Bulletin

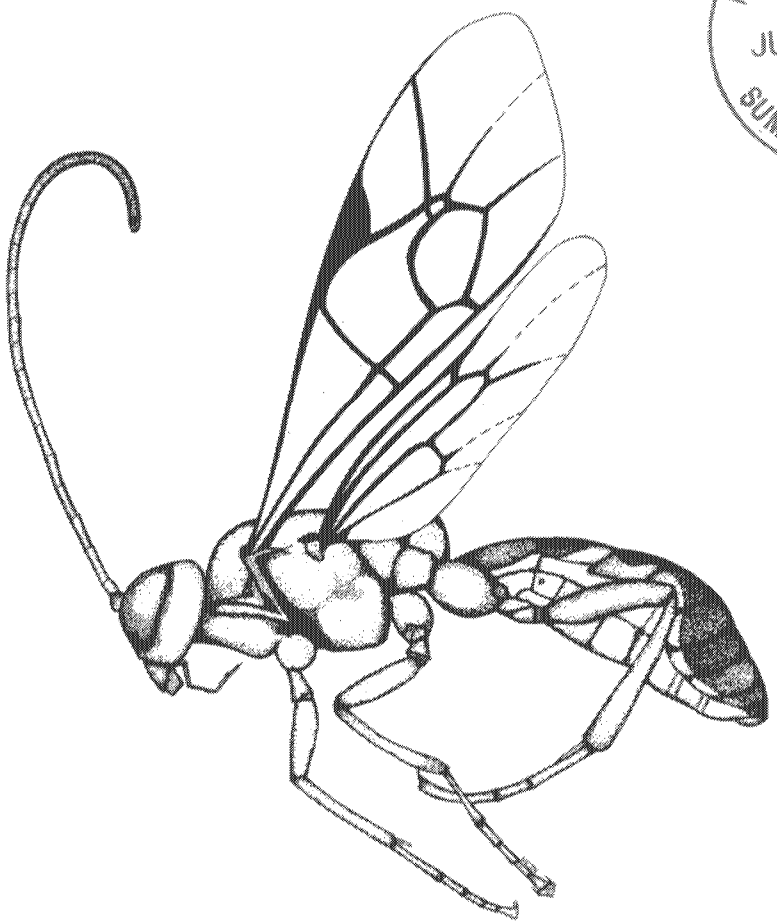
Entomological Society of Canada

Société d'Entomologie du Canada

Volume 28

No. 2

June/juin 1996



Entomological Society of Canada
Société d'Entomologie du Canada

393 Winston Avenue, Ottawa,
Ontario, Canada K2A 1Y8

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Date of issue/Date de publication:
June/juin 1996

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

Illustrated on the front cover is a male Lathrolestes luteolator (Gravenhorst) (Hymenoptera: Ichneumonidae). This parasitic wasp is known to attack the red oak leafminer [Profenusa alumna (MacGillivray)] and other pest insect species such as Caliroa spp. in eastern North America. [Habitus illustration courtesy of J. Hammond, University of Alberta, Edmonton.]

L'illustration de la page couverture représente un mâle Lathrolestes luteator (Gravenhorst) (Hymenoptera: Ichneumonidae). Cette guêpe parasite attaque la mineuse du chêne rouge, [Profenusa alumna (MacGillivray)], ainsi que d'autres espèces de ravageurs du nord-est de l'Amérique du Nord, dont certaines tenthrèdes (Caliroa spp.). (L'illustration est une courtoisie de J. Hammond, Université d'Alberta, Edmonton.)

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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.

Call for Nominations

Achievement Awards Committee

Gold Medal for Outstanding Achievement in Canadian Entomology and The C. Gordon Hewitt Award

Members of the Society are invited to nominate individuals whom they regard as eligible for these awards (for the year **1997**). Nominations should be sent in an envelope marked "Confidential" to the following address:

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

and should comprise: (1) the name and address of the nominee(s); (2) a statement of relevant achievements; and (3) the name of the nominator and at least one seconder. To be considered by the Achievement Awards Committee, nominations must bear a postmark no later than **December 31 1996**.

The following conditions govern these awards:

1. Outstanding contributions should be judged on the basis of

(a) superior research accomplishment either as a single contribution or as a series of associated endeavours and which may be either in entomology or a related field where the results obtained are of great consequence;

or

(b) dedicated and fruitful service in the fields of Society affairs, research, administration or education.

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

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

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

5. Nominees for the C. Gordon Hewitt Award must be less than 40 years of age throughout the calendar year in which the award is both announced and awarded.

Comité des décorations

Médaille d'Or pour Contributions Exceptionnelles à l'Entomologie Canadienne
et
Prix C. Gordon Hewitt

La Société invite les membres à lui faire parvenir les noms des personnes qu'ils considèrent éligibles à ces deux prix. Veuillez envoyer vos nominations (pour l'année **1997**) au:

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

dans une enveloppe portant la mention "Confidentiel". La nomination doit contenir: (1) le nom ainsi que l'adresse du (ou des) candidat(s) désigné(s); (2) un compte rendu des réalisations pertinentes; et (3) le nom du parrain et celui d'au moins une deuxième personne appuyant la mise en nomination. Pour être acceptées par le Comité, les nominations devront porter un sceau postal d'au plus tard le **31 decembre 1996**.

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

1. Les contributions exceptionelles devraient être jugées dans le contexte

(a) d'un accomplissement hors pair en recherche, soit comme résultat d'une seule contribution ou d'une série d'efforts reliés et ayant abouti à des résultats de grande valeur. Cette recherche aura été realisér en entomologie ou tout autre domaine connexe.

ou

(b) de service dévoué et fructueux au profit de la Société, de l'administration de recherche, ou de l'éducation.

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

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

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

5. Le candidat désigné pour le prix C. Gordon Hewitt doit être agé de moins de 40 ans pour toute la durée de l'année au cours de laquelle le prix est annoncé et décerné.

The 1996 Joint Meeting of the Entomological Society of Canada and the Acadian Entomological Society

Lord Beaverbrook Hotel, Fredericton, New Brunswick October 5-9, 1996

TENTATIVE PROGRAM

Saturday, 5 October 1996

08:30 - 17:00	Entomological Society of Canada Governing Board Meeting - Garrison Room

Sunday, 6 October

10:00-15:00	Registration
13:00-17:00	Workshop (2)
17:00-18:30	Linnaean Games
19:30-20:30	Students meet the Board - Petitcodiac Room
20:30-23:00	Wine and Cheese - Ballroom

Monday, 7 October

08:00-10:00	Registration
08:30-10:00	Opening remarks, ESC Awards, Gold Medal Address
10:00-12:00	Plenary Symposium: "Practical Applications of Basic Research" - Graham Thurston
13:30-15:00	Submitted Paper/Graduate Student Papers (President's Prize)
13:30-16:30	Workshop (1)
15:30-16:30	Poster Session
15:30-16:30	Heritage Lecture
16:30-17:30	Acadian Entomological Society Annual General Meeting
19:00-22:00	President's Reception (by invitation only)
17:00-21:00	Linnaean Games: Finals

Tuesday, 8 October

09:00-12:00	Symposium "Tree Resistance to Insects" Dan Quiring Workshop (1) , Submitted papers.
13:30-16:00	Submitted Papers Poster Session
16:30-17:30	Entomological Society of Canada Annual General Meeting.
18:30-23:00	Banquet

Wednesday, 9 October

09:00-12:00	Symposium "Insects of Wetlands" Donna Giberson Submitted Papers, Workshop (1)
12:00-13:00	Entomological Society of Canada Governing Board Meeting.

TENTATIVE WORKSHOPS

IPM in Apple Orchards - Rob Smith and Charles Vincent
Population Dynamics and Management of Hemlock Looper - Rick West
Entomopathogenic Nematodes and IPM - Graham Thurston
Research in Support of IPM programs for Colorado Potato Beetle - Gilles Boiteau
Insect Management in Seed Orchards - Jon Sweeney

For additional information, please contact:

Jon Sweeney (Chair) or Graham Thurston (Program Chair)
Canadian Forest Service, P.O. Box 4000
Fredericton, New Brunswick, E3B 5P7
Tel: (506) 452-3499 Tel: (506) 452-3026
Fax: (506) 452-3525 Fax: (506) 452-3525
Email: jsweeney@fcmr.forestry.ca Email: gthurston@fcmr.forestry.ca

La Réunion conjointe de 1996 de la Société entomologique du Canada et de la Société entomologique acadienne

Hôtel Lord Beaverbrook, Fredericton, N.B., du 5 au 9 octobre 1996

PROGRAMME PROVISOIRE

Le samedi 5 octobre 1996

8 h 30 à 17 h Réunion du Conseil de la Société entomologique du Canada - salle Garrison

Le dimance 6 octobre 1996

10 h à 15 h	Inscription
13 h à 17 h	Ateliers (2)
17 h à 18 h 30	Jeux Linnéens
19 h 30 à 20 h 30	Les étudiants rencontrent le Conseil - salle Petitcodiac
20 h 30 à 23 h	Vin et Fromage - salle Ballroom

Le lundi 7 octobre 1996

8 h à 17 h	Inscription
8 h 30 à 10 h	Ouverture, Prix SEC, Allocution - Médaille d'or
10 h à 12 h	Symposium plénier: "Applications pratiques de recherche fondamentale"- G. Thurston.
13 h 30 à 15 h	Communcations scientifiques: Étudians du troisième cycle (Prix du Président)
13 h 30 à 16 h 30	Atelier (1)
15 h 30 à 16 h 30	Présentation des affiches
15 h 30 à 16 h 30	Allocution - Héritage des anciens
16 h 30 à 17 h 30	Réunion générale annuelle de la Société entomologique acadienne
19 h à 22 h	Réception du Président (sur invitation seulement)
17 h à 21 h	Jeux linéens: Session finale

Le mardi 8 octobre 1996

9 h à 12 h	Symposium "Résistance des insectes à l'arbres" Dan Quiring
	Ateliers (1), Communications scientifiques
13 h 30 à 16 h	Communications scientifiques
16 h 30 à 17 h 30	Réunion générale annuelle de la Société entomologique du Canada
18 h 30 à 23 h	Banquet

Le mercredi 9 octobre 1996

9 h à 12 h	Symposium "Les insectes des marécages" Donna Giberson
	Communications scientifiques, Ateliers (1)
12 h à 13 h	Réunion du Conseil de la Société entomologique du Canada

ATELIERS PROVISOIRS

Lutte intégrée pour la répression des ravageurs dans les vergers - Rob Smith et Charles Vincent
Dynamique des populations et gestion de l'arpenteuse de la pruche - Rick West
Nématodes entomopathogéniques et la lutte intégrée pour la répression des ravageurs - Graham Thurston.
Recherche supportant les programmes de lutte intégrée pour la répression du doryphore de la pomme de terre - Gilles Boiteau.
Gestion des insectes nuisibles dans des vergers à grains - Jon Sweeney

Pour plus de renseignements, veuillez communiquer avec:

Dr. Jon Sweeney (Président) ou D. Graham Thurston (Président du programme)
Service canadien des forêts, Case postale 4000
Fredericton (Nouveau-Brunswick), E3B 5P7
Téléphone: (506) 452-3499 Téléphone: (506) 452-3026
télécopieur: (506) 452-3525; télécopieur: (506) 452-3525
Email: jsweeney@fcmr.forestry.ca Email: gthurston@fcmr.forestry.ca

The 1996 Joint Meeting
of the Entomological Society of Canada
and the Acadian Entomological Society

Fredericton, October 5 - 9, 1996
Lord Beaverbrook Hotel

REGISTRATION FORM

Check one: Regular or Student

Name: .....
Last First Initial(s)

Title: .....

Address: .....

City: .....

Province/State: ..... Postal Code: .....

Telephone: ..... Fax: .....

Email: .....

Registration fees are in $CDN (including banquet ticket and GST)
Late registration (After August 9, 1996, add $15.00 to each fee).

Please make cheque payable to ESC/AES Joint Meeting 1996.

Registration, Regular	$110
Registration, Student	$60
Registration, Accompanying	$50
.....	.....
Name of accompanying person	TOTAL

Accommodations: A number of rooms have been set aside at the Lord Beaverbrook Hotel. $70.00 single occupancy, $75 double occupancy.

Please make your own reservations through:
Lord Beaverbrook Hotel, 659 Queen Street
Fredericton, New Brunswick E3B 5A6
Telephone: (506) 455-3371 Fax: (506) 455-1441
Reservations: 1-800-561-7666 (Toll free within Canada)

Note: When making your reservation, please let the hotel know you are attending the ESC/AES meeting.

Please return this form and registration fees to:
Dr. E. Eveleigh
ESC/AES Joint Meeting 1996
Canadian Forest Service - Fredericton
P.O. Box 4000, Fredericton, New Brunswick, Canada E3B 5P7

La réunion conjointe de 1996
de la Société entomologique du Canada
et de la Société entomologique acadienne

Fredericton, le 5 au 9 octobre 1996
Hôtel Lord Beaverbrook

FORMULAIRE D'INSCRIPTION

Indiquez: Régulier ou Étudiant(e)

Nom: .....
Nom de famille Prénom Initiale(s)

Titre: .....

Adresse: .....

Ville: ..... Province/État: .....

Code postal: ..... Téléphone: .....

Télécopieur: ..... Email: .....

Frais d'inscription en monnaie canadienne (incluant les frais de banquet et TPS)
Inscription tardive (après le 9 août 1996 ajouter 15,00 $ pour chaque frais).

Chèque ou mandat poste payable à "ESC/AES Joint Meeting 1996".

Frais d'inscription, Régulier	110,00 $
Frais d'inscription, Étudiant(e)	60,00 $
Frais d'inscription, Conjoint	50,00 $

....
Nom du conjoint TOTAL

Hébergement: Un nombre de chambres sont reservées à l'Hôtel Lord Beaverbrook. 70,00 $ chambre simple, 75,00 $ chambre double.

Prière d'effectuer vos réservations directement auprès de:
Hôtel Lord Beaverbrook, 659, rue Queen
Fredericton, Nouveau-Brunswick E3B 5A6
Téléphone: (506) 455-3371 Télécopieur: (506) 455-1441
Réservations: 1-800-561-7666 (sans frais au Canada)

Note: Lorsque vous ferez votre réservation, veuillez specifier que vous assisterez à la réunion de ESC/AES.

Veuillez retourner ce formulaire ainsi que les frais d'inscription à:
Dr. Eldon Eveleigh
Réunion conjointe de SEC/SEA de 1996
Service canadien des forêts - Fredericton
Case postale 4000, Fredericton, Nouveau-Brunswick, Canada E3B 5P7

The 1996 Joint Meeting of the Entomological Society of Canada and the Acadian Entomological Society

Fredericton, October 5 - 9, 1996
Lord Beaverbrook Hotel

SUBMITTED PAPER, STUDENT PAPER AND POSTER PRESENTATION FORM

Please return to: Dr. Graham Thurston (Program Chair)
Canadian Forest Service - Fredericton, P.O. Box 4000, Fredericton, N. B. E3B 5P7
Tel: (506)452-3026; Fax: (506)452-3525; Email: gthurston@fcmr.forestry.ca

DEADLINE: Postmarked on June 29, 1996

Author(s): .....

Address: .....

Title: .....
Abstract:

Abstracts must not exceed 50 words; they may also be submitted by Email or on diskette.

Form of presentation desired (check one): Regular President's Prize*
Oral presentation: 12 min + 3 min discussion
Poster presentation:
Name of presenter: .....

Projection equipment:
A Kodak carousel projector and an overhead project will be available for each session. Slides should be provided in a carousel. Please contact the program chair if additional equipment is required. Poster materials must use velcro, not pins or tacks, for attachment to display panels.

* Students are eligible for the President's Prize if they meet the following criteria:
1) they must be enrolled in a graduate degree program or have graduated from the program less than six (6) months prior to the Meeting;
2) they must be registered at the Meeting; and
3) they must be the principal investigator of the paper.

The Logo

The Short-tailed Swallowtail, Papilio brevicauda bretonensis McDunnough, is a distinctly Acadian insect, restricted to salt marshes along the northern coasts of New Brunwick, Nova Scotia, and Newfoundland. The larvae feed on scotch lovage, Ligusticum scothicum. The original pen and ink drawing was made by Nova Scotian artist, Twila Robar-DeCoste, from a photograph taken by Dr. Tony Thomas. T-shirts and/or coffee mugs with the logo will be available for sale at the meeting.

La réunion conjointe de 1996 de la Société entomologique du Canada et de la Société entomologique acadienne

Fredericton, les 5 au 9 october 1996
Hôtel Lord Beaverbrook

FORMULAIRE D'INSCRIPTION: COMMUNICATIONS ORALES RÉGULIERES ET D'ÉTUDIANT(E)S, ET COMMUNICATIONS POSTERS

Veuillez retourner à: Dr. Graham Thurston (Président du programme)
Service canadien des forêts, Case postale 4000, Fredericton, N. B. E3B 5P7
Téléphone: (506)452-3026; Télécopieur: (506)452-3525;
Email:gthurston@fcmr.forestry.ca

DATE LIMITE: le 29 juin 1996

Auteur(s): .....

Adresse: .....

Titre: .....
Résumé:

Les résumés ne doivent pas dépasser 50 mots; doivent être envoyés par message electronique ou sur disquette.

Format de présentation (ne cocher qu'une case): Régulier Le Prix du Président*
Communication orale: 12 min + 3 min de discussion
Présentation des affiches:
Nom du présentateur: .....

Équipement audio-visuel:
Un projecteur Kodak pour diapositives et un rétroprojecteur seront disponible à chaque session. Veuillez contacter le responsable du programme si vous avez besoin d'équipement supplémentaire. Les diapositives devront être fournies dans un panier de projection. Pour les affiches veuillez vous servir de Velcro.

* Les étudiants sont éligibles pour le Prix du Président s'ils satisfont les critères suivants:
1) ils doivent être inscrits dans un programme d'études de troisième cycle ou avoir graduè d'un tel pro gramme dans les six (6) mois précédant la Réunion conjointe;
2) ils doivent être inscrits à la Réunion conjointe; et,
3) ils doivent être le chercheur principal de la communication.

Le logo

Le papillon à queue courte, Papilio brevicauda bretonensis McDunnough, est clairement un insecte Acadien, limité aux marécages d'eau salées le long de la côte nord du Nouveau-Brunswick, de la Nouvelle-Écosse et de Terre-Neuve. Le larve se nourrit de livêge écossaise, Ligusticum scothicum. Le dessin est fait à la plume par une artiste de la Nouvelle-Écosse, Twila Robar-DeCoste d'après une photo prise par le Dr Tony Thomas. Des t-shirts et/ou tasses à café avec le logo seront en vente à la réunion.

ACTIVITIES FOR PARTICIPANTS AND ACCOMPANYING PERSONS

In Fredericton and the surrounding area, there are a number of excellent tourist attractions. Enclosed are brochures describing some of these attractions and a booklet on tourism in New Brunswick can be obtained by filling out the enclosed postcard and mailing it to the New Brunswick Tourism Office.

PLEASE INDICATE BELOW WHICH OF THE FOLLOWING WOULD BE OF INTEREST TO YOU AND RETURN THIS FORM WITH YOUR REGISTRATION.

1. **King's Landing Historical Settlement** - travel back in time to 19th century Loyalist New Brunswick. King's Landing is a recreated New Brunswick settlement spanning the time between 1784 to 1900. Spread over nearly 300 acres of rolling farm and forested land on the banks of the Saint John River, are numerous period farm houses, a one-room schoolhouse, church, blacksmith, inn and sawmill (to name only a few of the attractions). Early October is an excellent time to visit King's Landing because much of the harvest is in and the "inhabitants" are all available to chat about life in the 1800's. Buses will take those interested to King's Landing before noon on Sunday, October 6, 1996. The tour will be self-guided and lunch can be purchased at the visitors' center or at the settlement's King's Head Inn. Buses will return to Fredericton around 4PM. Cost, including transportation and admission and applicable taxes, will be approximately $15 per person. Please see the enclosed brochure.

2. **Fall Colors Bus Tour.** The Saint John River Valley is renown for its display of autumn foliage. The tour will head down river towards Gagetown where lunch will be supplied at a local restaurant and some stops will be made to visit craft shops and museums. The tour will be on Tuesday, October 8, 1996. Passengers will be picked up at the Lord Beaverbrook Hotel at 10:00 a.m. and will be return at 4:00 p.m. in plenty of time to freshen up before the banquet. Cost, including transportation, lunch and taxes will be approximately $35 per person.

3. **Fall Craft Tour**- October 5 and 6 is the weekend of the Fall Craft Tour along the Nashwaak. A number of regional artisans open their workshops to visitors for the weekend. Most of the workshops are small and can only accommodate a few visitors at one time. As a result, we will most likely be unable to arrange transportation for small groups at a price that is economical. Those wishing to go on the tour may want to consider renting a car. Additional information on local craft shops can be obtained by checking the appropriate box on the NB Tourism postcard.

For those arriving on Saturday, October 5, Fredericton has a very active night life with a number bars and pubs providing live music for listening and dancing. A list of activities for the week of the conference will be available at registration.

For further information please contact:

Dr. Chris Lucarotti
Canadian Forest Service - Fredericton
P.O. Box 4000
Fredericton, NB E3B 5P7
phone: 506-452-3538 fax: 506-452-3525 email: clucarotti@fcmr.forestry.ca

I would be interested in the following attractions:

1. King's LandingHistorical Settlement Number of persons .....
2. Fall Colors Bus Tour Number of persons .....
3. Fall Craft Tour (if available) Number of persons .....

ACTIVITÉS POUR LES PARTICIPANTS ET LEURS INVITÉS

Vous trouverez à Fredericton et les régions avoisinantes d'excellentes attractions touristiques. Des brochures décrivant quelques unes de ces attractions sont incluses, une brochure touristique du Nouveau-Brunswick est également disponible en remplissant la carte postale ci-incluse et la retournant au bureau touristique du Nouveau-Brunswick. Veuillez indiquer ci-dessous laquelle des activités suivantes vous intéresse le plus.

VEUILLEZ INDIQUER CI-DESSOUS LAQUELLE DES ACTIVITÉS VOUS INTÉRESSE LE PLUS

1. **Village historique de Kings Landing** - retourner au temps des Loyalistes du Nouveau-Brunswick du 19e siècle. King's Landing raconte l'histoire néo-brunswickoise depuis 1784 jusqu'en 1900. Étaler sur presque 300 acres de terres cultivées et de terres forestières sur la rive du fleuve Saint-Jean, se trouvent diverses maisons de ferme de l'époque, l'école à classe unique, l'église, la forgerie, l'auberge et le moulin à scie (pour n'en nommer que quelques unes). Le début octobre est un temps excellent pour visiter King's Landing car la moisson est terminée et les habitants sont disponibles pour jaser de la vie en 1800's. Des autobus seront disponibles pour les intéressés à visiter King's Landing le dimanche 6 octobre 1996 en avant midi. L'excursion ne sera pas guidée et le déjeuner peut être acheté au centre des visiteurs ou à l'Auberge King's Head. Les autobus retourneront à Fredericton au environ de 16 heures. Le coût, comprenant le transport, l'admission et les taxes applicables, sera d'environ 15,00 $ la personne. S'il-vous-plaît vous referez à la brochure ci-incluse.

2. **Tournée des feuillages d'automne en autobus**. Le fleuve Saint-Jean est renommé pour son étalage de feuillage d'automne. La randonnée se poursuivra le long de la rivière en se rendant vers Gagetown où un déjeuner sera servi au restaurant du coin et des arrêts seront effectués pour visiter des magasin d'artisanat et des musées. La tournée sera le mardi, 8 octobre 1996. Les passagers seront ramassés à l'hôtel Lord Beaverbrook à 10 heures et seront de retour à 16 heures. Ils auront donc suffisamment de temps pour se préparer pour le banquet. Le coût, incluant le transport, déjeuner et les taxes applicables, sera d'environ 35,00 $ la personne.

3. **Randonnée estivale d'artisanat** - Les 5 et 6 octobre est la fin de semaine de la randonnée estivale d'artisanat le long de la rivière Nashwaak. Un nombre d'artisans régionaux ouvrent leurs ateliers au visiteur tout au long de la fin de semaine. La plupart des ateliers sont petites et peut seulement recevoir quelque visiteurs à la fois. C'est pourquoi nous seront probablement dans l'impossibilité d'arranger a prix raisonnable le transport pour un petit groupe. Les personnes intéressées à y participer devront louer une voiture. Pour plus d'information sur les ateliers régionales peut être obtenue en cochant la case appropriée sur la carte postale de Tourisme Nouveau-Brunswick.

Pour ceux arrivant le samedi 5 octobre, Fredericton offre plein d'activités nocturnes avec plusieurs bars et bistrots mettant en vedette plusieurs genres de musique. Une liste des activités qui auront lieu durant la semaine de la conférence sera disponible au bureau de l'inscription.

Pour plus d'information communiquez avec:

Dr Chris Lucarotti
Service canadien des forêts - Fredericton
Case postale 4000, Fredericton, Nouveau-Brunswick E3B 5P7
Téléphone: (506) 452-3538; Télécopieur: (506) 452-3525; Email: clucarotti@fcmr.forestry.ca

Je serais intéressé dans les activités suivante:

1. Village historique de Kings Landing — Nombre de personnes _____
2. Tournée des feuillages d'automne en autobus — Nombre de personnes _____
3. Randonnée estivale d'artisanat — Nombre de personnes _____

Second Canadian Linnaean Games

Following the lead set by Elizabeth Tomlin and the Student Affairs Committee in Victoria last year, the ESC-AES Joint Meeting Organizing Committee is organizing the second annual "Canadianized" version of the E.S.A.'s Linnaean Games. The Games were first held at a meeting of the E.S.A. in 1982, and since then have been a great success. The format of the Games involves teams of four people competing against each other to answer questions about entomology. The primary goal of the Games is to provide an activity for students at meetings that is educational and entertaining. The Games are named after Carolus Linnaeus to recognize his contributions to entomology and to reflect the objective of keeping the competition fun. For more information about the history and rules of the Games, refer to the Bulletin of the Entomological Society of America (now American Entomologist), 31(3): 5-6.

The preliminary round of the Games in Fredericton is scheduled for Sunday, with the time of the finals to be announced at a later date. Subject areas for questions will include: behaviours, Canadian entomological current events and history, crop protection, ecology, forestry, morphology, physiology, taxonomy and toxicology. Questions will be presented orally and visually, with the aid of slides.

The Student Affairs Committee invites all student members of the E.S.C. planning to attend the meeting to submit a team of four people, or your name (so that we can put you on a team). Depending on the response, there may be space available for a "drop-in" team that you can sign up during registration. Please send in your response by August 1, 1996.

We thank Al York, Tom Turpin and Sonny Ramaswamy of the E.S.A. and Elizabeth Tomlin for providing advice, information and equipment for the Canadian Linnaean Games.

Linnaean Games Registration Form

Name of Team: .....

Institution: .....

Team Members: .....

.....

.....

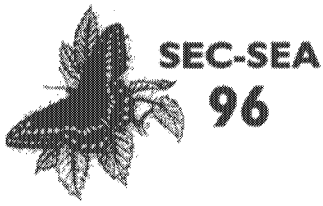
.....

OR

Name of Individual: .....

Institution: .....

Please return to: Colleen Teerling
Department of Forestry and Environmental Management
University of New Brunswick
Fredericton, New Brunswick E3B 6C2
Tel.: (506) 453-4501; Fax (506) 453-3538



Deuxièmes Jeux linnéens canadiens

Suivant l'initiative de Elizabeth Tomlin et le Comité des affaires étudiantes à Vancouver l'an dernier, le Comité organisateur de la réunion conjointe de SEC-SEA organise les deuxièmes jeux annuels linnéens version canadienne. Les jeux ont été tenus pour la première fois lors d'une réunion de la S.E.A. en 1982, et depuis, ont connu beaucoup de succès. Le jeu met en compétition des équipes de quatre joueurs qui doivent répondre à des questions d'entomologie. Le but principal du jeu est de donner l'occasion aux étudiant(e)s qui sont à la réunion de participer à une activité à la fois éducative et divertissante. Les jeux sont nommés en l'honneur de Carl von Linné, afin de reconnaître sa contribution au domaine de l'entomologie, ainsi que pour illustrer l'objectif de garder la compétition agréable. Pour plus de renseignements sur l'histoire et les règles du jeu, référez-vous au Bulletin de la Société entomologique américaine (American Entomologist), 31(3):5-6.

La manche préliminaire des Jeux de Fredericton est prévue pour dimanche. La date et l'heure de la finale seront annoncées plus tard. Les questions porteront sur les sujets suivants: le comportement, les évènements actuels et l'histoire de l'entomologie canadienne, la phytoprotection, l'écologie, la foresterie, la morphologie, la physiologie, la taxonomie et la toxicologie. Les questions seront posées sous forme orale et visuelle, à l'aide de diapositives.

Le Comité des affaires étudiantes invite tous les étudiant(e)s membres de la S.E.C. qui prévoient participer à la réunion à présenter une équipe de quatre personnes, ou à donner leur nom (afin qu'ils soient placés dans une équipe). Il est possible qu'il y ait des places disponibles pour former une équipe improvisée au moment de l'inscription. Veuillez faire parvenir votre réponse avant le 1er août 1996.

Nous remercions Al York, Tom Turpin et Sonny Ramaswamy de la S.E.A. et Elizabeth Tomlin pour les conseils, l'information et l'équipement qu'ils nous ont fournis pour les Jeux Linnéens Canadiens.

Jeux linnéens canadiens: Formulaire d'inscription

Nom de l'équipe: .....

Institution: .....

Noms des membres: .....

de l'équipe: .....

.....

.....

OU

Nom (personne seule): .....

Institution: .....

Veuillez retourner à: Colleen Teerling
Departement de foresterie et de gestion environnementale
Université du Nouveau-Brunswick
Fredericton, Nouveau-Brunswick E3B 6C2
Téléphone: (506) 453-4501; Télécopieur: (506) 453-3538

The 1996 Joint Meeting
of the Entomological Society of Canada
and the Acadian Entomological Society
Fredericton, October 5 - 9, 1996
Lord Beaverbrook Hotel

SHARE-A-ROOM FORM

If you wish to share a room with a colleague at the E.S.C./A.E.S. Joint Annual Meeting, please supply the following information and we will do our best to find you a roommate to share the cost.

Are you: Male Female Student Non-student
Do you prefer: Smoking Non-smoking Share with one person or more
Additional preferences (indicate): . . . . . .
. . . . . .
Date of arrival: . . . . . .
Date of departure: . . . . . .

Name and address: . . . . . .
. . . . . .
. . . . . .
. . . . . .
Telephone: . . . . . Fax: . . . . . E-mail: . . . . . .

Please send this card to: Troy Danyk, Chair, Student Affairs Committee, Agriculture and Agri-Food Canada, Research Centre, P.O. Box 3000, Lethbridge, AB, Canada T1J 4B1; tel 403-327-4561; fax 403-382-3156; danyk@abrsle.agr.ca

La Réunion Conjointe de 1996
de la Société Entomologique du Canada
et de la Société Entomologique Acadienne
Fredericton, du 5 au 9 octobre 1996
Hôtel Lord Beaverbrook

FORMULAIRE: "PARTAGE-UNE-CHAMBRE"

Si vous desirez partage une chambre avec un collègue lors de la Réunion conjointe de la S.E.C./S.E.A., prière de nous faire parvenir l'information suivante. Nous nous efforcerons de vous trouver un collègue pour partager les frais d'hébergement.

Etes vous: Homme Femme Etudiant Non Etudiant
Préférez vous: Fumeur Non Fumeur Partager avec une personne ou plus
Préférences additionnel (écrivez s'il vous plaît): . . . . . .
. . . . . .
Date d'arrivée: . . . . . .
Date du départ: . . . . . .

Nom et adresse: . . . . . .
. . . . . .
. . . . . .
. . . . . .
Téléphone: . . . . . Télécopieur: . . . . . .
Poste électronique: . . . . . .

Retournez ce formulaire à: Troy Danyk, Président, Comité des affaires étudiantes, Agriculture et Agro-alimentaire Canada, Centre de Recherches, C.P. 3000, Lethbridge, AB, Canada T1J 4B1; téléphone 403-327-4561; télécopieur 403-382-3156; danyk@abrsle.agr.ca

1996 Fellow of the Entomolgocial Society of Canada

Dr. George Gerber has been elected as a Fellow of the Entomological Society of Canada. Dr. Gerber is currently a Research Scientist with Agriculture Canada at the research station in Winnipeg as well as an Adjunct Professor at the University of Manitoba. Dr. Gerber's research interests and activities involve Integrated Pest Management of pests of canola and mustard, reproductive biology and physiology of insects and the structure and fate of insect spermatophores. Dr. Gerber has served the Entomological Society of Canada in 20 different postions over the last 22 years. He has also served the Entomological Society of Manitoba in numerous capacities as well as being Associate Editor of the International Journal of Insect Morphology and Embryology for the period 1986-1989. We welcome Dr. Gerber as a new Fellow.

Student Affairs Committee Update

The Student Affairs Committee (S.A.C.) is planning to conduct a survey of entomology education at Canadian universities over the summer. We feel the survey is needed because there does not appear to be a single source of information about entomology programs in Canada. The survey will provide students (and other interested parties) with a concise summary of the state of entomology training in Canada. We plan to publish the results of the survey in an upcoming issue of the Bulletin, and hopefully in the W.W.W. home page that the E.S.C. may establish.

We noticed that there was no plan to conduct a share-a-room program for upcoming Joint Meeting of the Entomological Society of Canada and the Acadian Entomological Society. Such a program can be especially useful to students. After consulting with Jon Sweeney from this year's Annual Meeting Committee, the S.A.C. has decided to coordinate a share-a-room program. Applications will not be limited only to students; anyone planning to attend the meeting is encouraged to apply. Forms are published in this issue of the Bulletin or can be obtained by contacting Troy Danyk (address below).

Copies of the Report of the Strategic Review Committee are in the hands of all S.A.C. members. This report outlines a number of changes to the structure and nature of the Society. The report is under review by the S.A.C. to determine the effect that these changes may have on Student Members and the Society as a whole. I plan to submit a report from the S.A.C. to the Governing Board.

Another goal of the S.A.C. in the coming year will be to increase the awareness of the Society among students, and to encourage students who are not members to join.

I am pleased to announce that the Committee's move to the Internet has been a success. We have been using a "maillist" based at Simon Fraser University to facilitate discussion of Committee business. At this time, the list is open only to S.A.C. members. However, anyone who wishes to send mail to the list (for distribution to all S.A.C. members) is welcome to do so; the address is <esc-student@sfu.ca>.

If anyone has an issue that they think the S.A.C. may wish to consider, please contact me at: Agriculture and Agri-Food Canada, Lethbridge Research Centre, P.O. Box 3000, Lethbridge, AB, T1J 4B1, Canada; e-mail danyk@abrsle.agr.ca; fax 403-382-3156; phone 403-327-4561.

Troy Danyk , Chair
Student Affairs Committee
Lethbridge, Alberta

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G. WARREN TRICKEY, B.COMM, C.A.
ROBERT D. SHANTZ, B.MATH, C.A.

CONSULTANT - ELDRIN E. McCONNELL, C.A.

AUDITORS' REPORT

To the Members of
Entomological Society of Canada.

We have audited the balance sheet of the Entomological Society of Canada as at December 31, 1995 and the statements of revenue and expenditure, equity and changes in financial position 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 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 our opinion, these financial statements present fairly, in all material respects, the financial position of the Society as at December 31, 1995 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles, except that they are prepared on a non-proportionate consolidated basis as explained in note 4.

McCay, Duff & Co.

Chartered Accountants

Ottawa, Ontario,
March 1, 1996.

McCAY, DUFF & COMPANY 50 1946 - 1996

ENTOMOLOGICAL SOCIETY OF CANADA

BALANCE SHEET

AS AT DECEMBER 31, 1995

ASSETS	1995	1994
GENERAL FUND		
CURRENT		
Cash	$ 29,030	$ 24,269
Accounts receivable	15,942	30,949
Accrued interest receivable	1,338	2,752
Prepaid expenses	9,867	11,889
Due from Endowment Fund	-	2,176
	56,177	72,035
INVESTMENTS (note 3)	129,675	124,550
INVESTMENT IN BOOK PROJECT (note 4)	107,546	110,859
	293,398	307,444
ENDOWMENT FUND		
Cash	22,839	20,520
Accrued interest receivable	464	777
Due from General Fund	152	-
Investments (note 3)	39,860	38,860
	63,315	60,157
BUILDING FUND		
CAPITAL ASSET (note 5)	242,800	242,800
	$599,513	$610,401
LIABILITIES		
GENERAL FUND		
CURRENT		
Accounts payable and accrued liabilities	$ 11,079	$ 56,551
Deferred revenue	136,342	123,450
Due to Endowment Fund	152	-
Due to Scholarship Fund	79	789
	147,652	180,790
ENDOWMENT FUND		
Due to General Fund	-	2,176
EQUITY		
GENERAL FUND	145,746	126,654
ENDOWMENT FUND	63,315	57,981
BUILDING FUND	242,800	242,800
	451,861	427,435
	$599,513	$610,401

Approved on behalf of the Board:

Governor

Governor

McCAY, DUFF AND COMPANY, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

STATEMENT OF EQUITY

FOR THE YEAR ENDED DECEMBER 31, 1995

	1995	1994
GENERAL FUND		
BALANCE - BEGINNING OF YEAR	$126,654	$149,642
Net revenue (expenditure) for the year	24,163	(20,875)
	150,817	128,767
Appropriation to Building Fund	(5,071)	(2,113)
BALANCE - END OF YEAR	$145,746	$126,654
ENDOWMENT FUND (note 6)		
BALANCE - BEGINNING OF YEAR	$ 57,981	$ 56,035
Interest income	5,334	4,122
Page charges and reprints	-	(2,176)
Net revenue for the year	5,334	1,946
BALANCE - END OF YEAR	$ 63,315	$ 57,981
BUILDING FUND (note 7)		
BALANCE - BEGINNING OF YEAR	$242,800	$242,800
Net rental revenue (expenditure) for the year (schedule)	(5,071)	(2,113)
Appropriation from General Fund	5,071	2,113
BALANCE - END OF YEAR	$242,800	$242,800

McCay, Duff and Company, Chartered Accountants

ENTOMOLOGICAL SOCIETY OF CANADA

STATEMENT OF REVENUE AND EXPENDITURE

FOR THE YEAR ENDED DECEMBER 31, 1995

	Canadian Entomologist		Memoirs and Other Publications		Society		1995		1994
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Actual
REVENUE									
Regular memberships	$ 18,400	$ 18,280	$ -	$ 1,760	$18,400	$18,280	$ 36,800	$ 38,320	$ 38,160
Student memberships	1,000	1,060	-	-	1,800	2,040	2,800	3,100	2,280
Emeritus	-	-	-	-	500	540	500	540	540
Subscriptions	100,000	83,487	$0,000	41,743	-	-	150,000	125,230	133,625
Reprints	16,000	11,388	-	-	-	-	16,000	11,388	19,486
Page charges	36,000	27,590	24,750	-	-	-	60,750	27,590	47,600
Back issues	4,200	5,148	-	-	-	-	4,200	5,148	3,795
Sales of Memoirs	-	-	6,250	2,416	-	-	6,250	2,416	4,039
Sales of Arctic Arthropods and Bibliography	-	-	-	-	200	295	200	295	435
Gain on currency exchange	-	-	-	-	-	18,660	-	18,660	4,973
Miscellaneous	-	-	-	-	3,000	8,421	3,000	8,421	6,014
Net Book Project revenue	-	-	-	-	70,000	-	70,000	-	5,606
REVENUE - Carried Forward	$175,600	$146,953	$81,000	$45,919	$93,900	$48,236	$350,500	$241,108	$266,753

ENTOMOLOGICAL SOCIETY OF CANADA

STATEMENT OF REVENUE AND EXPENDITURE

FOR THE YEAR ENDED DECEMBER 31, 1995

	Canadian Entomologist		Memoirs and Other Publications		Society		1995		1994
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Actual
REVENUE - Carried Forward	$175,600	$146,953	$81,000	$45,919	$93,900	$48,236	$350,500	$241,108	$266,753
EXPENDITURE									
Publishing and mailing costs	91,800	79,649	38,300	-	500	-	130,600	79,649	129,901
Reprint costs	8,000	5,929	"	"	"	"	8,000	5,929	10,029
Bulletin publishing and mailing	"	"	"	"	18,000	18,804	18,000	18,804	17,501
Salaries and benefits	59,998	60,100	21,674	20,748	11,948	12,208	93,620	93,056	93,358
Editor's expenses	3,100	2,885	"	"	"	"	3,100	2,885	3,893
Office	3,200	3,924	1,600	1,964	3,200	3,924	8,000	9,812	15,592
Professional fees	1,500	1,600	-	-	1,500	1,600	3,000	3,200	3,100
Prizes, awards, brochure, etc.	"	"	"	"	1,400	1,380	1,400	1,380	1,286
Honoraria	1,209	1,209	400	"	2,416	2,416	4,025	3,625	3,875
Committees:									
Publications Committee	"	"	"	"	2,000	1,626	2,000	1,626	700
Other	"	"	"	"	300	"	300	"	224
Support of other organizations	"	"	"	"	1,400	1,200	1,400	1,200	10,433
Annual Meeting: Grant	"	"	"	"	4,000	4,000	4,000	4,000	4,000
Honorees	"	"	"	"	2,000	510	2,000	510	1,509
Governing Board: Interim meeting	"	"	"	"	2,500	2,110	2,500	2,110	1,258
Annual meeting	"	"	"	"	13,000	7,507	13,000	7,507	5,050
Other meetings	"	"	"	"	1,500	"	1,500	"	456
President's discretionary expenses	"	"	"	"	2,000	"	2,000	"	"
General (recovery)	"	"	"	"	"	(2,622)	"	(2,622)	2,696
	168,807	155,296	61,974	22,712	67,664	54,663	298,445	232,671	304,861
REVENUE (EXPENDITURE) FOR THE YEAR FROM OPERATIONS	6,793	(8,343)	19,026	23,207	26,236	(6,427)	52,055	8,437	(38,108)
Interest on investments	"	"	"	"	12,000	11,601	12,000	11,601	13,639
Gain on sale of investments	"	"	"	"	"	4,125	"	4,125	3,594
	"	"	"	"	12,000	15,726	12,000	15,726	17,233
NET REVENUE (EXPENDITURE) FOR THE YEAR	$ 6,793	($ 8,343)	$19,026	$23,207	$38,236	$ 9,299	$ 64,055	$ 24,163	($ 20,875)

ENTOMOLOGICAL SOCIETY OF CANADA

STATEMENT OF CHANGES IN FINANCIAL POSITION

FOR THE YEAR ENDED DECEMBER 31, 1995

	1995	1994
CASH PROVIDED BY (USED FOR)		
OPERATING ACTIVITIES		
Cash from operations		
Net revenue (expenditure) for the year		
- General Fund	$ 24,163	($ 20,875)
- Endowment Fund	5,334	1,946
- Building Fund	(5,071)	(2,113)
	24,426	(21,042)
Items not involving cash		
- Gain on sale of investments		
- General Fund	(4,125)	(3,594)
	20,301	(24,636)
Net change in non-cash working capital balances related to operations - General Fund		
- increase in accounts receivable	15,007	3,788
- decrease in accrued interest receivable	1,414	4,581
- (increase) decrease in prepaid expenses	2,022	(7,316)
- decrease in accounts payable and accrued liabilities	(45,472)	(13,857)
- increase in deferred revenue	12,892	3,585
- increase (decrease) in due to scholarship fund	(710)	789
	(14,847)	(8,430)
INVESTING ACTIVITIES		
Purchase of investments		
- General Fund	(55,000)	(24,750)
- Endowment Fund	(24,000)	(7,920)
Proceeds on disposal of investments		
- General Fund	54,000	129,094
- Endowment Fund	23,000	-
Decrease in accrued interest receivable		
- Endowment Fund	313	-
(Increase) decrease in investment in Book Project	3,313	(73,989)
	1,626	22,435
INCREASE (DECREASE) IN CASH POSITION DURING THE YEAR	7,080	(10,631)
Cash position - beginning of year	44,789	55,420
CASH POSITION - END OF YEAR	$ 51,869	$ 44,789
CASH POSITION		
Cash - General Fund	$ 29,030	$ 24,269
Cash - Endowment Fund	22,839	20,520
	$ 51,869	$ 44,789

McCAY, DUFF AND COMPANY, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1995

1. PURPOSE OF ORGANIZATION

The purpose of the Organization is to study, promote and advance the study of entomology through meetings, symposium and the publication of original research results.

2. SIGNIFICANT ACCOUNTING POLICIES

(a) Accrual Basis

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 by the receipt or payment of money.

(b) Capital Assets

Furniture and equipment purchases are expensed in the year of acquisition, except for the building which has been capitalized.

No amortization is being taken on the building.

(c) Incorporation

Entomological Society of Canada is incorporated without share capital under Part II of the Canada Companies Act and is a non-taxable organization.

(d) Volunteer Services

The Society receives volunteer services, the amount of which cannot be reasonably estimated. Therefore, no representation of these costs have been reflected in the financial statements.

3. INVESTMENTS

	1995	1994
GENERAL FUND		
Bonds, at cost (market value 1995 - $133,599, 1994 - $121,457)	$129,675	$124,550
ENDOWMENT FUND		
Bonds, at cost (market value 1995 - $42,863, 1994 - $39,997)	$ 39,860	$ 38,860

ENTOMOLOGICAL SOCIETY OF CANADA

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1995

4. 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 expenditures are to be shared in an equitable manner. The investment is recorded using the cost method. For the December 31, 1995 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. The financial statements are in accordance with generally accepted accounting principles, except that they are prepared on a non-proportionate consolidated basis.

5. CAPITAL ASSET

	1995	1994
Land and building, at cost	$242,800	$242,800

6. 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.

7. 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.

8. COMPARATIVE FIGURES

Certain comparative figures have been restated to conform with current year presentation.

McCAY, DUFF AND COMPANY, CHARTERED ACCOUNTANTS

ENTOMOLOGICAL SOCIETY OF CANADA

SCHEDULE OF RENTAL REVENUE (EXPENDITURE)

FOR THE YEAR ENDED DECEMBER 31, 1995

	1995		1994
	Budget	**Actual**	**Actual**
REVENUE			
Rental income	$6,000	$ 5,000	$4,585
EXPENDITURE			
Insurance	450	571	474
Property taxes	4,700	4,456	4,656
Repairs and maintenance	1,850	3,030	-
Utilities	1,650	2,014	1,568
	8,650	10,071	6,698
NET RENTAL REVENUE (EXPENDITURE) FOR THE YEAR	($2,650)	($ 5,071)	($2,113)

McCAY, DUFF
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ROBERT D. SHANTZ, B.MATH, C.A.

CONSULTANT - ELDRIDGE E. MCCONNELL, C.A.

AUDITORS' REPORT

To the Members of
Entomological Society of Canada -
Scholarship Fund.

We have audited the balance sheet of the Entomological Society of Canada - Scholarship Fund as at December 31, 1995. 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 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 organization derives a part of its revenue from cash 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 revenues, assets and equity.

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, 1995 and the results of its operations for the year then ended in accordance with generally accepted accounting principles.

McCay, Duff & Co.

Chartered Accountants

Ottawa, Ontario,
March 1, 1996.

McCAY, DUFF & COMPANY 50 YEARS OF SERVICE 1946 - 1996

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ENTOMOLOGICAL SOCIETY OF CANADA - SCHOLARSHIP FUND

BALANCE SHEET

AS AT DECEMBER 31, 1995

ASSETS	1995	1994
CURRENT		
Cash	$ 18,730	$16,597
Accrued interest receivable	1,765	1,536
Due from Entomological Society of Canada	79	789
	20,574	18,922
INVESTMENTS (note 2)	79,780	78,780
	$100,354	$97,702

SURPLUS		
INCOME FUND		
Balance - beginning of year	$ 23,747	$22,807
Interest revenue	9,240	7,669
	32,987	30,476
Expenditure		
Scholarship awards	9,000	6,729
Service charges	10	-
	9,010	6,729
Balance - end of year	23,977	23,747
CAPITAL FUND		
Balance - beginning of year	73,955	71,897
Donations revenue	2,422	2,058
Balance - end of year	76,377	73,955
	$100,354	$97,702

McCay, Duff and Company, Chartered Accountants

ENTOMOLOGICAL SOCIETY OF CANADA - SCHOLARSHIP FUND

NOTES TO FINANCIAL STATEMENT

DECEMBER 31, 1995

1. SIGNIFICANT ACCOUNTING POLICIES

(a) Accrual 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 by the receipt or payment of money.

(b) Volunteer Services

The Fund receives volunteer services, the cost of which cannot be reasonably estimated. Therefore, no representation of these expenditures are reflected in the financial statements.

2. INVESTMENTS

	1995	1994
Bonds, at cost (market value 1995 - $82,617, 1994 - $77,338)	$79,780	$78,780

3. STATEMENT OF CHANGES IN FINANCIAL POSITION

This statement has not been prepared as it is the opinion of management that it would not provide additional useful information.

IN MEMORY

Guy Eaden Shewell
(1913-1996)

Guy Shewell died of a stroke on 19 February 1996 at age 82. He was born on 16 July 1913 in Newcastle-on-Tyne, England. In 1931, at the age of 17, he was sent to Canada because there was no money in England for him to attend university there, and the Canadian government was willing to sponsor him to attend MacDonald College, McGill University, to study agriculture. During this period he made one trip to the prairies to participate in the wheat harvest, an experience to which he often referred. He also spent several summers studying apple pests at Abbotsford, Quebec, where his extensive collecting of Canadian insects began.

After graduating with an M.Sc. in 1937, Guy joined the then Entomology Branch of the federal Department of Agriculture and remained there until his retirement in 1976. From then until his death, Guy was an Honorary Research Associate with Agriculture Canada (most recently in the Centre for Land and Biological Resources Research).

Between 1939 and 1945, Guy's scientific career was interrupted by service in the Royal Canadian Artillery, 51st Anti-Tank Batalion. He rose to the rank of major and saw action in Italy.

In 1949, when the expansion of systematic entomology began, Guy was the sole dipterist in the Branch. The staff increased rapidly in the next three years and included the addition of three young dipterists, Vockeroth, McAlpine and Chillcott. Guy made a major contribution to their knowledge of Diptera; he was never too busy to reply to the endless questions, 'Guy, what is this'? These three, plus others who joined the staff later, owe Guy a great deal.

At first, Guy's particular interests were in the lauxaniids, but later he shifted to the simuliids, sarcophagids and calliphorids. He was instrumental in building a major world collection in these groups.

During World War II, Guy's collecting efforts in England and Italy formed the basis of a large European component in the Canadian National Collection of Insects (CNC). The European Diptera part of the CNC is the largest outside Europe.

Guy's efforts contributed immensely in developing the CNC into one of the best research collections in North America. Guy participated in collecting trips throughout the world, including the Canadian Arctic, Ecuador, England and New Zealand. His last collecting trip was a brief one to the mountains of Morocco, at age 81. Although not especially prolific a writer, Guy did contribute three chapters to the Manual of Nearctic Diptera.

Besides being a scientist, Guy was interested in the visual and performing arts. Over the years, he accumulated numerous paintings and books on art and poetry.

Reprinted from *Oistros* 4 (1996) and *Fly Times* 16 (1996).
by Ed Becker and Dick Vockeroth, 29 March 1996

NEWS OF ORGANIZATIONS

International Commision on Zoological Nomenclature

The following Applications were published on 29 March 1996 in Vol. 53, Part 1 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.

Case 2937 *Cacoxenus indagator* Loew, 1858 (Insecta, Diptera): proposed conservation of the generic and specific names

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Abstract. The purpose of this application is to conserve the generic and specific names of *Cacoxenus indagator* Loew, 1858, a widespread European fly belonging to the DROSOPHILIDAE which is a symbiont of bees of the genus *Osmia* Panzer, 1806. The larvae of some *Cacoxenus* species are predators of coccids and pseudococcids. The original specimens of *Domomyza cincta* Rondani, 1856 are actually specimens of *C. indagator*, but since its establishment *Domomyza* has been placed in the AGROMYZIDAE (usually as a synonym of *Agromyza* Fallén, 1810) and neither it nor the specific name of *D. cincta* have had usage for drosophilids. It is proposed that Rondani's slightly earlier names *Domomyza* and *cincta* be suppressed to conserve *Cacoxenus* and *indagator*.

Keywords: Nomenclature; taxonomy; Diptera; AGROMYZIDAE; DROSOPHILIDAE; *Cacoxenus*; *Domomyza*.

The following Opinions were published on 29 March 1996 in Vol. 53, Part 1 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.

OPINION 1824. *Ischyrus* Lacordaire, 1842, *Lybas* Lacordaire, 1842, *Mycotretus* Lacordaire, 1842 and *Megischyrus* Crotch, 1873 (Insecta, Coleoptera): conserved.

OPINION 1825. *Poecilonota* Eschscholtz, 1829, *Palmar* Schaefer, 1949 and *Scintillatrix* Obenberger, 1956 (Insecta, Coleoptera): conserved by the designation of *Buprestis variolosa* Paykull, [1799] as the type species of *Poecilonota* and *B. rutilans* Fabricius, [1777] as the type species of *Scintillatrix*

OPINION 1826. *Melanophila* Eschscholtz, 1829 and *Phaenops* Dejean, 1833 (Insecta, Coleoptera): conserved by the designation of *Buprestis acuminata* De Geer, 1774 as the type species of *Melanophila*

OPINION 1827. *Hydrophoria* Robineau-Desvoidy, 1830 (Insecta, Diptera): *Musca lancifer* Harris, [1780] designated as the type species, and a neotype designated for *M. lancifer*

OPINION 1828. *Apis terrestris* Linnaeus, 1758, *A. muscorum* Linnaeus, 1758 and *A. lucorum* Linnaeus, 1761 (currently *Bombus terrestris, B. muscorum* and *B. lucorum*) and *Bombus humilis* Illiger, 1806 (Insecta, Hymenoptera): specific names conserved, and neotypes designated for *B. terrestris* and *B. muscorum*

OPINION 1829. MEGALODONTIDAE Konow, 1897 (Insecta, Hymenoptera): spelling emended to MEGALODONTESIDAE, so removing the homonymy with MEGALODONTIDAE Morris & Lycett, 1853 (Mollusca, Bivalvia)

OPINION 1830. CAECILIIDAE Kolbe, 1880 (Insecta, Psocoptera): spelling emended to CAECILIUSIDAE, so removing the homonymy with CAECILIIDAE Rafinesque, 1814 (Amphibia, Gymnophiona)

PUBLICATIONS

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Al. B. Ewen, Chair
Publications Committee

BOOK REVIEWS

Drake, V.A. and A.G. Gatehouse (Eds) 1995. *"Insect Migration: tracking resources through space and time"*, Cambridge University Press, 478 pp. Cost $74.95 U.S. funds, hardcover.

This is a well written, nicely organized collection of chapters originating from the symposium on insect migration at the 1992 International Congress of Entomology in Beijing, China. The book consists of 21 chapters grouped into 4 sections: Insect Migration in Relation to Weather and Climate; Adaptations for Migration; Forecasting Migrant Pests; and Overview and Synthesis. Agricultural pests are the focus of most chapters; forest pests are only occasionally mentioned.

The 9 chapters in the first section deal generally with insect migration in Africa, Europe and North America, and specifically with migration of planthoppers in East Asia, oriental armyworms in East Asia and China, and oriental armyworms, plague locusts and three species of *Helicoverpa* in Australia. Chapter 1 is a review of long-range migrations in Africa and Europe, and of how insect movement is related to weather and seasonal changes of wind and climate. Chapter 2 discusses insect migration in the Mississippi River Drainage Basin between the Appalachians and the plains east of the Rocky Mountains. This chapter presents clear explanations of air mass movement and fronts. Chapters 3-9 discuss migration of specific agricultural pests, including pest buildup in favourable habitats, migratory movement associated with synoptic weather, and pest tracking through the use of radar, light traps, food-lure traps, and moth-borne pollen in association with synoptic weather patterns. Several of the chapters in Section 1 discuss or allude to the "Pied Piper Syndrome": one-way migrations that may be evolutionary dead-ends. Unfortunately, "Pied Piper Syndrome" is not listed in the index (although "Migration Syndrome" is), so it will be difficult for a reader to link the discussions of this topic from chapter to chapter.

The second section, "Adaptations for Migration", begins with Chapter 10, which states, "migration can only evolve when the fitness achieved as a consequence of migration exceeds the fitness that would have been achieved by remaining in the habitat". Chapter 10 reviews migratory flight strategies, reproductive strategies (particularly pre-reproductive migration) and variability in responses to environmental cues for migration. Chapter 11 discusses the production of migratory individuals in four types of habitats: temporarily predictable, temporarily unpredictable, spatially regular and spatially irregular. Chapter 12 describes the contribution of laboratory studies on flight activity and reproductive status to the understanding of migration in a noctuid moth. Chapter 13 describes and presents hypotheses regarding the physiological processes associated with migration, particularly in a noctuid moth. Chapter 14 presents a discussion of the aerodynamics, energetics and reproductive constraints of migratory flight.

Section 3, "Forecasting Migrant Pests", contains five chapters that discuss the operational

aspects of forecasting migrant insect pests (Chapter 15), Geographic Information Systems and remotely sensed data for determining distributions of migrants' habitats (Chapter 16), forecasting for the brown planthopper in China (Chapter 17), forecasting for rice planthoppers in Japan (Chapter 18), and forecasting for locusts and grasshoppers in Africa and Madagascar (Chapter 19). In my opinion, Chapter 20, "Forecasting migrant insect pests", should also be in this section and should follow Chapter 15, since the overlap between the two is considerable. I particularly liked Chapters 16 and 17, which explain clearly how technology and our understanding of migrant behaviour are being used to predict outbreaks.

The book concludes with Section 4, "Overview and Synthesis", containing Chapters 20 (see above) and 21, "Insect Migration: a Holistic Conceptual Model". A reader might want to read this chapter first, because it provides a comprehensive overview of concepts and hypotheses regarding migration.

There are occasional errors in the book. Some involve nomenclature (Chapter 1: *Ostrinia nubilalis* is a pyralid), some are grammatical (authors sometimes forget that prepositions are not words to end sentences with), and some are typos (p. 271, "Chapter 11"). Some figures contain undescribed symbols that would be familiar to a meteorologist but require explanation for the ecologist or insect physiologist.

All in all, this is an excellent book. It is nicely bound, printed on high-quality paper and has an attractive cover design. It would appeal to students and researchers in insect ecology, migratory physiology and international agriculture. It should also interest developers of Geographic Information Systems and Decision Support Systems for pest forecasting.

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Kapoor, V.C. 1993. *Indian Fruit Flies (Insecta: Diptera: Tephritidae)*. International Science Publisher, New York, NY, U.S.A. 228 pp. $(U.S.) 55.00.

Fruit flies are an important agricultural group and this book will be useful to anyone concerned with the quarantine or taxonomy of the species of the Oriental Region. The tephritid fauna of India had not been treated comprehensively since Bezzi's revision in 1913, which included only 71 species. Kapoor's book reports 200 species.

The book includes five chapters: Introduction (pp. 1-3), Taxonomy (pp. 4-113), Zoogeography (pp. 114-127), Economic Fruit Flies (pp. 128-162), and Control of Fruit Flies (pp. 163-187), plus References (pp. 188-212) and General, Taxonomic and Plant Indices (pp. 213-228).

The Taxonomy chapter is the largest. It starts with a brief discussion of the history of the taxonomy of Indian fruit flies. Then follows a section on morphological terminology, which novices to tephritid taxonomy may find a bit brief. Unfortunately no key is given to the abbreviations used in Figs. 1-17, and few of them are listed in the text. The "List of Abbreviations" stated in the contents to be on p. 213 seems to have been omitted. The terminology is largely that of D. Elmo Hardy, the preeminent specialist on the fruit flies of the Oriental Region. It is one of a confusing number of traditional terminologies used by tephritid taxonomists. A better choice would have been the system of White (1988), which is standardized with terminology used in other families and orders.

The Taxonomy chapter continues with a brief section on higher classification, followed by the Key to Taxa (pp. 20-69) and the Catalogue on Indian Fruit Flies (pp. 70-113). I tried to identify some undetermined specimens in the National Museum of Natural History (USNM) to evaluate the key. Some ran easily (e.g., *Diarrhegma modestum* (Fabricius), *Dictyotrypeta longiseta*

Hering, *Rioxa parvipunctata* de Meijere, *Sphaeniscus quadrincisus* (Wiedemann)); others with some difficulty, such as a male from Coorg Ammatti that goes to *Themara maculipennis* (Westwood), but differs from Kapoor's Fig. 78 in having vein R_{2+3} strongly sinuate (as it is described in the key), the costa thickened, and the triangular mark in cell r_1 yellow rather than hyaline. It matches Fig. 91 of Hardy (1986) for *T. maculipennis*, but differs from his description in having no medial scutal vitta and entirely yellow fore coxae and prosternum. I was surprised at the percentage of specimens that I could not identify. In the case of some specimens of *Acanthonevra* that do not run easily to any of the included species, I suspect this may be due to insufficient understanding of the intraspecific variation. Other specimens, such as a species of *Pliomelaena* that is not one of the three species listed, seem to be species not recorded from India. Some of these I identified with Hardy's (1973) publication on Thailand: a male from Assam of *Acidoxantha assista* Hardy, a male from Bangalore of *Acroceratitis striata* Froggatt, and another *Acroceratitis* male from Bengal that might be *A. cognata* Hardy. This limited USNM material suggests that there are many fruit fly species yet to be discovered in India, as in most tropical countries. Also considering the low percentage of Indian species that have known hosts, the need for more field work and collecting is obvious. As a minor note, couplet 146 of the key (p. 54) should start with the phrase "Posterior pair of" because in the Terelliini only the posterior orbital seta (= posterior superior fronto-orbital seta in Kapoor's terminology) is convergent; the anterior orbital seta is reclinate.

In the Catalogue, the name Myopitini ought to be used for the taxon here called Euribiini, an invalid name, and Terelliini and *Carpomya* are misspelled. On page 99, *Hemilea setigera* Radhakrishnan is considered a synonym of *H. praestans* (Bezzi), but on page 47 in the key, it is said to be "similar to it". Another apparent error is copied from Hardy (1974). The name *Anoplomus flexuosus* Bezzi 1913 is used instead of *cassandra* (Osten Sacken) 1882, which is considered its synonym. If the two are synonyms, the latter name has priority.

One item baffles me. *Ictericodes cashmerensis* (Hendel) is included in the catalogue (p. 113), but was omitted from the key because its type locality within Kashmir is unknown (presumably it could be in the part now under Pakistani control?). Would it not have been more useful to assume that this species does occur in India and to include it in the key?

The chapter on Economic fruit flies deals mainly with the species of *Bactrocera* that are fruit pests, although there is also a section on tephritids used for weed biocontrol. This chapter includes a very useful table of host plants (pp. 142-157). I am not well qualified to review the Control chapter. Its main sections deal with cultural and chemical controls, attractants and traps, and biological control.

The book contains numerous illustrations, but some of them, especially some of the wings (e.g., Fig. 85-86, 148), are of poor quality. In some cases this may be due to the quality of printing, but for others the original seems inaccurate. For example, Fig. 176 of *Elaphromyia pterocallaeformis* (Bezzi) does not show that the hind margin is much paler than the rest of the wing. The font size in the catalogue section (pp. 71-113) is very small and difficult to read, but I suppose this saved space and lessened the cost of the book. In addition, the generic headings are poorly differentiated in this section.

Despite my criticisms, this is a very useful book, and one I have already consulted on numerous occasions. It summarizes published knowledge on the fruit flies of India, and provides a good starting point for future revision of genera occurring on the Indian subcontinent. As it seems likely that global commerce will continue to increase, such information is also important to regulatory agencies concerned with the quarantine of pest tephritid species.

Hardy, D.E. 1973. The fruit flies (Tephritidae - Diptera) of Thailand and bordering countries. Pacific Insects Monograph 31:1-353.
Hardy, D.E. 1974. The fruit flies of the Philippines (Diptera: Tephritidae). Pacific Insects Monograph 32:1-266.
Hardy, D.E. 1986. The fruit flies of the subtribe Acanthonevrina of Indonesia, New Guinea, and

the Bismark and Solomon Islands (Diptera: Tephritidae: Trypetinae: Acanthonevini). Pacific Insects Monograph 42:1-191.
White, I.M. 1988. Tephritid flies, Diptera: Tephritidae. Handbooks for the Identification of British Insects 10(5a):1-134).

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Hokkanen, H.M.T. and J.M. Lynch (Eds) *1995. Biological Control, Benefits and Risks Plant and Microbial Biotechnology : Series 4*, Cambridge University Press, Cambridge, UK, 304 pp. $74.95 (U.S.) hardcover.

According to the authors, the book's main purpose is to establish some general principles and concepts of biocontrol. The book starts with an informative overview of the benefits and risk of biological control featuring a comparison of chemical and various biocontrol approaches.

Part I deals with biological invasions including suppressiveness of soils to invading microorganisms, environmental impacts of introducing crops and biocontrol agents in agriculture, and integrated pest management in orchards. Some important points were made in this section: a) the effect on introduced microbial survival in soil by biotic and abiotic factors, but some microorganisms are highly efficient in overcoming such antagonism e.g. *Rhizobium* sp.; b) the opportunities offered by biotechnology and biological control to improve agricultural production and associated negative risks. These points were discussed in the context of the introduction of exotic organisms into agricultural systems for pest management activities.

Part II dealt with the benefits and risks of classical biological control on insect pests and weeds. The current international action to ensure safety of imported biological control agents is described. The impact of introduced parasites on already threatened and endangered insects species is discussed as an example of negative effects of classical biological control and recommendations are given for assessing and follow-up of parasitic biocontrol introductions. Test protocols and standardized methods of host screening of insect biological control of weeds are given.

Part III discusses augmentative bio-control emphasizing exotic organisms as biopesticides, the use of *Trichogramma* and associated environmental risks, entomopathogenic nematodes, the application of Pseudomonads to maintain and support soil fertility, and the selection and application of biocontrol agents for soil-borne pathogens of plant pathogens and foliar fungal diseases. This part ends with a somewhat cursory glance at Bt and NPV as commercially available microbial control agents and their use in integrated pest management systems.

Part IV assesses the potential benefits and risks of introducing natural and genetically manipulated bacteria, fungal and viral agents for soil-borne root diseases and insect pests and methods of risk assessments. Pest resistance to Bt and resistance management strategies such as provision of refugia, dose manipulation, gene management and the use of IPM programs are recommended to reduce pest resistance development.

Part V deals with the economics of biocontrol agents and problems of registration. It is concluded that the benefits of successes outweigh failures in biocontrol by an order of magnitude. Backing it up with good cost benefit analysis would give it enormous strength and broader public appeal.

Overall the book is a well balanced discussion on modern concepts of biological control in the context of integrated pest management strategies. Some of the subject areas such as microbial control are somewhat lightly treated but the book also discusses some areas of topical interest such as biological control of diseases caused by soil-borne pathogen and the risks of releasing

genetically engineered organism into the environment. The book will be of interest to researchers, university teachers and entomology students with interest in the ecological approaches to the management of insect pests. This book includes biographical references and an index.

O.N. Morris
Winnipeg, Man.

Wagner, W L. and V.A. Funk. (Eds) 1995. *Hawaiian Biogeography: evolution on a hot spot archipelago*. Smithsonian series in comparative evolutionary biology. 467 pp.ISBN 1-56098-462-7 (clothbound, $45.00 US) 1-56098-463-5 (paper, 25US).

Hawaiian Biogeography is a multi-authored work including an introduction to the Geology and Biogeography of the Hawaiian Islands, a quick primer on cladistics, thirteen chapters dealing primarily with the phylogenetics and distribution of various groups of plants and animals on the Hawaiian Islands, and a summary chapter on the biogeographic patterns which the editors see as emerging from those thirteen chapters.

The premise of assembling phylogenetic biogeographic analyses for a wide spectrum of Hawaiian taxa is an exciting one, and the cover, title and introduction of this book are full of promise. The subtitle "evolution on a hot spot archipelago" refers to sequential origin of these isolated islands over a hot spot in the earth's mantle, resulting in a linear sequence of islands of different age. The book cover includes an attractive illustration of the Hawaiian ridge and its high islands, and I found myself flipping back to the cover frequently to help me envisage the repeated patterns of interisland dispersal discussed in each chapter. Both the introduction, by Sherwin Carlquist, and the overview of Geology and Biogeography of the Hawaiian Islands, by Hampton Carson and David Claque, thoroughly set the stage for the phylogenetic chapters to follow.

The phylogenetic chapters are also preceded by a brief chapter, by V.A. Funk, on cladistic methods. This chapter is clear and simple, and reinforces the importance of phylogenetic systematics. Readers unfamiliar with phylogenetic systematics will at least be able to appreciate the generalisations made in later chapters based on the brief definitions and explanations of this introductory chapter. Such readers are, however, bound to be confused by later chapters in which several authors drift away from the clear and simple ideas of Fig. 3.1. Fig. 6.1, for example, shows 6 "monophyletic" groups of *Drosophila*, one of which is depicted as polyphyletic and one of which is depicted as paraphyletic. A few other figures or statements in other chapters, such as the description of *Drosophila primaeva* as "clearly the Hawaiian species most closely related to continental species" (p. 62) seem incompatible with a strictly cladistic approach.

Most of the species on Hawaii, some 5000 species, are insects, and of these the 511 species of *Drosophila* have received by far the most attention. Two chapters of this book are devoted to Drosophilidae, a chapter by Kaneshiro, Gillespie, and Carson on chromosomes and male genitalia of Hawaiian *Drosophila*, and a chapter by DeSalle on Molecular Approaches to Biogeographic Analysis of Hawaiian Drosophilidae. The former chapter includes a chromosome phylogeny and a table of species groups/subgroups based on male genitalia. The authors suggest that the genitalic study provided, in many cases, a greater resolution in separating the species within the larger species groups into species subgroups. DeSalle's chapter uses mitochondrial DNA to demonstrate repeated area relationships, and provides a discussion of the role of molecular evidence at various biogeographic levels.

Two other chapters deal with insects, and one with spiders. A chapter by K. Shaw provides an overview of two independent cricket radiations, one analysed on the basis of body size characters and pigmentation intensities, the other on he basis of mitochondrial DNA data published elsewhere. We are told that results based on the DNA data differs significantly from other work on the same clade, using male genitalia, which is not discussed further. A chapter by A. Asquith uses a set of morphological characters to assess the evolutionary history of a mirid genus which appears to present a combined pattern of inter-island allopatric speciation and intra-island host plant-mediated sympatric speciation.

The last arthropod chapter, by R. Gillespie and H. Croom, also considers intra vs. inter island speciation patterns, but in web-building and non-web-building groups within a lineage of tetragnathid spiders. Both morphological and molecular data were used to show that non-web-building species seem to have speciated geographically, while web-building taxa show a mixed pattern of divergence in "ecological and geographical space."

The last chapter of the book, by Funk and Wagner, is an insightful overview of the biogeographic patterns documented throughout the book. The main possible patterns are explained, and each chapter is gleaned for fit to those main patterns. The most frequent patterns, predictably, seem to result from dispersal from older to younger islands, with speciation having occurred about one third inter-island and two thirds intra-island. All things considered, this is an outstanding book. Hawaiian Biogeography will provide stimulating reading for any biologist, and should certainly be read by anyone with an interest in phylogeny, zoogeography, or island biology.

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Borkent, A. 1995. *Biting midges in the Cretaceous amber of North America (Diptera: Ceratopogonidae).* Backhuys, Leiden. 237 pages. 106.00 Dutch Guilders (=$69.00 US: $95.00 CAN)

Although relatively diminutive in size, this work represents a landmark in detailed systematic study of an abundant and diverse group of fossil and extant insects. There are no chapters, but major headings are listed in a table of contents and an abstract is included. A brief introduction provides a survey of topics covered within, and is immediately followed by acknowledgements. The meat of Borkent's treatise begins with a discussion of the geographic sources, stratigraphy, age and botanical origins of Canadian amber. This is followed by a discussion of the materials used in the study, where they are housed, and how they were collected. Preparation of specimens is discussed in sufficient detail to allow replication of techniques. Of particular importance is a short discussion of difficulties encountered in evaluation of character states in amber fossils, and the criteria used to separate taxa recognized as different species. Almost half the text is concerned with keys, and descriptions of genera and species of fossil Ceratopogonidae. Keys are well constructed. I had the opportunity to use the keys to identify specimens Borkent had described. With the aid of a short section covering distinctive characteristics, I had no difficulty identifying the material. Descriptions are organized uniformly, and include as much pertinent detail as is possible to extract from amber fossils. The phylogenetic analysis which follows the systematic section begins with a study of extant species containing a brief description of material studied without listing the genera or species examined. Systematic algorithms are not described. Synapomorphic character states are clearly identified and, where significant, uncertainties are clearly outlined and decisions explained. Fossil species are inserted into the phylogeny developed from living taxa. The discussion which follows contains a section on Paleoecology in which the interpretations are based primarily on work done by others in Dinosaur Provincial Park. Cretaceous amber ceratopogonid assemblages are compared, and inferences are made concerning the rates of extinction of Ceratopogonidae and other insect taxa. This discussion includes placement of Cretaceous ceratopogonids in comparison to Baltic amber taxa. Of particular interest is a discussion on the evolution of blood sucking and host selection in Ceratopogonidae and identification of species which might have fed on Dinosauria. The last section is a discussion of areas which need further research.

The text is well organized and relatively free of spelling and grammatical errors, although there seems to have been a difficulty identifying and removing hyphens. Problems with tables 15 and 16 have been corrected with an insert. Borkent's style of writing is precise, clear, and direct. Little is left to the reader's discretion. Areas of uncertainty are flagged throughout the monograph; a very valuable and rarely undertaken task for which the author is to be commended.

There are a few small problems. The paleoecological section suffers from relying heavily

on information garnered from Dinosaur Provincial Park. The sediments there belong to different rock formations with different depositional environments and an age difference of between 2 and 4 million years (Eberth and Hamblin, 1993). Although general inferences may be valid, paleoecological interpretations of the two areas must differ in most details. These authors also narrow the age of the Foremost Formation, from which much of the Canadian amber derives, to between 77 and 79 million years. It is possible that this information was made public after Borkent had submitted his manuscript for publication. As well, on page 121 of this section Borkent misinterprets the value of stratigraphic palynological studies such as that of Norris (1975) and work based thereon.

Cladograms are constructed on two implied axes; divergence on the abscissa and time on the ordinate. In the cladograms which include fossil taxa, Borkent extends the lineages for extinct taxa to the same time as living species and genera.

These, however, are minor problems and not germane to the thrust of Borkent's work; the description and interpretation of Cretaceous Ceratopogonidae. This is masterfully done. Information, inferences, and hypotheses contained in this work will be of interest to a much wider audience than might be suggested by the title. Systematists will value the example of integration of extant and extinct taxa that Borkent presents. Researchers working with Nametocerous Diptera will find his inferences concerning evolution of blood feeding in these insects of interest. Those interested in insect paleontology will find owning this work essential, as will people interested in amber and the insects it preserves. Because Borkent touches on fossils from Russia and the United States, his work has an international scope not normally present in studies of fossil insects.

Eberth, D. A. and A. P. Hamblin. 1993. Tectonic, stratigraphic, and sedimentological signifi cance of a regional discontinuity on the Judith River Group (Belly River Wedge) of south ern Alberta, Saskatchewan and northern Montana. Canadian Journal of Earth Sciences 30: 174-200.

Norris, G. 1975. Evolution of the Cretaceous terrestrial palynoflora in western Canada. The Geological Association of Canada Special Paper Number 13: 333-364.

Ted Pike
Calgary, Alberta

Otte, Daniel *1994-1995. ORTHOPTERA SPECIES FILE, NUMBERS 1 -5.* Publications on Orthopteran Diversity. Orthopterists' Society and The Academy of Natural Sciences, Philadelphia, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103, U.S.A. 1994-1995, ISBN 0-9640101-1-9 (Series). No prices listed.

Before discussing the contents of each of the five numbers (volumes), I wish to mention my impressions of the value of the series. This is the first time that the literature on orthopteroids has been brought together in a single series and will be indispensable for research workers on orthopteroid insects in the future. I have used it quite extensively and have found it to be an invaluable tool in research. The general arrangement is good and easy to follow. I recommend it highly. Every library and research establishment should have it.

The five numbers are presented in attractive style with soft plasticized covers, each with illustrations by the author on the front cover and on Numbers 1 and 3 also on the back cover. Each of the illustrations depicts a species included in that number. All categories, family, subfamily, tribe, genus and species are included. Some orthopterists, including myself, do not agree with the major classification but this does not affect the value of the series as the emphasis is, as the overall title indicates, on the species, not on higher categories.

The entire series is computerized and the text is computer generated. Generic names used alone are capitalized and in bold-face type; when used in conjunction with a species name they are in lower-case bold-face, as are valid species names. All generic names when used alone are

preceded by a blank line. The type species are given for genera and for species the holotypes, type localities and type depositories are included. Synonyms are in italics; other data are in lower-case Roman type. For each species, all of the known references are given, with the author surname, title and year of publication, volume and page numbers. The original genus in which a species was described is given in italics if different from that in which it is now considered to belong. The type font is small, in order to include maximum data in minimum space, but is not so small as to cause difficulties to readers.

Number 1: Orthoptera Species File 1. "Crickets (Grylloidea)". 126 pages, 1994. ISBN 0-9640101-2-7. The size of this number is 8 1/2 x 11 inches, different from the succeeding numbers. The covers are black with illustrations of Matuanus elegans Otte (front) and an unnamed species on the back cover. It has 126 pages, 6 un-numbered preliminary pages, 100 pages of text and 19 pages of Index. Each page includes about 94 lines. All (or nearly all) of the known species of crickets are included. It is inevitable, for a number of reasons, that less than 100% of the references would be found. The computerized format makes the addition of these rather easy as they become known and a 6 page insert in the number adds many species, newly described after the number was printed.

Number 2: Orthoptera Species File 2. "Grasshoppers [Acridomorpha] A Eumastacoidea, Trigonopterygoidea, Pneumoroidea". ISBN 0-9640101-3-5. June, 1994. 169 pages: vii preliminary pages, including Contents, Acknowledgements, Introduction, Type depositories, and Abbreviations and Notations, 145 pages of text and 16 pages of index. The size of this and succeedings Numbers if 6 x 9", a convenient size for handling and shelving. The shorter size has about 55 lines per page. The green cover is illustrated with an unnamed Eumastacid grasshopper. The style and treatment of taxa is the same as in Number 1. Pages 1-109 cover the Eumastacoidea; 110-133 deal with the Proscopiidae; 134-137 with the Trigonopterygidae, 138-143, and single pages are devoted to the mall families Tanaoceridae (144) and Xyronotidae (145).

Number 3: Orthoptera Species File 3. "Grasshoppers [Acridomorpha] B, Pamphagoidea". ISBN 0-9640101-4-3. October, 1994. vii + 1 - 241 pp. The preliminary pages contain similar sections as in No. 2. The cover is burgundy in color and has an illustration of an unnamed pyrgomorphid grasshopper. Most of the volume (141 pages) covers the Family Pyrgomorphidae, which is subdivided into two subfamilies with 31 tribes. The Pamphagidae is dealt with in pages 142-206; the Ommexechidae on pages 207-214; the Charilaidae on pages 215-216; and the Lathiceridae on pages 217-218. The index is on pages 219-241.

Number 4: Orthoptera Species File 4. "Grasshoppers [Acridomorpha] C, Acridoidea, including Lentulidae, Paulinidae, Tristiridae, Romaleidae and Acrididae (part)". ISBN 0-9640101-5-1. February 1995. vii + 518 pages. The preliminary pages contain the sections as in other numbers. The cover is blue and bears an attractive illustration of an un-named grasshopper. The Lentulidae and other smaller families are dealt with in the first 69 pages. The greatest part of the volume covers part of the vast Family Acrididae (Acridoidea of some authors). An index is included on pages 457-511. Following the index is an addendum, pages 512-518, containing taxa and records added to the computer database after this volume went to press.

Number 5: Orthoptera Species File 5. "Grasshoppers [Acridomorpha] D, Acridoidea: Acrididae (part)". ISBN 0-9640101-6-X. May 1995. vii + 630 pages. The preliminary sections are as in the previous numbers. The cover is brown bearing an illustration of a band-winged grasshopper. All of the remaining subordinate taxa of the Acrididae (Acridoidea of some authors) are included in this volume, completing the species of the "Caelifera" (or "Orthoptera sensu stricto"). The Coptacridinae, which is included in Number 4, is repeated and greatly expanded in this volume. The index, pages 467-630, covers all of the four numbers (volumes) and is a complete index to the entire group, the only index needed for Numbers 1 to 4. In addition, on page 456, is a short addendum to OSF 2.

Finally, I wish to express my admiration to Dan Otte and his helpers for this tremendous upgrading of the accessibility to data concerning this section of the orthopteroid insects. I hope

the series will be continued to include all of the remaining taxa, those of the "Ensifera" ("Grylloptera").

Vernon R. Vickery, Emeritus Curator
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POSITIONS AVAILABLE

Post-doctoral opportunity: aphid biocontrol Recruiting is underway for two positions with Danish Organizations. The Dept. of Plant Pathology and Pest Management at the Danish Institute of Plant and Soil Science seeks an entomologist to conduct a 3-year research program on bio-control of aphids in cereals (with parasitic wasps). For more info, contact L.M. Hansen, Head of Dept., P.O. Box 23, DK-8830 Tjelc, Denmark; tel 45-45-87-25-10; fax 45-45-87-10-28. (Posted Feb. 1, 1996).

Post-doctoral research associate: biochemist/plant physiologist/entomologist The U.S. Dept. of Agriculture's research arm is recruiting for a research biochemist/plant physiologist/entomologist at the postdoctoral research associate level for a 2-year appointment to conduct research on the "biochemical and physiological mechanisms associated with differential responses of Russian wheat aphid (R.W.A.) resistant and susceptible barleys elicited by R.W.A. feeding." The position, RA-96-25, will locate in Stillwater, OK, U.S.A. and "analyze processes involved in the production of collapsed, auto-fluorescent cells associated with aphid feeding in R.W.A.-resistant barley leaves." For more info, contact D.R. Porter (e-mail DRP@ag.gov), or D. McCourt, U.S.D.A./A.R.S., 6305 Ivy Lane, Room 337, Greenbelt, MD 20770-1435, U.S.A.; tel 301-344-1504. (Posted Apr. 1, 1996).

Ph.D. graduate research assistantship: extension entomology The Entomology department at Oregon State University offers the Capizzi Ph.D. Graduate Research Assistantship (fixed term, 0.50 F.T.E., 12 month position) to develop modern approaches to the delivery of extension services. The specific topic will be developed in collaboration with extension entomologists in the Department. The post also carries responsibility for maintaining and developing the insect identification service. The position is ideal for a candidate wishing a career in Extension Entomology and would suit applicants with interests and skills in information technology and education via new media, as well as economic entomology. Applicants should have, or be about to obtain, an M.Sc. degree in an appropriate subject and must be eligible for admission to the O.S.U. graduate school. Submit letter of application, C.V., college transcripts and 3 letters of reference to Dr. Paul Jepson, Chair, Dept. of Entomology, 2046 Cordley, Oregon State University, Corvallis, OR 97331-2907 by June 30, 1996. (Posted Apr. 10, 1996).

Tenure track position: insect ecology and population dynamics The Department of Entomology, Faculty of Agriculture, The Hebrew University of Jerusalem Rehovot, Israel invites applications for a tenure track position to carry out research and teaching in insect ecology and population dynamics. The position also requires supervision of M.Sc. and Ph.D. students. Teaching is in Hebrew. Qualifications: Ph.D. in entomology, ecology or closely related science is required. The candidate will be expected to participate in other courses in entomology, and obtain competitive research grants. Applicants should submit resume, confidential letters of recommendation by three referees, a brief description of experience and scientific interests, to Prof. Ilan Sela, Chairman, Department of Entomology, Faculty of Agriculture, the Hebrew University of Jerusalem, P.O. Box 12, Rehovot 76100, Israel, before June 30, 1996. (Posted Apr. 10, 1996).

Graduate opportunity: tick research . My research program focusses on the physiology, endocrinology, pharmacology of ticks, and I'm hoping to welcome two more graduate students to my team between Sept., 1996 and May, 1997. For further information, please contact Reuben Kaufman, Department of Biological Sciences, University of Alberta, Edmonton, Canada T6G

2E9; tel 403-492-1279; fax 403-492-9234; e-mail reuben_kaufman@biology.ualberta.ca. (Posted Apr. 22, 1996).

Research assistant: insect survey and rearing We are looking for research assistants to help with our exotic insect survey and rearing -identification program. The program will be based in Salem with travel throughout the northwestern Oregon. Duties include collection of insect from Prunus trees (e.g., cherry, pear, peach) and insect rearing. Position starts in May and lasts until September. Salary is $6.98 US/h (ca. $1,200/month). Ideal candidate will be someone with entomology or biology training. Students interested in insect rearing/identification, ecology and behaviour are encouraged to apply. People who are creative and eager to learn are encouraged to apply because different collecting and rearing techniques need to be explored and tried by the incumbent assistants. If you are interested, contact Dr. Barry Bai, Plant Division, Oregon Dept. of Agriculture, 635 Capitol Street NE, Salem, Oregon 97310-0110; tel 503-986-4645; fax 503-986-4735; e-mail bbai@oda.state.or.us. (Posted Apr. 26, 1996).

Corporate entomologist: Copesan Services, a leader in Providing quality commercial pest control services to national and regional clients, is seeking a Ph.D. Entomologist to fill this new, challenging position. Reporting directly to the President, this person will become an active team member in support of the Quality Assurance, National Sales and Technical Support departments. We seek a person with practical experience who enjoys working in the field with clients, as well as assisting both service and sales personnel, solving difficult problems. Qualified candidates should send their resume to: Copesan Services, Inc., c/o Recruiting, 3490 N. 127th Street, Brookfield, WI 53005; info 1-800-558-2303. (Posted Apr. 30, 1996).

Postdoctoral research associate: ant reproductive allocation Diane Wiernasz and Blaine Cole at the University of Houston have a two year postion for a postdoctoral fellow to study the evolution of reproductive allocation in *Pogonomyrmex* harvester ants. We are seeking someone with expertise in multivariate statistical analysis who is conversant with morphological evolution. Experience with social insects is a plus, but is not a requirement. The person filling the position can begin as early as Sept. 1, 1996. For more info, contact us at the Department of Biology, University of Houston, Houston, TX 77204-5513; fax 713-743-2636; e-mail dwiernasz@uh.edu or bcole@uh.edu. Please send a CV, a description of your thesis research, and a list of three referees so that we can arrange letters of reference. (Posted May 2, 1996).

Troy Danyk, Chair
Student Affairs Committee
danyk@abrsle.agr.ca

MISCELLANEOUS

Impact Study

The "Prairies Impact Adapation Study Organizational Workshop" was held in Edmonton Feb 14-15. It was a big meeting on climate change, with the task of identifying key components needing research towards adapting to global change, identifying issues and addressing information gaps. One of the key working groups was on Biodiversity, and (here's the point of my letter) one of the key issues identified was "Insects", including the impact of global (especially climate) change on their biodiversity, outbreak dynamics, relationships to wildlife (e.g., as food), and the impacts of pesticide use resulting from the insects' activities as pests. The other amazing and equally gratifying fact was that this prominence of Insecta did not originate with the entomologist at the workshop, but came from several other sources. The third good thing is that it also came up, independently, as a priority issue in the Forestry section. (The Agriculture section buried insects under "Input costs" - yes, you got it: economists were in charge of that group.)

Dan Johnson

NORTH AMERICAN BUTTERFLY ASSOCIATION
4 Delaware Road, Morristown, NJ 07960 tel. 201-285-0907 fax 201-285-0936

THE NABA-XERCES FOURTH OF JULY BUTTERFLY COUNT, 1995

The 21st annual NABA-Xerces Fourth of July Butterfly Count was held in the summer of 1995 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 1995, 296 4th of July butterfly counts were held (including 7 counts received after deadline, to be published in next year's report). This was a 16.5% increase from the 254 held in 1994 (including counts submitted late, being published with the 1995 counts) and a 34% increase from the 221 in 1993 (including late counts). The program has grown over 900% since the original 29 counts in 1975!

The 263 U.S. counts occurred in 45 states (45 in 1994, 40 in 1993). The 29 Canadian counts were in 5 provinces (6 in 1994, 4 in 1993), with 4 Mexican counts in 2 states (1 in 1994 and 1993). California had the most 1995 counts, with 19 (17 in 1994 and 12 in 1993), followed by New York, with 18 (14 in 1994 and 1993), then Wisconsin, with 17 (16 in 1994, 15 in 1993). Three counts (Berkeley, CA; Gilpin County, CO; Lower Pearl River, LA-MS) have been held for all 21 years of the count program!

The sum of people participating in each count is 2,946 (with each count averaging 10 people), although some people are tallied more than once, since they participated in two or more counts. This is a 40% increase from the 2,106 reported last year and a 78% jump from 1,653 in 1993.

As usual, the counts with the greatest species diversity occurred in Mexico, which also had its highest number of counts (4) ever. Each count had a minimum of 101 species, with 132 the most, still short of the 1992 Mexican record of 169 species in Puerto Vallarta. Three of these counts did set count highs for species diversity, however. The 1995 count north of Mexico with the highest species diversity was Ramsey Canyon, AZ, with 102 species. This fell just short of the record 103 species last year at Gilpin County, CO and matched the previous record of 102 at Patagonia, AZ in 1992.

For the second year in a row, the Fox River-Seney, MI count produced the highest tally of individuals on any count: 20,289 (17,191 in 1994) at 966 individuals per party-hour (1,127 last year). As in 1994, a continental record high of European Skippers (17,504; 13,660 in 1994) was responsible for this massive total. Previously, the Klamath Falls, OR count recorded 16,994 butterflies at the phenomenal rate of 1,214 individuals per party-hour in 1992.

In its first year held, on the 4th of July no less, the Palm Beach County North, FL count achieved a stunning new continental high for the Atala, with 393 adults found. This hairstreak had previously been reported in the count only once, with 4 in 1990 at Homestead. Even more amazing was Palm Beach County North's report of over 11,000 Atala larvae on coontie, its cycad hostplant.

TO ORDER THE 1995 REPORT...

Please send your report order (specifying year of count results desired) by check or money order payable to NABA in US dollars for $6 (NABA members) or $10 (non-members) each to:

4th of July Butterfly Count
909 Birch Street
Baraboo, Wisconsin 53913 USA

NORTH AMERICAN BUTTERFLY ASSOCIATION
4 Delaware Road, Morristown, NJ 07960 tel. 201-285-0907 fax 201-285-0936

THE NABA-XERCES FOURTH OF JULY BUTTERFLY COUNT, 1996

The 22nd annual NABA-Xerces 4th of July Butterfly Count will be held this summer. These counts are fun-filled 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 4th of July.

The North American Butterfly Association (NABA) organizes the counts and publishes their annual reports. These reports provide important information about the geographical distributions and population sizes of the species counted. Comparisons of the results over the years monitor changes in butterfly populations and reveal effects of weather and habitat change on the different species. In some years the butterfly count shows dramatic changes in butterfly populations, while other years indicate little flucutation in butterfly numbers. Either way, the butterfly counters are always curious about what next year's results will be!

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 condcut a count, and NABA, please write (a self-addressed, stamped business envelope expedites response):

NABA
4 Delaware Road
Morristown, NJ 07960

UPCOMING MEETINGS

Fourth International Conference on Pests in Agrriculture

This meeting will be held in Montpellier, France, from January 6-8, 1997. For information please contact: ANPP, 6, Boulevard de la Bastille, F-75012, Paris, France. Tel.: (1) 43 44 89 64; Fax: (1) 43 44 29 19

AAA BIOTEC

AAA BIOTEC will hold their first conference on Biotechnology in plant and animal production from October 8-11, 1996 in the Ferrara Fair District of Bologne, Italy. This conference aims to give information on the use of Agricultural Biotechnology in Italy. For information contact: Dr. J. Shejbal, Scientific Secretary, Via Silio Italicao, 20, 00040 Monte Porzio Catone, Rome. Tel. e Fax: ++39-(0) 6-9447768 or Ferrara Fiere, Via Bologna, 534, Loc. Chiesuol del Fosso, 44100 Ferrara. Fax: ++39(0) 532-976997.

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