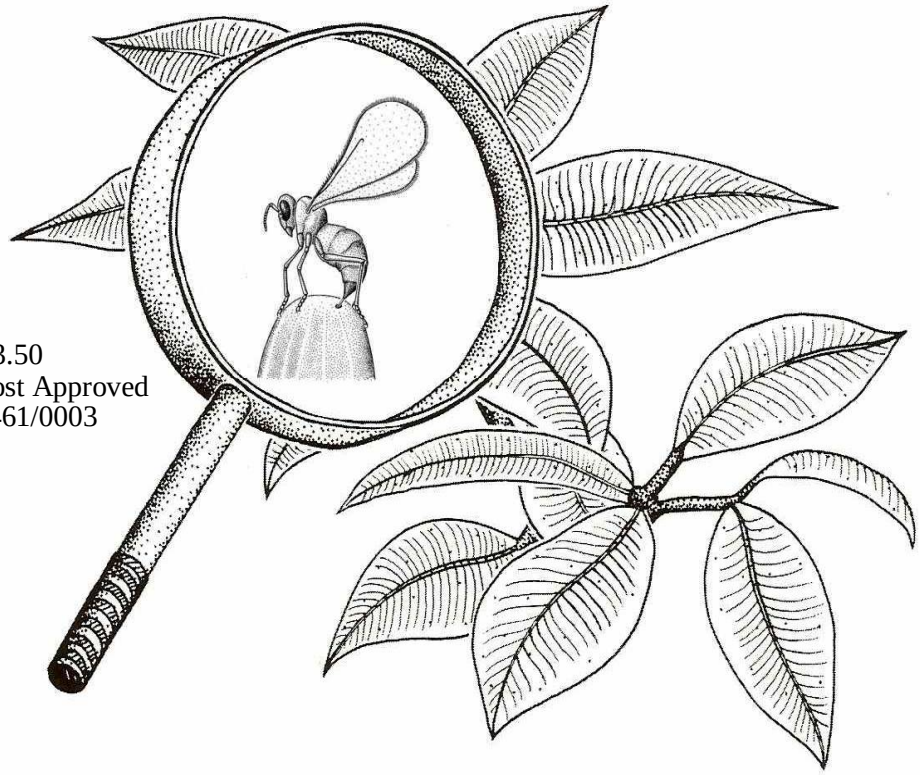
ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

NEWS BULLETIN



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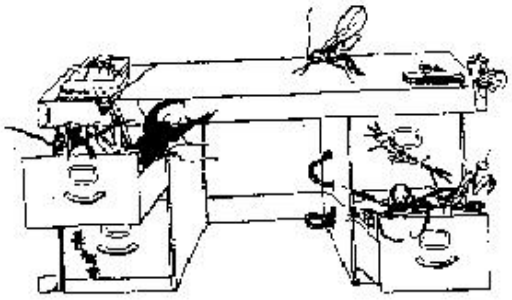
The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has striven to promote the development of pure and applied entomological research in Australia, particularly in Queensland. Membership is open to anyone interested in Entomology. The Society promotes liaison among entomologists through regular meetings and the distribution of a *News Bulletin* to members. Meetings are announced in the *News Bulletin*, and are normally held in the Goddard Building, University of Queensland at 7.00 pm on the second Monday of each month (March to June, August to December). Visitors and members are welcome. Membership information can be obtained from the Honorary Secretary, or other office bearers of the Society.

Contributions to the *News Bulletin* such as items of news, trip reports, announcements, etc are welcome and should be sent to the *News Bulletin Editor*.

The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published in four parts annually.

EMBLEM: The Society's emblem, chosen in 1973 on the 50th anniversary of the Society, is the king stag beetle, *Phalacrognathus muelleri* (Macleay), family Lucanidae. Its magnificent purple and green colouration makes it one of the most attractive of all Australia Coleoptera. It is restricted to the rainforests of northern Queensland.

COVER: *Trichogramma, sp.,* an egg parasitoid. Drawn by Catherine Bryant.



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The Entomological Society of Queensland

Annual General Meeting 2007

Held in Room 139, Goddard Building, The University of Queensland, March 12 2007, 7.00 pm.

Attendance: Peter Allsopp, Sassan Asgari, Murdoch de Baar, Richard Bull, Lyn Cook, Stephen Frances, Bernie Franzmann, Mike Furlong, Klaus Gottschaldt, Judy Grimshaw, Tim Heard, Ross Kendall, Gunter Maywald, Austin McLennan, Geoff Monteith, John Moss, Benjamin Normark, Matthew Purcell, Don Sands, Margaret Schneider, Peter Twine, Susan Wright, Jeff Wright, Meron Zalucki

Visitors: Shaun Winterton

Apologies: Bronwen Cribb, Judy King, Stacey McLean, Desley Tree

Minutes: The minutes of the last Annual General Meeting, were circulated in the News Bulletin Vol. 34 Issue 1. It was moved that they be accepted by Peter Allsopp, seconded by Gunter Maywald

New Member Nominations and Elections:

The following nomination for membership were received and approved by Council, and are now put before the meeting for election:

Dr. Ann M. Frazer

Mr. G.A. Nicholls

Dr. Felix Bianchi

Mr. Bradley Brown

Ms Anne-Marie McKinnon

In accordance with Society rules, the nominees were elected by a show of hands.

General Business:

Annual Reports and Financial Statements

The Society's Annual Reports and Financial Statements (except for the Journal Report and Audit, which will be published in Vol. 35, No. 1) were published in News Bulletin Vol. 34 Issue 10. The President, Secretary, Treasurer and Business Manager each outlined the contents of their respective reports. A call was made for questions from the attendant members about the information provided in the statements.

John Moss asked the Business Manager whether anyone has checked on the correlation between Society memberships and Journal subscriptions. Richard Bull indicated that no such information has been compiled, but that it would be expected that most overseas subscribers to the Journal were not likely to be Society members.

It was then moved by Don Sands, seconded by John Moss, that the statements be accepted.

The outgoing president thanked the Council members for their work this year.

Election of 2007 Council.

The following nominations were received before the meeting:

Senior Vice President	Mike Furlong
Secretary	Gunter Maywald
Treasurer	Matthew Purcell
Editor, News Bulletin	-
Journal Business Manager	Geoff Monteith
Councillor	Richard Bull
Councillor	Don Sands
Councillor	Margaret Schneider

The president made a call for further nominations for Council positions from the floor, noting especially that the important position of News Bulletin Editor does not yet have a nomination. He announced that the Council was willing to spend up to $100 per issue of the Bulletin for editorial assistance to help both produce and revamp the bulletin to make it even more relevant to the membership.

No further nominations were received. The nominees listed were voted for by the members present, and all were elected unanimously into Council.

John Moss reported the sad news to the membership that one of the Society's Honorary Life Members, Dr. Eric Reye, had passed away on the 29th of January. Eric was a Medical Practitioner and a world authority on the biting midges. The President asked the membership present to stand for a minute in silence.

Geoff Monteith presented a short note on an unusual caterpillar that he found on a recent trip to the Charters Towers area.

Geoff also talked briefly about a possible BugCatch event to be scheduled for the last weekend in April. More details on this will be presented in an announcement in the Bulletin.

Peter Allsopp then introduced the incoming President, Sassan Asgari.

Main Business

The new Society President, Dr. Sassan Asgari then invited the outgoing President, Dr Peter Allsopp to present his Presidential Address, entitled "**Two Faces of a Scarabaeologist".**

Main Business

Presidential Address

TWO FACES OF A SCARABAEOLOGIST– Peter Allsopp

Presidential addresses are by tradition personal affairs. Tonight, I've chosen to talk about two aspects of the studies of scarab beetles with which I have been associated – studies on the distribution of Australian scarabs, and the management of those scarabs whose larvae attack Australian sugarcane, the canegrubs.

To start, I have to make a confession. I must have a split personality! On the one hand, I have been paid to kill scarabs (canegrubs), but, on the other hand, scarabs are my fascination, some, especially my family, would say my obsession. Hence, the two faces of my title. However, I am not alone. Obviously, God must have been a beetle freak as He (She) made so many of them – one-quarter of the world's known animals are beetles, far outnumbering groups such as the butterflies and moths, the birds, the mammals, and indeed every other group of animals. God's "inordinate fondness for beetles", as Haldane described it.

First, the 'obsession' stuff – the Distribution of Australian Scarabs. In Australia, there are > 3000 known species of Scarabaeidae. There are six main subfamilies – the Scarabaeinae, the dung beetles; the Aphodiinae, also mainly dung feeders, but in southern Australia larvae of a few species live in tunnels in the soil and emerge at night to feed on pastures; the Melolonthinae, the chafers (and including the canegrubs); the Rutelinae, the Christmas beetles; the Dynastinae, the horned beetles; and the Cetoniinae, the often brightly coloured flower chafers. There is also the closely related family (sometimes considered a subfamily), the Geotrupidae with 140 Australian species. Their taxonomy is fairly good, thanks to efforts over the last 50 odd years of people such as Ev Britton (Melolonthinae), Phil Carne (Dynastinae and Rutelinae), Eric Matthews and Ross Storey (Scarabaeinae) and Henry Howden (Aphodiinae and Geotrupidae).

This taxonomy and associated distribution data allowed me to address

two questions:

- What are the relationships among the faunas of different parts of Australia?
- How widely are individual species distributed?

These then allowed me to contrast their ecologies and evolutionary histories.

In the first study (Allsopp 1995), I tested the appropriateness of general faunal models – from the basic three-zone model (Eyrean, Torresian, Bassian) through to more complex six or seven region models. I divided Australia into 17 zones, roughly based on these faunal zones, but given arbitrary boundaries. I assigned each species to the different zones and looked at the relationships among zones based on dissimilarities for each of the major scarab groups.

Not surprisingly, there are differences among these groups. Most obvious is the boundary in the east between the northern and southern faunas – in the Rutelinae it is around the Rockhampton area, in the Geotrupidae around the Queensland-New South Wales border, and in the Melolonthini around the Sydney region. There is also strong support across groups for:

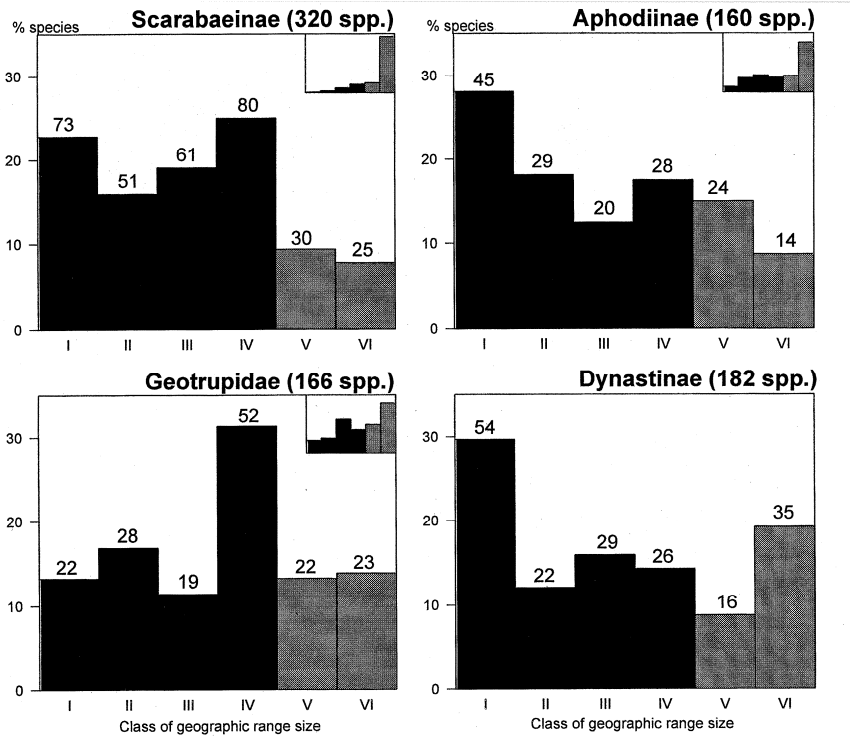
- A tropical northeastern group;
- A northern Northern Territory-Kimberley group;
- Isolation of the southwestern fauna from the southeastern fauna, but the former related to the arid fauna
- The Tasmanian fauna being part of a general southeastern group.

Hence, a 6-region model seems most appropriate (northeast, east, southeast, southwest, northwest/northern, inland), albeit with differences among groups that might be related to evolutionary history – the Melolonthini has strong recent Oriental groups, whilst the Rutelinae and Geotrupidae are almost entirely Gondwanan.

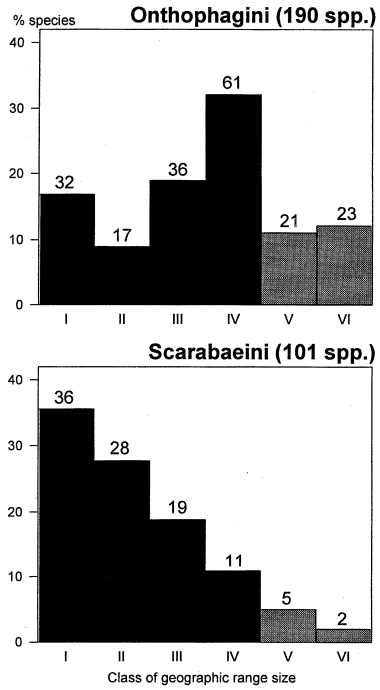
A second study looked at how widely Australian scarabs are distributed

(Allsopp 1999). I examined the Scarabaeinae, Aphodiinae, Dynastinae and Geotrupidae, groups with recent, comprehensive revisions supported by intensive collecting. Species were placed in one of six classes: I, <0.1% of Australia's area; II, 0.1-0.5 %; III, 0.5-1%; IV, 1-5%; V, 5-10%; and VI, >10%. These allowed comparisons with a study of the European fauna of three of the scarab groups.

The results showed that the Geotrupidae were distributed significantly differently from the other three groups. Many of these species are cool or cold tolerant and occur in mesic or arid environments. This means that many are relics, surviving over long periods as the continent became drier – a different ecology from most of the other three groups.



However, the patterns are not consistent across subgroups within these major groups –the patterns for the Onthophagini and Scarabaeini, two dung-beetle tribes, were very different. All except one of the Australian Onthophagini are strong fliers, whereas many of the Scarabaeini are flightless. The latter also tend to predominate in eastern rainforest areas – presumably, the more local distribution and the flightless behaviour are the products of 'island' biogeography – patches of favourable habitat surrounded by unfavourable country that favour local speciation.



The patterns for the Australian species are also radically different from those of their European counterparts (inset diagrams in first figure). Presumably, the long, relatively stable Australian environment has allowed more local speciation than in Europe, where species were forced to recolonise after the last ice age.

Both of these studies reflect that science looks for patterns that are repeatable and inclusive. However, simple patterns not present in these

scarabs and they have been shaped by different biologies and long-term evolutionary histories

Now the ‘dark side’ of my life. Canegrubs (the larvae of some Melolonthini) are the most important insect pests of the Australian sugar industry. Damage costs growers $7-10 million a year, in a period when we have effective insecticides. They live below the soil surface for most of their 1-2 year lifecycle, chewing the roots of cane, and management strategies are constrained by the crop, the cropping system and different ecologies. We know of 19 pest species, in four genera, and there are different species in different cane-growing regions and on different soil types within a region. They vary in lifecycle strategies, so each species must be considered a pest in its own right.

Four quotes nicely cover the evolution of canegrub management:

- *The results from the experiments were not very encouraging, and further trials with this poison were abandoned* (1933)
- *Complete has been the control effected, and there seems no reason why the pest [greyback canegrub] should not be permanently relegated to a position of comparative harmlessness* (Reg Mungomery, ESQ Presidential address 1954)
- *Vale BHC!* (1987)
- *Greyback grub control - a growing issue in the Burdekin* (1995).

I’ve (Allsopp 2001) divided the last 100 years or so of canegrub research into three phases:

- 1890s-1945 - The Basics
- 1945-1987 - The Organochlorines
- 1988-present - Many Approaches, Integrated Outcomes.

What was done and how the results were perceived were influenced by

many factors, including the expectations of the industry and general community, the tools and resources available, different cropping systems and the personalities involved (scientists and industry 'politicians').

Serious study of canegrubs began with the appointment of Girault and Dodd to BSES in 1911. They and their pre-World War II successors identified the major species, developed basic outlines of the grubs' biologies, tested 'crude' insecticides, including the fungus *Metarhizium*, imported natural enemies (most infamously the cane toad at the 'demand' of industry), and tested other impractical controls. None of these gave the control that industry sought. The period was marked by seemingly *ad hoc* trial work, changes in emphasis with different personalities, and strong industry 'political' pressure.

Shortly after World War II, BSES entomologists Mungomery and Wilson showed that the application at planting of organochlorine insecticides (especially BHC) provided cheap and effective control of canegrubs through a crop cycle of 3-5 years. The industry was impressed, a plaque celebrating their achievement and industry gratitude was unveiled by Prime Minister Menzies at BSES Meringa, and canegrubs were relegated to low importance, especially when other insects, eg virus-spreading planthoppers, took centre stage. However, by the late 1970s BSES entomologists saw the pending end of the organochlorines and, with chemical-industry partners, Hitchcock developed a unique mixture of plastic matrix and chlorpyrifos that could give control for up to 3 years – suSConÒ Blue. There was also work on insecticides that could be applied to ratoon crops, *Metarhizium* and parasitic nematodes.

Following the banning of organochlorines in 1987, we started to ask a question different from the then-current 'how do we kill canegrubs', 'how do we eradicate grubs' industry mentality - 'Why do grubs reach levels high enough to cause economic damage?'. The answer is simple - farming systems have made the environment more favourable for

grubs, therefore, change the system to make it less favourable!

Our approach was based on classic research management theory - effective development of new products and practices best managed through four processes: find an organisational mantra; find windows of opportunity; form teams, not committees; and set targets.

Our mantra was simple – growers needed a suite of different tactics to reduce populations below economically damaging levels – Integrated Pest Management. There were three foci to our research that reflected windows of opportunity:

- Improve the efficiency of current controls – Why didn't current insecticides always provide good control; How and where should these insecticides be placed in the soil;
- Develop and market substitute insecticides – New active ingredients in controlled-release and knockdown formulations; *Metarhizium* as a biological insecticide; Genetically modified cane;
- Redesign the canegrowing system to make it less favourable/ attractive to canegrubs – Cultural practices that favour natural enemies or that see oviposition into less-valuable crops; Plant resistance.

All three approaches had to be underpinned by good taxonomy of larvae and adults (morphology/molecular); monitoring and sampling techniques; understanding of key factors determining how many and where; models to predict population dynamics and risk; economic injury levels; and, very importantly, good adoption programs so that new tactics would be used by growers.

Teams were important to allow incorporation of people with complementary temperaments and skills, and to provide a mixture of

research and commercialisation. This is best illustrated by the development of BioCane™, an insecticide based on *Metarhizium.* We incorporated mycology from CSIRO, production and marketing from Bio-Care Pty Ltd, field testing and application strategies from BSES Pest Management, adoption from BSES Extension, and distribution and retailing from Burdekin Cane Productivity Service to get a product on the market, unlike previous attempts with the fungus.

Setting targets was easy – most projects partially funded through Sugar R&D Corporation and they, and other funders, required milestones to be set, and met! We also set overall objectives for BSES Pest Management, focused on reducing sugar losses, minimising environmental impacts, and improving adoption of results of R&D. What was difficult to factor into such a structured approach were the incongruities and the unexpected.

What we have now is our GrubPlan approach - a package of management tactics delivered to growers in small, structured workshops. It depends on four pillars – controlled-release insecticides, knockdown insecticides, microbial insecticides, and cultural controls. Growers use whole-farm planning and predictive modeling to assess the risk of infestations in each field and then select the most appropriate tactics for that level of risk. A far cry from the 'apply BHC and forget about grubs' approach of the 1950-80s era.

Current approaches focus on widening the management options. However, innovation is vital for long-term development and this requires support from politicians (in the widest sense), media, scientists, and, above all, the industry. The simple message is that good RD&E takes time.

References

Allsopp, P.G. (1995) Biogeography of the Australian Dynastinae, Rutelinae, Scarabaeinae, Melolonthini, Scitalini and

Geotrupidae (Coleoptera: Scarabaeoidea). *Journal of Biogeography* 22:31-48.

Allsopp, P.G. (1999) How localized are the distributions of Australian scarab beetles (Coleoptera: Scarabaeidae)? *Diversity and Distributions* 5: 143-149.

Allsopp, P.G. (2001) The research process - canegrub management in the Australian industry. *Proceedings of the Australian Society of Sugar Cane Technologists* 23: 9-16.

News Bulletin contributions from Ensoc members

Having returned to Ensoc to help out with the News Bulletin, would love to receive your news, field trip reports, sightings of strange and wonderful beasts (Entomological notes, Bug of the Month), goss, concerns, questions and suggestions pertaining to the world of entomology. Please send contributions to News Bulletin editor or your nearest Ensoc office bearer! Don't delay, next issue out soon!

Thank you, Claudina (Claud)

Introducing our new president

Dr Sassan Asgari

I completed my undergraduate degree in Entomology and Plant Pathology at Isfahan University of Technology in Iran in 1990. Taking part in a competitive national exam for graduate studies in entomology I was ranked first and was offered a scholarship to study overseas for Masters and PhD degrees. Since my childhood, I was in love with Australia and its natural beauty (maybe by watching Skippy the Kangaroo!) which made deciding easier. With advances in molecular biology and its techniques being used in various disciplines in biology, I decided to gain further skills beyond traditional entomological

approaches and explore a new avenue within the discipline of entomology. While doing Masters' subjects at the University of Adelaide, I happened to talk to the Head of the Department at the time, Prof. Otto Schmit, who was passionately talking about symbiotic viruses (polydnaviruses) that replicate in the ovaries of parasitoid wasps suppressing the immune system of the host caterpillars. My first reaction was "Wow!!". So bizarre in terms of virology, and how fascinating in terms of host-parasitoid interaction! I accomplished my Masters and PhD degrees at the University of Adelaide in Molecular Entomology in 1997 working on various aspects of virus-parasitoid-host interactions. I specifically looked at *Cotesia rubecula-Pieris rapae* interactions. The research led to the discovery of several interesting genes from the wasp and the viruses that are involved in suppression of the host immune system.

After completion of my PhD, I worked as a research associate on the role of flies in the transmission of rabbit haemorrhagic disease virus in collaboration with CSIRO and Plant and Animal Control Commission of South Australia. The highlight of this period was the official release of the virus as a biocontrol agent of rabbits by the SA Premier after it escaped from Wardang Island and had been around for a few months! We found a PCR-based technique to detect the virus in insects and rabbits and showed that fly spots (oral and anal excretion) contain enough virus particles to transmit the disease. Following that, I worked as a post-doctoral fellow for one year on expression of human and animal growth factors in the slime mold, *Dictyostellium discoideum,* at Flinders University of South Australia. That was a "slimy" year during which my heart was still beating for exploring insect host-parasitoid interactions further. In 1999, I was awarded an Australian Postdoctoral Research fellowship by ARC for four years to work on "cell surface-mediated inactivation of insect blood cells by a polydnavirus-encoded immune suppressor". This period was very rewarding as I enjoyed advising several postgraduate students and collaborating with local and international colleagues which resulted in large numbers of high impact publications.

In 2003, I joined the University of Queensland, School of Integrative Biology as a lecturer in entomology teaching various subjects such as Arthropods & Human Health, Invertebrate Biology, Animal Biology, Insect Pathology (Ecology of Diseases) and Cell & Developmental Biology. It is very fortunate that UQ still holds the largest number of academic entomologists among Australian universities providing an inspiring workplace. My research interests are to look at viruses and maternal secretions associated with parasitoid wasps to explore their function in host-parasitoid interactions and insect immunity. My biggest challenge? On top of getting research funding, it has been working out my way around Brisbane!

Notice of Next Meeting

Tuesday 10th, 7 pm April 2007

Room 388, Goddard Building

University of Queensland,

St Lucia

Bug wars:

Using pathogens against pests

Caroline Hauxwell (DPI)

ANNUAL BUSINESS MANAGER'S REPORT FOR THE YEAR ENDED 31 DECEMBER, 2006

The Australian Entomologist published Volume 33, parts 1-4 with a total of 218 pages comprising 29 papers, articles, reviews and the proceedings of the Pat Marks Memorial Symposium. Revenue from page charges was reduced because Volume 33(4) comprised invited articles, but despite this, finances remained sound for the 2006 year. Introduction of a more effective invoicing system resulted in many subscription arrears being retrieved and at year's end there were only 8 outstanding from a total 252 subscribers (Australia 194 & 58 overseas). Major expenditures were journal printing costs and postage.

The 2006 audit found the Australian Entomologist to be in a sound financial position with net assets of $32,118.08. It should be noted that assets of $13,898 comprised past issues of the journal from 1988, whose value may only be partially realized by future sales. A net trading profit of $536.05 was achieved for the year ended December 31, 2006.

On behalf of the Committee I would like to thank the numerous volunteers who throughout the year contributed their valuable time in assisting with the packing and mailing of the journal, our contributors and referees, and especially our editor Dr David Hancock whose professionalism ensured the Australian Entomologist continues to be a world class scientific publication.

Richard Bull

INDEPENDENT AUDITOR'S REPORT

To the members of the Entomological Society of Queensland and subscribers to the Australian Entomologist.

Scope

I have audited the accounts of the Australian Entomologist of the Entomological Society of Queensland, being the Balance Sheet of Income and Expenditure for the year ended 31 December 2006. The Business Manager through the Committee of the Society is responsible for the preparation and presentation of the accounts and the information they contain, and have determined that the accounting policies used are appropriate to meet the needs of members. I have conducted an independent audit of these accounts in order to express an opinion to members of the Society on its presentation and preparation. No opinion is expressed as to whether the basis of the accounting used is appropriate to the needs of members.

Auditor Opinion

Subject to the effects of the above, the financial reports present fairly the activities of the Australian Entomologist of the Entomological Society of Queensland for the year ended 31 December 2006.

_____

Marjorie Gunasekara
Finance Officer
CSIRO Entomology
Indooroopilly QLD 4068

People & Projects

Dear Butterfly Enthusiasts…….

My name is Natalie Briscoe and I have just begun working on an Honours project on the Common brown butterfly, *Heteronympha merope merope*. My project is a part of a collaborative effort between groups at Melbourne, Monash and LaTrobe Universities to predict the response of this species to climate change. I believe that a request from our group for historical distribution records was published in the news bulletin in February 2006 and proved very helpful. I am currently trying to get into contact with butterfly enthusiasts who may be interested in aiding me with my study.

My project will investigate how temperature, rainfall and photoperiod affect the growth, development and lifecycle timing of *H. merope* larvae. I will then use this information to develop a biophysical model to predict how the distribution of this species will be affected by climate change due to altered growth and survival of larvae.

I hope to collect gravid females from Toowoomba in an upcoming March field trip, and compare the responses of their offspring to temperature, rainfall and photoperiod with larvae from females collected in Melbourne.

Information concerning the climatic conditions usually experienced by the larvae in the Toowoomba area and field observations of this population would be extremely valuable. Unfortunately I will not be able to re-visit this site during the year and so would love to get in contact with any butterfly enthusiasts in the area who would be willing to post back temperature and humidity data loggers, and perhaps record some observations of *H. merope* (for example the date last female was observed flying, timing of different stages of larval development, and the date first butterfly sighted flying).

While the Toowoomba area is of specific interest, it would be great to get in contact with anyone willing to post back data loggers and pass on observations of *H. merope* in areas within their range. Any assistance would be greatly appreciated!

Yours sincerely,

Natalie Briscoe
(n.briscoe1@ugrad.unimelb.edu.au)

MT GLORIOUS BUGCATCH DAY TRIP

Saturday April 28

We have arranged a daytrip to Mt Glorious to be our first *Bugcatch* trip for the year. The target area is a small clearing occupied by two forestry barracks buildings, on the left just beyond the public picnic area at Maiala National Park. The area is quite private and concealed and is reached through a locked gate which we will have access to. It is surrounded by good rainforest on red soil on one side and by tall wet sclerophyll grading into drier eucalypt forest on the other side.

The plan is to go up in the morning and stay for the day then have a barbecue cookup for evening meal and run the lights for a while into the evening. We will have access to power so this will make the light trapping very simple. We are hoping to have a few University students come along and this will be a good opportunity to give them an experience of all our collecting tricks.

Final details are not finalised yet but we are producing an information

sheet with all instructions which will be sent a week before the event to those intending to come.
Please mark your calendars now and let us know if you intend coming.

Geoff Monteith and Christine Lambkin
Bugcatch Coordinators
Queensland Museum
Telephone 38407690 or 38407699
Email geoff.monteith@ qm.qld.gov.au
christine.lambkin@qm.qld.gov.au

News from Queensland Museum

Owen Seeman is now part time, working three days per week while spending the other two at home with his son Archie. He is currently collaborating with Jenny Beard (AQIS) on the project "Lucid key to mite families of quarantine concern in Australia", through the Centre for Biological Information Technology and funded by the Office of the Chief Plant Protection Officer.

It is with sadness that we report the passing away of two long time members of this Society. Honorary life member, Eric James Reye, passed away on the 26th January 2007 at the age of 86. A full obituary will appear in the next News Bulletin. Members will also be saddened to hear John d'Apice, passed away at the age of 88. John was a keen butterfly enthusiast who collected widely in Queensland with colleagues. John served on the Board of the ANIC Fund and donated his collection of butterflies to the ANIC in 2004.

ENTOMOLOGICAL SOCIETY OF QUEENSLAND 2007
$250 STUDENT AWARD

This is an award by the society to encourage entomological research. Entries are judged by a panel of 3 entomologists appointed by the President of the Society. The winner will be announced at the May 2007 General Meeting and is then invited to present a summary of their research at the June Notes and Exhibits meeting of the Society.

Honours, Diploma and 4th year Degree students at any Queensland tertiary education may submit their thesis or report on an entomologically related topic examined during 2006 or 2007 for the judging of this award.

Entrants need not be Society members.

Entries (including a copy of thesis or report) should be sent to the Society's Secretary, PO Box 537 Indooroopilly 4068 Brisbane Qld. **Closing date for submissions is late April 2007.**

Student Award Sponsors:
Tropical Fruit Fly Research Group, Griffith University
Pest Management Research, Department of Natural Resources and Mining

ENTOMOLOGICAL SOCIETY OF QLD
2007 STUDENT AWARD
ENTRY FORM

Name:
…….

Title of thesis or report:…….

……...

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……...

Degree: …….

Supervisor:…….

Date of Examiners report or grading: ……

Return address for thesis/report: …….

…….

…….

Signature: ……. Date:……..

Send in thesis / report and entry form to:
The Secretary, Entomological Society of Queensland
PO Box 537, Indooroopilly 4068, Brisbane Qld.

THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.

Founded 1923
Incorporated 1971

Dear Member,

Your subscription for 2007 is now due. If you haven't already paid, please mail or fax your payment to the address supplied

Yours sincerely

Matthew Purcell (Treasurer)

Title _____ Initials _____

Surname_____

Address_____

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Email_____@_____

Annual Subscription for 2007

- General: $30 pa
- Joint: $36 pa
- Student: $18 pa

Amount_____

My cheque/money order is enclosed ☐

Please charge my credit card

Bankcard ☐ Visa ☐ MasterCard ☐

Name on card_____

Expiry date____/____ Signature_____

Return to Treasurer, Entomological Society of Queensland

PO Box 537 Indooroopilly 4068 Brisbane QLD

DIARY DATES 2007

Meetings held 2nd Monday of the month (or Tuesday if Monday is a Public holiday)

April 10th	Caroline Hauxwell-DPI	Bug wars: Using pathogens against pests
May 14th	Andrew van den Hurk	Introduction and establishment of exotic disease vectors
June 12th	Student award, Notes & Exhibits	
August 13th	Nancy Schellhorn	
September 10th	David Merritt	
October 8th	Steve Barker	Why are there so many head lice, *Pediculus capitis*?".
November 12th	Andrew Austin (Perkin Memorial lecture)	
December 10th	Notes & Exhibits	

SOCIETY SUBSCRIPTION RATES

GENERAL:	Person who has full membership privileges	**$30pa**
JOINT:	Residents in the same household who share a copy of the *News Bulletin*, but each otherwise have full membership privileges.	**$36pa**
STUDENT:	Students and others at the discretion of the Society Council	**$18pa**

Student membership conveys full membership privileges at a reduced rate. See subscription form on opposite page for details.

THE *AUSTRALIAN ENTOMOLOGIST* SUBCRIPTION RATES

AUSTRALIA:	Individuals	**A$25pa**
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IMPORTANT NOTICE

The official address for the Entomological Society of Queensland and *Australian Entomologist* and to which all communications should be addressed is: **PO Box 537, Indooroopilly 4068, Qld.**

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NOTICE OF NEXT MEETING

The next meeting of the Society will be held at 7:00 pm on Tuesday, 10th April at Room 388, GODDARD Building, University of Qld. The main business will be a presentation by Caroline Hauxwell: "Bug Wars: using pathogens against pests". Refreshments will be served before the meeting at 6:30 pm in the tea room, Level 2 of the Goddard Building (to the right of the main stairs), with a gold coin donation required. No donation is required to attend the talk alone.

VISITORS ARE WELCOME

HONORARY LIFE MEMBERS OF THE SOCIETY

R.A.I. Drew	E.M. Exley	D. Hancock
M.J. Harslett R.P.	D.S. Kettle	R. P. Kleinschmidt