.

The illustrations in the Handbook deserve a review of their own. They are not just an extremely valuable and interesting resource, but a work of art. From exquisitely detailed drawings of individual feathers, beaks, and claws to whole-bird ones, all are in full colour from hand-painted originals. With six artists, the consistency in style and quality too is most admirable.

Rather than having individual paintings with the species' descriptions, the illustrations are grouped by family. This is not only sensible from a publishing point of view, but gives the reader an excellent perspective on similarities and differences among species of the same family. Birds in flight, standing, perching, in water and out, birds as adults and juveniles, 1st year, 2nd year, 3rd year, comparisons of bill length and foot shape, they are all here. The detail, number of paintings, and variations rise to a crescendo with families such as the gulls, raptors, and shorebirds.

Each description of breeding species, and a few others, includes a good-sized (6x7 cm) map showing breeding and wintering ranges. The Plate page number is clearly set to the right of the species name. Each section of the description is titled in bold-face capital letters and follows a fairly standard field guide format.

The Handbook has one failing: the type size is so small and the text so concentrated as to be difficult and tiring to read, even for a person with good eyesight. A magnifying glass is strongly recommended for those with less than excellent eyesight, in all likelihood the majority of people who would use this book extensively given the age range of most serious birders.

The length of the book is undoubtedly the reason for the small typeface. It might have been better, however, to increase the typeface size and print two volumes: increased cost, but also a more reader-friendly result. For the dedicated birder, paying perhaps \$150.00 (US) instead of the present \$99.50 would likely be well worth it.

Despite the above, this is a very useful, attractive, and impressive piece of work. Would that I had the opportunity to make use of it in the field!

Eva Durance
Penticton, B.C.

NEWS OF ORGANIZATIONS

International Commission on Zoological Nomenclature

Applications published in the *Bulletin of Zoological Nomenclature*

The following Applications were published on 30 September 1999 in Vol. 56, Part 3 of the *Bulletin of Zoological Nomenclature*. Comment or advice on any of these applications is invited for publication in the *Bulletin* and should be sent to the Executive Secretary (I.C.Z.N.), c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3116 ***Gnomulus* Thorell, 1890 (Arachnida, Opiliones): proposed designation of *G. sumatranus* Thorell, 1891 as the type species**

Peter J. Schwendinger

Muséum d'Histoire Naturelle, Département des Arthropodes et d'Entomologie I, Case postale 6434, CH-1211 Genève 6, Switzerland (e-mail: peter.schwendinger@mhn.ville-ge.ch)

Jochen Martens

Institut für Zoologie, Johannes Gutenberg-Universität Mainz, Saarstrasse 21, D-55099 Mainz, Germany (e-mail: martens@mail.uni-mainz.de)

Abstract. The purpose of this application is to conserve the usage of the generic name *Gnomulus* Thorell, 1890 for an opilionid (family ONCOPODIDAE) by the designation of *G. sumatranus* Thorell, 1891 as the type species. This designation was the author's clear intention and is in accord with the subsequent understanding and usage of the genus. However, *Gnomulus* was described with *G. rostratus* Thorell, 1890 as the type species by monotypy. *Gnomulus sumatranus* and *G. rostratus* are morphologically distinct and it is possible that they will require generic separation in the future. Members of the genus *Gnomulus* are known from the Himalayan Region and from southeast Asia.

Keywords. Nomenclature; taxonomy; Arachnida; *Opiliones*; ONCOPODIDAE; *Gnomulus*; *Gnomulus sumatranus*; *Gnomulus rostratus*.

Case 3128 ***Drosophila rufifrons* Loew, 1873 and *D. lebanonensis* Wheeler, 1949 (currently *Scaptodrosophila rufifrons* and *S. lebanonensis*; Insecta, Diptera): proposed conservation of the specific names by the designation of a neotype for *D. rufifrons***

Gerhard Bächli

Zoologisches Museum, Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland (e-mail: baechli@zoolmus.unizh.ch)

Abstract. The purpose of this application is to conserve the specific names of *Scaptodrosophila rufifrons* (Loew, 1873) and *S. lebanonensis* (Wheeler, 1949) for two European species of lesser fruit fly in the *S. rufifrons* species group (family DROSOPHILI-

DAE). The lectotype of *S. rufifrons* is now known to be a specimen of *S. lebanonensis*, rendering the name *rufifrons* a senior synonym of *lebanonensis*. It is proposed that the lectotype of *rufifrons* to be set aside and a neotype designated in accord with accustomed usage.

Keywords. Nomenclature, taxonomy; Diptera: DROSOPHILIDAE; lesser fruit flies; *Scaptodrosophila rufifrons*; *Scaptodrosophila lebanonensis*; Europe.

Case 3076 ***Tanaecia coelebs* Corbet, 1941 (Insecta, Lepidoptera): proposed conservation of the specific name**

Takashi Yokochi

1-10-26, Shonan, Owariasahi, Aichi, 488-0823, Japan (e-mail: yokochi@ga2.so-net.ne.jp)

Abstract. The purpose of this application is to conserve the specific name of *Tanaecia coelebs* Corbet, 1941 for a butterfly from southeast Asia (family NYMPHALIDAE). This name has been consistently used for the species but it is now known that *T. heringi* Niepelt, 1935 is a senior synonym. The latter name has remained unused since its publication.

Keywords. Nomenclature; taxonomy; Lepidoptera; NYMPHALIDAE; southeast Asia; *Tanaecia coelebs*.

Opinions published in the Bulletin of Zoological Nomenclature

The following Opinions were published on 30 September 1999 in Vol. 56, Part 3 of the Bulletin of Zoological Nomenclature. Copies of these Opinions can be obtained free of charge from the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

OPINION 1933. *Androctonus caucasicus* Nordmann, 1840 (currently *Mesobuthus caucasicus*; Arachnida, Scorpiones): specific name conserved.

OPINION 1934. *Paruroctonus* Werner, 1934 (Arachnida, Scorpiones): conserved.

OPINION 1935. *Cicada clavicornis* Fabricius, 1794 (currently *Asiraca clavicornis*; Insecta, Homoptera): specific name conserved.

OPINION 1936. *Thamnotettix nigropictus* Stal, 1870 (currently *Nephotettix nigropictus*; Insecta, Homoptera): specific name conserved.

OPINION 1937. *Corisa propinqua* Fieber, 1860 (currently *Glaenocorisa propinqua*; Insecta, Heteroptera): specific name conserved.

OPINION 1938. *Musca rosae* Fabricius, 1794 (currently *Psila* or *Chamaepsila rosae*; Insecta, Diptera): specific name conserved.

Biological Survey of Canada (Terrestrial Arthropods)

The Scientific Committee met in Ottawa on 21-22 October 1999. A more detailed account of the meeting is in the Newsletter of the Biological Survey of Canada (Terrestrial Arthropods) 19(1), 2000.

Scientific Projects

Grasslands

The Committee discussed development of the grasslands project, one of the Survey's main priorities over the next few years. Potential products included a baseline framework for grasslands, especially in a botanical context, an informal conference at the 2000 joint ESC/ESA/SEQ meeting, a revised Grasslands newsletter and one or two prospectuses to support the project, including its scientific rationale.

Seasonal adaptations

Several items on seasonal adaptations are moving forward, including papers on life cycles and related topics that are published or in press. Cooperative work on cold-hardiness is proceeding assisted by recent NSERC funding.

Insects of Keewatin and Mackenzie

The Keewatin and Mackenzie regions have been relatively little surveyed. An expedition will be undertaken in July / August 2000 down a 700-km length of the Horton River. This will allow sampling not only the transect along the river but also riparian and other habitats along tributaries of various sizes.

Other

Other projects were reviewed, including those on keys to the families of Canadian arthropods and arthropods of the boreal zone.

Other scientific priorities

Arthropod fauna of soils

The Soil Ecology Society Conference held in Chicago last May included papers on mites, spiders, and isopods. A SCOPE workshop in August also focussed on how biodiversity impacts on ecosystem processes, and papers from the meeting will emphasize the need for studies of the roles of Diptera in this context. Such SCOPE workshops also demonstrate the need for more systematists. A soil microarthropod key to the order level will be produced on CD next year. Several graduate and other studies on soil arthropods are in progress.

Old-growth forests

Discussion continues among relevant researchers about the nature and timing of a symposium on old-growth forests. Several studies will be complete within the next two years.

Invasions and reductions

A symposium on this subject has been proposed for the joint meeting in 2000 and a list of speakers is being developed. However, most of the information available is anecdotal so that long-term research is needed. Unfortunately the federal government has stopped assessing invasions. The Survey will therefore support long-term initiatives in this area.

Endangered species

A paper commenting unfavourably about Canada's endangered species protection has recently been published in a special issue of Conservation Biology. The same issue includes three other papers on endangered species acts in the United States, Australia and Europe, which convincingly demonstrate how poor-

ly Canada does compared to these other jurisdictions. Recent developments in British Columbia give an opportunity for concerted action to protect endangered species.

Survey web site

The Survey was able recently to hire an intern to help redesign and expand the Survey web site. The Committee discussed possible priorities for this expansion. The grasslands project will be a feature project. The Survey's database of personnel, Yukon book data, and faunal analysis information will also be given priority.

Funding for Biodiversity Projects

A draft of the information on funding sources for biodiversity projects in entomology, especially systematics, has been assembled. In due course this information or the way to access it will be posted on the Biological Survey's web site with a link on the ESC's student affairs web page.

Geographic data standards for specimen labels

A Survey brief on label data standards is in progress, considering label preparation, label information, and perhaps data retrieval. The final brief should be available for review in April 2000.

Potential brief on the value of proper biodiversity studies

A draft brief showing the effectiveness of the Survey's 'prescriptions' for biodiversity studies was reviewed. A final draft will be prepared for April 2000.

Information technology

Mr. Larry Speers, Agriculture and Agri-Food Canada, outlined some recent developments. He saw tremendous potential to use electronic management tools to reverse fragmentation of the study of biology, with emphasis on persistent data stores. Natural history collections are the main source of persistent data stores. A distributed internet-based network of persistent, searchable, documented inter-operable databases is being developed. A core requirement is accessing correct names, and recent work on an integrated taxonomic information system (ITIS) for North America (see <http://res.agr.ca/itis>) will make authoritative nomenclature accessible.

Members of the Committee noted that the support currently being received for databasing and distributed information systems must also be reflected in the necessary systematics infrastructures so that the databases will have authoritative content and also the ability to develop new content and to maintain the content.

Other priorities

The Committee reviewed many completed or less active Survey projects to expose updated information.

Liaison and exchange of information

Canadian Museum of Nature

Ms. Joanne DiCosimo, President, Canadian Museum of Nature, reminded the Committee that the Museum had held national consultations in the fall of 1997. The Museum is currently developing the third year of the resulting strategic plan and simultaneously considering long-term planning. National consultations with museums and the academic community are again being considered. The Museum is currently undertaking a renewal plan for the Victoria Memorial Museum Building in Ottawa, as well as a major private-sector fund-raising campaign and funding submissions.

Dr. Mark Graham, Director of Research Services, reported on progress from the Federal Biosystematics Partnership (FBP), including evaluating the international proposal for a Global

Biodiversity Information Facility, and partly coordinating the Biota of Canada project. The Museum hopes soon to have 400,000 of its 2.1 million collections records available electronically in a metadata format through the Museum's web site. The status of Canadian natural history collections and the maintenance of natural history collections at universities are also being addressed. Dr. Graham provided other news, such as biological monitoring requirements for metal mines, and a report stating how the government should receive scientific advice, published in draft form (see http://csta-cest.gc.ca/csta/website/sage_e.html).

Biological Resources Program, ECORC

Dr. Jean-Marc Deschines, Director, ECORC, reported that the reorganization of the Biological Resource unit is now complete. Dr. Deschines explained that the Global Biodiversity Information Facility (GBIF) was initiated under the major science forum for the Organisation for Economic Co-operation and Development (OECD). The FBP felt that the cost of the original business plan was too high and the structure needs to be re-examined. Dr. Deschines announced that Agriculture and Agri-Food Canada has re-established procedures to evaluate donations of private collections so that the donor can receive a tax credit. A new scanning electron microscope will be obtained this year for BRP. Plans are proceeding to upgrade collection facilities, especially storage areas, cabinets, laboratories and offices. He provided more details about ITIS.

Dr. Ian Smith explained the Biota of Canada project (formerly known as CANBII). Cooperative activity by Agriculture and Agri-Food Canada with the CMN and Forestry continues to further develop the idea of an online biota of Canada based on data captured from specimens in their collections. The initial module is the butterflies of Canada, which has been in process for almost two years. Such a project has involved wide participation.

Entomological Society of Canada

Dr. Hugh Danks reported on behalf of Dr. Dan Johnson, the current president. The annual meeting of the Society was held in Saskatoon and was very well attended with an excellent scientific program. Dr. Danks reported that the Society has returned into the black after a number of years of difficult finances. The reasons for such an improvement include mainly the revised publication and other avenues that the Society implemented following its strategic review and also the fact that the book on Diseases and Pests of Vegetable Crops in Canada continues to sell steadily. The Society is considering details of electronic publishing of *The Canadian Entomologist* (in consultation with the NRC Research Press). The key item in the shorter term is the year 2000 joint annual meeting.

Canadian Wildlife Service / Committee on the Status of Endangered Wildlife in Canada

Dr. Theresa Fowler, CWS, reminded the Committee that she reported about pending endangered species legislation a few years ago. Its name is now the Species at Risk Act and drafting the legal terminology should soon begin. Dr. Fowler explained that COSEWIC has new terms of reference. Therefore, a new organization and procedures manual is being produced. As a result of new assessment criteria (almost identical to those used by the World Conservation Union (IUCN)) and the pending legislation, all the species are being re-assessed using the new criteria. Recently, two butterfly species, the Island Marble and the Frosted Elf, were newly listed as extirpated.

Ecological Monitoring and Assessment Network

Dr. Peter Hall, Partnerships Coordinator, Environment Canada, reported that the EMAN recently published the vegetation monitoring protocols and is now trying to make them better known to groups around the country. A core variables@ project continues to be developed.

MAB/Canada

Dr. Patricia Roberts-Pichette, MAB/Canada, stated that the Canadian Biosphere Reserves Association has a number of ongoing projects. She circulated the first volume of the new edition of *Ecotours of the Trans-Canada Highway*. A report is being finalized to propose the development of a ter

restrial climate observing system for Canada.

Parasitology module, Canadian Society of Zoologists

Dr. David Marcogliese, Parasitology module, reported that monitoring protocols for parasites of freshwater fish have been submitted to EMAN and should be posted on their web site soon. The parasitology directory remains on the parasitology module web site (<http://www.biology.ualberta.ca/parasites/indexen/module1.htm>). The perch project continues, and a project on Biodiversity of Stickleback Parasites was accepted as one of the Canadian projects for the International Biodiversity Observation Year (IBOY).

Other items

Regional developments

Members of the Committee summarized relevant information from various regions. For example, in British Columbia the University of Victoria's Department of Biology is steering more towards the areas of bioinformatics, structural biology, genomics, and integrated biology, and away from systematics and taxonomy. Dr. Scudder retired from the University of British Columbia last spring and soon there will be no more invertebrate biodiversity studies because there is no replacement to teach the entomology and the evolution courses. The University has not yet found a way to support its collections. The Osoyoos Desert Centre has opened, with research and a public interpretation program. A conservation plan is being developed for the South Okanagan area. The focus of entomological work at the Royal British Columbia Museum has been on databasing, especially of dragonflies.

In the prairies, the Entomological Society of Alberta is strong. A great deal of attention had been generated by an article published in the Lethbridge Herald announcing that a beetle representing a major threat to hardwood forests had been recovered in Alberta, although in fact the specimens were a common species of longhorn beetle. The second Manitoba biodiversity field inventory workshop included several insect projects.

In Ontario, two new students are working on entomology projects at the Royal Ontario Museum. There has been good progress on the databasing of the odonates and Lepidoptera. Dr. Steve Marshall received an NSERC grant to hire a curator for the collection at the University of Guelph. The Canadian National Collection of insects and arachnids now has a specific web site [<http://res.agr.ca/ecorc/cnc/>].

In Quebec, a 15-page supplement on entomology was published in Quebec Science. The 1999 annual meeting of the Société d'entomologie du Québec included an all-day symposium on biodiversity. Planning continues for the joint ESA/ESC/SEQ meeting in 2000. Several books on insects of Quebec have been published. Dr. Vickery has retired from the Lyman Museum and moved to the east coast. Graduate students, undergraduate students and volunteers are working on systematics and biodiversity projects at McGill University.

In Newfoundland and the Maritimes, the Newfoundland insectarium has celebrated its first anniversary. Some research has been started on Newfoundland spiders. As of September the University of Prince Edward Island can offer a graduate science program. Several entomological projects are underway on P.E.I.

For the Arctic, Dr. Richard Ring noted work in the high arctic in summer. Field sites are receiving increased ecotourism. The Polar Continental Shelf Project is keen on providing logistic support to university research. However, the Polar Continental Shelf Project base at Tuktoyuktuk will open only if there is demand, but those making plans may tend to avoid such uncertainty. The University of the Arctic has an increasing profile. Discussions about the importance of antarctic research and arctic research are underway by the Canadian Committee for Antarctic Research and the Association for Canadian Universities for Northern Studies.

Other matters

The Committee considered other recent information, including international and national liaisons,

membership of the Scientific Committee, the need to urge selected scientific journals to publish faunistic papers, sales of the book *Insects of the Yukon*, operations of the Biological Survey Secretariat, damaged ecosystems and Survey publicity.

Hugh Danks
Canadian Museum of Nature
Ottawa

POSITIONS AVAILABLE

Post-Doctoral Fellowship: A 2-year NSERC PDF is available at the Lethbridge Research Centre to complement an existing program on the biological control of insect pests affecting livestock.

The successful candidate will perform research on rickettsiae in the genus *Wolbachia*. The objectives of this research will be to promote cytoplasmic incompatibility in populations of house fly and of stable fly (Diptera: Muscidae), and/or to develop all-female lines of parasitoids (Hymenoptera: Pteromalidae) to enhance their efficacy as biological control agents of these pest flies.

The ideal applicant will have conducted previous research on *Wolbachia*. Experience with livestock pests is not required, but broad training in insect ecology is desirable. The applicant will be resourceful with an innovative approach to problem-solving. Their expertise on *Wolbachia* will complement the expertise provided by other members of the research team (i.e., Insect Ecology and Biocontrol, Insect Pathology, Molecular Biology). The successful candidate will be encouraged to apply for research grants from federal, provincial and private agencies.

Established in 1906, the Lethbridge Research Centre is the largest federal research centre in Canada. The 25,000 m² complex houses about 400 persons (including part-time and seasonal staff) and sits on an experimental farm of about 500 ha (1,280 ac.). On-site facilities include scanning and transmission electron microscopes, image analyzers, an automated DNA sequencing service, insect-rearing rooms, and colonies of stable fly, of house fly and of their parasitoids (*Muscidifurax* spp., *Trichomalopsis* sp., *Spalangia cameroni*). The homepage for the Lethbridge Research Centre is on the Internet at "<http://res.agr.ca/leth/index.htm>"

Lethbridge, Alberta is a city of 70000, located 2 hours south of Calgary and 3 hours north of Great Falls, Montana. The homepage for the City of Lethbridge is on the Internet at: "<http://www.city.lethbridge.ab.ca/>"

Send letter of application describing qualifications and interests, CV/Resume, 3 letters of reference, and reprints of recent and relevant publications to Dr. K. Floate, Lethbridge Research Centre, Agriculture and Agri-Food Canada, P.O. Box 3000, Lethbridge, Alberta, CANADA, T1J 4B1; phone: (403) 317-2242; FAX: (403) 382-3156; E-mail: FLOATEK@EM.AGR.CA.

Contact: Mark Goettel, Research Scientist, Insect Pathology, Lethbridge Research Centre, Agriculture & Agri-Food Canada, P.O. Box 3000, 5403 - 1st Avenue South, Lethbridge, AB, CANADA T1J 4B1
Tel: 403-317-2264, Fax: 403-382-3156, e-mail: goettel@em.agr.ca, homepage: <http://res.agr.ca/leth/>

Technician's Position: I am an Assistant Professor at Purdue University working in the area of molecular basis of how *Drosophila* evolves resistance to xenobiotics. I am currently in the process of hiring both a technician and currently looking for doctoral students. The technician position is open immediately and the doctoral positions would be for the spring or fall of next year. Additionally, there may also be an opening for a Post-doc position. I would appreciate it if you could post an add in your newsletter. My e-mail is barry_pittendrigh@entm.purdue.edu and my office phone number is (765)-494-7730. I am looking for people with a molecular biology background and hopefully some experience in working with *Drosophila* (but this is not necessary). Thanks. Barry Pittendrigh

SCHOLARSHIPS AND GRANTS

Entomological Society of Canada Postgraduate Awards 2000

The Entomological Society of Canada will offer two postgraduate awards of \$2,000 each to assist students beginning graduate study and research leading to an advanced degree in entomology. The postgraduate awards will be made on the basis of high scholastic achievement.

Invitation for Applications

Eligibility - Applicants for either scholarship must be members of the Entomological Society of Canada. The successful applicants must be either Canadian citizens or landed immigrants with Bachelor's degrees from Canadian universities. Applicants must begin their first year of postgraduate studies between 15 June 1998 and 31 December 2000. The studies and research must be carried out at a Canadian university. Each award is conditional upon certification by the Department Head that successful applicants have been accepted into the first year of a program of study and research for an advanced degree with full graduate status. A student who was unable to gain admission or enters graduate school as a qualifying candidate is not eligible to receive an award.

Method of Application - Applicants must submit a properly completed form, with support documents. Application forms are available at <http://www.biology.ualberta.ca/esc.hp/form.htm>, or from the Chair of the ESC Student Awards Committee. **The original and 3 copies of the application must be submitted to the Chair of the Student Awards Committee postmarked no later than 10 June 2000.** Please specify if you are applying for the Postgraduate Award, the Keith Kevan Scholarship, or both.

Process of Selection and Award Presentation - Applications will be reviewed by a committee of the Society. An announcement of the two winners will be made at the annual meeting of the Society and each winner will receive a certificate. Payment of the award will be made in October 2000.

Regulations

Earnings from Other Sources - Award holders are permitted, under normal circumstances, to demonstrate, instruct or assist in non-degree related research for a maximum of 200 hours per annum, provided that the Head of their Department considers this is desirable and that it does not hinder the progress of their studies. Apart from these assistantships, award holders will devote their full time to study and research and will not undertake any paid work during the school term. They may hold other awards and scholarships.

Transfers - Awards are made on the condition that the winners engage in a program of graduate studies and research for an advanced degree in entomology in Canada. Students, who after receiving the award, wish to change their graduate program or transfer to a foreign university may be asked to decline the award. Any change in the course of study, department or university in which an award winner is registered requires prior approval of the Scholarship Committee. A request for permissions to transfer must be supported by statements from Heads of Departments.

Additional Allowances - The award stipends are all-inclusive. There is no provision for additional grants by the Society for any purpose. Additional grants, for example, to attend meetings, pay course fees, meet publications costs, etc., will not, under any circumstances, be authorized.

All communications regarding these awards, including requests for applications, should be addressed to:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

La Société d'Entomologie du Canada Bourse pour Étudiants Post-Gradués 2000¹

La Société d'entomologie du Canada offrira deux bourses d'une valeur de \$2,000 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. Les bourses seront accordées aux étudiants ou étudiantes en raison des seuls critères de réussite académique.

Avis

Éligibilité - Les candidats pour chacune des bourses doivent être membres de la Société d'entomologie du Canada. Les candidats doivent aussi être Canadiens ou résidents reconnus du Canada et détenir un baccalauréat d'une université canadienne. Les candidats doivent obligatoirement avoir débuté leur première année d'études post-graduées entre le 15 juin 1998 et le 31 décembre 2000, et effectuer leur étude et recherche dans une université canadienne. Les bourses ne seront accordées que lorsque les directeurs de Département auront certifié que les candidats choisis sont inscrits en première année d'un programme d'études supérieures, et ce avec tous les privilèges attachés au statut d'étudiant gradué. Un étudiant qui n'a pu être admis à l'École des Gradués, ou qui s'inscrit en vue de compléter l'obtention de crédits, n'est pas éligible à la bourse.

Procédure - Les candidats devront soumettre leur candidature à l'aide du formulaire approprié et y joindre tous les documents requis. Les formulaires sont disponibles auprès du président du Comité des bourses aux étudiants de la Société ou sur notre site internet à l'adresse suivante: <http://www.biology.ualberta.ca/esc.hp/form.htm>. **Le formulaire original, ainsi que trois copies, devront être envoyés au président du Comité des bourses aux étudiants de la Société et reçus au plus tard le 10 juin 2000.** Veuillez préciser si vous désirez les formulaires pour la Bourse Post-graduée ou la Bourse Keith Kevan.

Sélection et remise des bourses - L'analyse des candidatures se fait par un comité de la Société, et l'annonce des récipiendaires se fera à la réunion annuelle de la Société où ils recevront un certificat. Le paiement de la bourse aura lieu en octobre 2000.

Règlement

Autres sources de revenus: Un boursier pourra normalement donner des séances de cours ou de démonstration et être auxiliaire de recherche jusqu'à un maximum de 200 heures par année, en autant que le Directeur de son département considère cela profitable et que ces tâches additionnelles ne nuisent pas au progrès de l'étudiant. Mises à part ces exceptions, un boursier devra consacrer tout son temps à ses études et recherches et n'accepter aucune autre rémunération. Il peut cependant jouir d'une autre bourse ou d'un prix.

Transferts - Les bourses sont accordées à condition que les boursiers entreprennent des études graduées en vue de l'obtention d'un diplôme en entomologie au Canada. Les boursiers qui décideront de changer de champ d'études, ou de transférer dans une université hors du Canada peuvent se voir retirer leur bourse. Après acceptation de la bourse, tout changement de programme d'études, de département ou d'université devra recevoir au préalable l'approbation du Comité de la Bourse de la SEC. Une telle demande doit être accompagnée de documents provenant des Directeurs des départements concernés.

Frais supplémentaires - La somme offerte est invariable. En aucun cas la Société n'accordera de montant supplémentaire. Des frais additionnelles, par exemple, pour assister aux réunions scientifiques, payer des frais de cours, défrayer des coûts de publications, etc., ne seront autorisés sous aucune considération. Toute correspondance relative aux bourses, incluant les demandes de formulaires doit être adressée à:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

¹ Le masculin est employé dans ce texte pour désigner les personnes des deux sexes.

Field Research Travel Award

The Toronto Entomologists' Association announces that it is now accepting applications for the W. John D. Eberlie Field Research Travel Award.

In memory of long-time member, W. John D. Eberlie, the Toronto Entomologists' Association is offering a research travel award of \$300 to assist graduate or undergraduate students conducting original field research into Ontario insects. The award is intended as a travel grant to defray costs of travel to field sites used for research. The award will be made on the basis of merit and quality.

Invitation for applications:

Eligibility: Applicants must be members of the Toronto Entomologists' Association and a graduate or undergraduate student at an Ontario university.

How to apply: Submit a properly completed application form, available from the TEA. The original application plus 3 copies must be submitted to the TEA, postmarked no later than March 25, 2000.

Terms of the award: The recipient is expected to present their results at the TEA symposium in March of the following year. The recipient is also expected to give a short report on how the funds were used to facilitate their aims as a naturalist or researcher. The report should include an abstract of the entire study and how the research funded by the award fits into their complete research program. The report and an abstract of their research, if possible, will be printed in Ontario Insects, the newsjournal of the TEA.

Process of selection and award presentation: Applications will be reviewed by a committee of the TEA. The announcement of the recipient of the award will be made at the April meeting of the TEA. Payment will be made in April. The name of the successful applicant will be announced in Ontario Insects at the earliest possible date.

An application form for the award, or for membership in the TEA (\$10 per year for students) may be requested by writing to: Nancy van der Poorten, President TEA, 164 Morse Street, Toronto, Ontario M4M 2P8; Phone (416) 466-9013; e-mail: nmg.vanderpoorten@sympatico.ca

Nancy van der Poorten
President, Toronto Entomologists' Association
164 Morse St., Toronto Ontario M4M 2P8

MEETINGS

Black Flies in the New Millennium

There will be an **International Meeting of Black Fly Workers** at Brock University, St. Catharines, Ontario from June 17-21, 2000. Planned Symposia include: I Taxonomy and Systematics; II Ecology and Behaviour of Immatures; III Ecology and Behaviour of Adults; IV Disease Transmission; V Black Fly Control. Please check our Website (<http://www.brocku.ca/blackfly2000/>) for registration information and forms. For further information, contact Dr. F.F. Hunter, Conference Organizer at 905-688-5550 ext 3394 or hunterff@spartan.ac.brocku.ca.

Annual Meeting of the Society for Invertebrate pathology and the 5th International Conference on *Bacillus thuringiensis*: University of Guanajuato, Mexico, August 13 - 18, 2000.

The Society for Invertebrate Pathology will hold its annual meeting in Guanajuato, Mexico, August 13-18, 2000. Symposia will feature resistance management, ecology of *Bacillus thuringiensis*, Bt toxin insertion and risk assessment, immunity, nematode and associated bacteria, fungi, microbial control, non-insect pathology and non-insect bacterial pathogenesis. Submitted papers will also be presented. Deadline for submission of abstracts is 15 May. For more information, contact: sip@sipweb.org, <http://www.sipweb.org>, or Society for Invertebrate Pathology, 4300 NW 23rd Ave., Suite 78, Gainesville, FL 32614-7050.

MISCELLANEOUS

NORTH AMERICAN BUTTERFLY ASSOCIATION

THE NABA 1ST of JULY BUTTERFLY COUNT, 2000

The 26th annual NABA 1st of July Butterfly Count will be held this summer. These counts are fulfilled but also track the butterfly populations of North America. Volunteers select a count area with a 15-mile diameter and conduct a one-day census of all butterflies sighted within that circle. These counts are usually held in the few weeks before or after the 1st of July.

No matter how much or how little butterfly watching you've done, the results of butterfly counting can be surprising and interesting. If a count already exists in your area, please join them for a day of fascinating butterfly counting. If there is no count in your area, you may start your own if you know how to identify the butterflies. Otherwise, inspire a nature center or butterfly club to start one for you!

For more information on the count program, counts in your area, how to conduct a count, and NABA, please consult NABA's website at: <http://www.naba.org>, or send a self-addressed, stamped business envelope to: NABA - Butterfly Count, 4 Delaware Road, Morristown, NJ 07960 USA

THE NABA 1ST of JULY BUTTERFLY COUNT, 1999

The 25th annual NABA 1st of July Butterfly Count was held in the summer of 1999 and sponsored by the North American Butterfly Association (NABA). Participants in the count conducted a one-day census of all butterflies observed at sites within their count area, a 15-mile diameter circle.

In 1999, 387 butterfly counts were held, including 2 counts (so far) received after deadline to be published in next year's report. This is an increase of 10% compared to the 352 counts in 1998 (including 7 being published in the 1999 report). This growth spurt reverses the recent trend of slowing growth: 4% from 1997 to 1998, 6% from 1996 to 1997, 7% from 1995 to 1996, but 17% from 1994 to 1995.

The 318 counts in the U.S. in 1999 (300 in 1998, 296 in 1997, 285 in 1996) occurred in 45 states (counting DC as a state). Since 1996, the number of states with counts has consistently hovered around 44-45. Who was missing in 1999? Alabama, Hawaii, Nevada, New Hampshire, Rhode Island, and Utah. The 66 Canadian counts (up greatly from the 47 in 1998, in turn much higher than the 34 in 1997 and 29 in 1996) occurred in 7 provinces, up 1 from 1997-98 and up 2 from 1996. Mexico had only 2 counts in 1 state, down from the 5 in 1997-98 and 4 in 1996 in 3 states each of those years. The same three counts continued their perfect attendance record of reporting in each year of the program (Berkeley, CA; Gilpin County, CO; Lower Pearl River, LA-MS) - congratulations!

With 28 counts in 1999, Alberta came from far back in the pack (with only 14 counts in 1998) to achieve a record-breaking total of most counts in a single year from one state or province California was demoted to second place (26 counts in 1999, 25 in 1998). New York held steady in third, with 22 counts (20 in 1998), followed by Ontario, with 21 counts (20 in 1998). Florida fell to fifth, with 18 counts (21 in 1998).

As usual, the count with the most species occurred in Mexico, with 117 on Monterrey, Nuevo Leon. The all-time records are 175 on La Bajada, Nayarit in 1998 and 169 on Puerto Vallarta, Jalisco in 1991. North of Mexico, Gilpin County, CO continues to reign supreme in species totals, with 109 in 1999, just shy of its incredible record of 111 in 1998 and well ahead of its next highest total of 103 in 1994. Also as usual, the next most speciose counts were in Arizona, with 88 at Patagonia (99 in 1998) and 87 at Ramsey Canyon (90 in 1998). The highest Arizona species total is 102 (Ramsey Canyon in 1995 and 1997, and Patagonia in 1992).

TO ORDER THE 1999 REPORT: Please send your report order (specifying year of count results desired) by check or money order payable to NABA (or "North American Butterfly Association") in US dollars only for \$10 (NABA members) or \$15 (non-members) each (price includes postage) to: NABA - Butterfly Count, 4 Delaware Road, Morristown, NJ 07960 USA. Tel. 973-285-0907 Fax 973-285-0936

NET SHOVEL AND AXE

The Look-Alikes

"I wonder what has happened now," thought Jason as he struggled to get the key into the ignition of his automobile. "It's the right key, but it won't work."

Jason had taken his government car ó a 1941, black, two-door, Dodge vehicle ó into the garage in Mossbank, Saskatchewan for an oil change. He was on the annual grasshopper abundance survey in the southern part of the province and had reached the town just in time for lunch.

"I'll take the car in for an oil change while I get something to eat. After lunch I will be all set to go without having to idly wait for the servicing of the car." So it was that he found himself in the garage after lunch and ready to drive away. The serviceman had told him that car was ready, he had paid the bill, and was now all set to take off. Yet he could not get the key to work in the ignition.

He sat in the car and held the key up for a final inspection to make sure it was the right one. A hand appeared through the open window and in it was another key. "Here, try this one," said a voice belonging to the individual standing beside the car. Jason looked up at the tall man with the smiling face that beamed from underneath a broad Stetson hat.

The sight of the RCMP officer startled Jason for a moment. Then he realized that the car he was in was a police cruiser, a Dodge car identical to his own. The two vehicles were parked side by side, both emblazoned with government name-decals on their respective door panels. He was in the wrong car.

"Sorry, Officer," apologized a red-faced Jason, as he got out of the police car and went to the adjacent one marked "CANADA AGRICULTURE." "I guess the Chrysler Corporation got the bid to supply government cars in 1941, and we are all driving look-alikes. My key works just fine in this car. So long."

Contributed by Paul Riegert

ENTOMOLOGICAL SOCIETY OF CANADA
LA SOCIÉTÉ D'ENTOMOLOGIE DU CANADA

393 Winston Ave., Ottawa, Ontario K2A 1Y8

Application for membership - (new members only)
Demande d'adhésion (nouveaux membres seulement)

Name and Address (please print):
Nom et Adresse (lettres moulées):

telephone (bus.) / téléphone (au travail):

Fax:

Electronic mail address / Adresse électronique:

Keywords describing interest (up to six):
Décrivez vos intérêts en utilisant jusqu'à
six mots clés.

Please copy and distribute to interested non-members. Thankyou.

Membership is a personal affiliation; publications are the personal property of the individual member. Membership is on a calendar year basis.

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