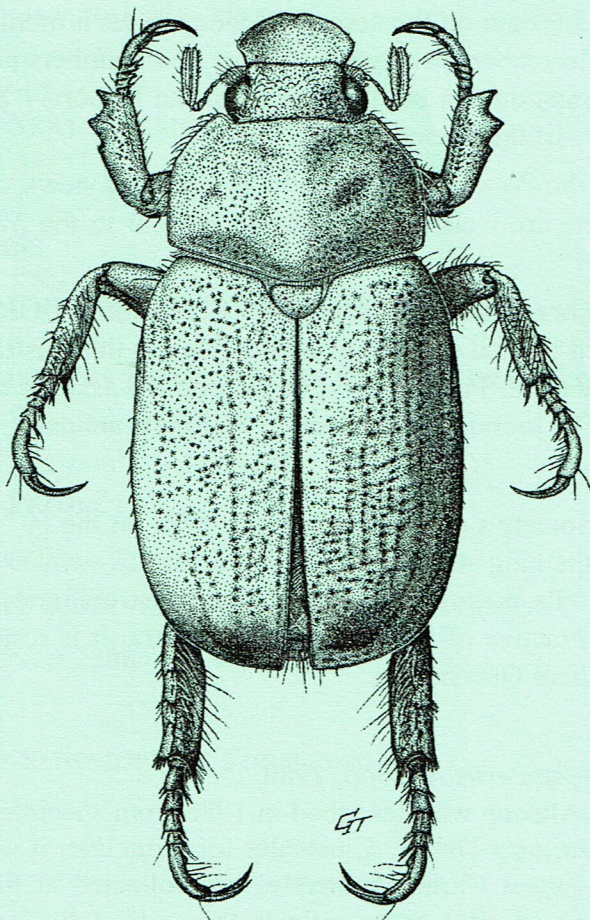


ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

NEWS BULLETIN



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Volume 34, Issue 7, October 2006

The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has promoted 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) each year. 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: *Wambo puticasus* Allsopp, 1988

Wambo puticasus Allsopp was described in 1988 from specimens collected at Lake Broadwater, near Dalby. Unusually for a ruteline, it was collected in a pitfall trap – most Christmas beetles are collected at light or from feeding trees. The specific name reflects this, whilst the generic name honours the shire in which it was collected. Geoff Thompson did the drawing, the original of which is a prized possession of Peter Allsopp.

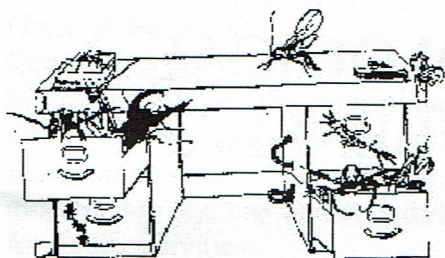


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The issue of this document does **NOT** constitute a formal publication for the purposes of the "International Code of Zoological Nomenclature 4th edition, 1999". Authors alone are responsible for the views expressed.

THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

GENERAL MEETING:

Minutes of the General Meeting of the Entomological Society of Queensland Inc. held in Room 388, Goddard Building, The University of Queensland, on 9 October 2006, at 7 pm. Chaired by Peter Allsopp

Attendance:

Peter Allsopp, Sassan Asgari, Richard Bull, Sarah Corcoran, Bronwen Cribb, Des Foley, Stephen Frances, Klaus Gottschaldt, Peter Mackey, Gunter Maywald, Geoff Monteith, Lynda Perkins, Don Sands, Elly Scheermeyer, Margaret Schneider

Visitors:

Anita Juen.

Apologies:

Matthew Purcell, Ross Kendall, John Moss, Mike Muller, Gio Fichera, Stacey McLean.

Minutes:

The minutes of the August General Meeting were circulated in the News Bulletin Vol. 34 Issue 6. It was moved by Sassan Asgari, seconded by Richard Bull, that the minutes be accepted without amendment.

Nominations:

The following nominations for membership were received and approved by Council. They were put to the meeting for election:

Dr N.T. Starrick

Dr. M. Horak

Dr. Mike Furlong

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

General Business:

Council has discussed the relevance of the Society to its membership, as well as the suitability of the current meeting time. Attendance at meetings is quite low. The suggestion was put forward that meeting at 5:30 pm be tried, with pizza afterwards. Council will investigate the composition of our membership (eg, city and country) and try to come up with some suggestions for future activities.

The President reported briefly on the recent Australian Entomological Society conference. There were about 190 attendees, with 40 from New Zealand. Next year's conference will be at Beechworth, the year after at Darwin. Council has discussed the high cost of registration for this meeting, with the view expressed that it represented poor value for money.

Main Business:

The main business of the meeting was a presentation by **Steve Francis**, entitled "**Australian Army Malaria Research Unit**".

Vote of Thanks:

Peter Allsopp gave the vote of thanks for this presentation.

As there was no further business, the Chair closed the meeting.

NOTICE FOR NEXT MEETING

Monday 13th November 2006 at 5:30pm
Room 388, Goddard Building
University of Queensland, St Lucia

**"Population age structure and modulating the transmission of
dengue by *Aedes aegypti*"**

by Scott O'Neill

MAIN BUSINESS:

Overview of Medical Entomology at the Australian Army Malaria Institute.

By Stephen P. Frances

Australian Army Malaria Institute,
Gallipoli Barracks, Enoggera, Qld 4051

The role of the Australian Army Malaria Institute (AMI) is to provide the Australian Defence Force (ADF) with the best possible protection against vector borne diseases (VBD), especially malaria and arboviruses such as dengue, Ross River virus and Barmah Forest virus.

The institute has an interesting history. The forerunner to the unit was raised in 1943 in response to a high rate of malaria cases in Allied troops involved in World War II in the south west Pacific region. The Land Headquarters Medical Research Unit (LHQ MRU) was formed under the command of Brigadier Neil Hamilton Fairley with a mission to reduce the occurrence of malaria in Allied troops. The combination of personal protection measures against mosquitoes and showing that Atebrin was an effective prophylaxis against strains of malaria found in PNG, had a

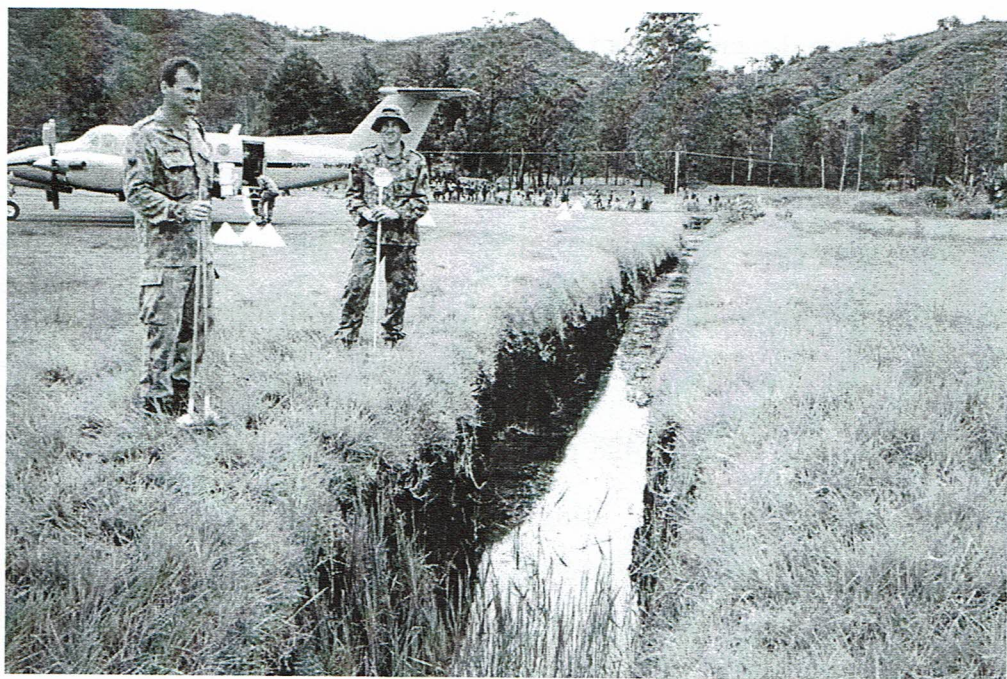
positive effect on reducing the incidence of malaria and increasing the morale of Australian soldiers. The LHQ MRU closed in 1946, at the conclusion of the war.

During the Vietnam conflict in the late 1960's the ADF was again adversely affected by VBD's, especially malaria. Prof Robert Black, who was Professor of Tropical Medicine at the School of Public Health and Tropical Medicine, University of Sydney, and a consultant to the Director of Medical Services in the ADF, suggested that the ADF should have a unit that could provide scientific evidence of the effectiveness of antimalarial drugs and protection and control of vectors. The Army Malaria Research Unit (AMRU) was established in 1968 and was located in Prof Black's department until 1974. In 1974, the unit moved to buildings at Ingleburn, southwest Sydney, and was located there until 1997. The principal entomologist during most of this time was Dr Tony Sweeney. In 1997, the unit moved to purpose built laboratories at Gallipoli Barracks, Enoggera, and was renamed the Australian Army Malaria Institute.

The second part of the talk was an overview of the recent and current work undertaken in the Department of Vector Surveillance and Control at AMI. A major surveillance project undertaken in the last 15 years was a

study of the distribution of *Anopheles* spp. mosquitoes in northern Australia and Papua New Guinea under the leadership of Dr Bob Cooper. We used vehicles, helicopters and fixed wing aircraft to make collections for about a month per year following the wet season. Both adult and larval collections were made using routine methods such as carbon dioxide baited traps and human landing collections to collect adults and ladles to collect larvae from a variety of habitats. A total of 620 sites in northern Australia were surveyed and 12 species of *Anopheles* were identified, including *An. farauti* s.s, 2 and 3 (Cooper et al. 1996). In Papua New Guinea, 794 sites were surveyed and 9 members of the *An. punctulatus* group were collected (Cooper et al. 2002) as well as an additional 7 *Anopheles* spp. (Cooper et al. 2006). The extensive data set obtained during these surveys is being used by Prof Tony Sweeney to develop Geographic Information Systems models that may be used to predict the parameters that determine the occurrence of *Anopheles* sp mosquitoes in different locations (Sweeney et al. 2006). Also more than 12,000 mosquitoes collected in PNG will be tested for the occurrence of malaria sporozoite proteins using an ELISA technique, and this should be completed by the end of this year.

Fig 1. Collecting *Anopheles* sp. larvae at Wapanamunda, PNG Highlands.



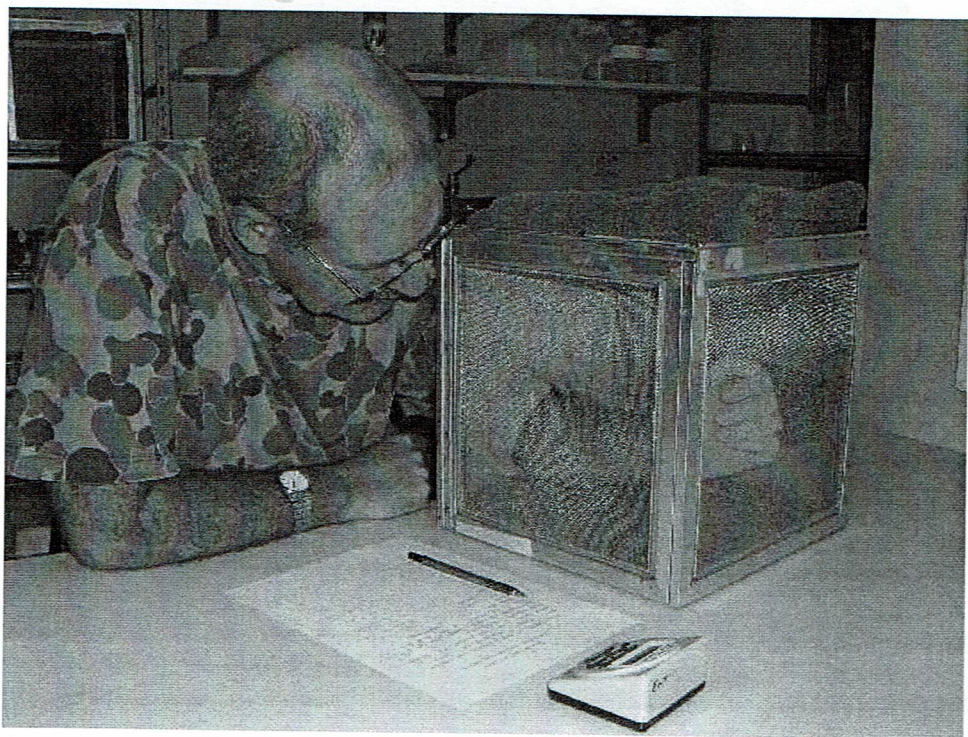
The extensive data set obtained during these surveys is being used by Prof Tony Sweeney to develop Geographic Information Systems models that may be used to predict the parameters that determine the occurrence of *Anopheles* sp mosquitoes in different locations (Sweeney et al. 2006). Also more than 12,000 mosquitoes collected in PNG will be tested for the occurrence of malaria sporozoite proteins using an ELISA technique, and this should be completed by the end of this year.

Longitudinal surveillance of military training areas in Queensland have been conducted to identify the main mosquito species found in these areas, and also the presence of the arboviruses Ross River virus (RRV) and Barmah Forest virus (BFV) in the mosquitoes collected. A 2-year study was conducted at Shoalwater Bay Training area, located north of Yeppoon, Qld, where carbon dioxide traps were placed in 15 locations for a single night per month. A total of 72,616 mosquitoes were collected, with the main species *Culex annulirostris* (52.9%), *Ae. vigilax* (18.4%) and *Cx. sitiens* (14.8%). 2,428 pools of mosquitoes were tested for the presence of RRV and BFV using a PCR method. Fifteen pools were identified with virus, 10 with RRV and 5 BFV (Frances et al. 2004a). A 1 year survey was recently completed at Wide Bay Training area, near Tin Can Bay, about 160km north of Brisbane. In this study 6 carbon dioxide baited traps were placed in separate localities for a single night each month. Over 9,000 mosquitoes were collected, with *Ae. vigilax* (37.9%), *Ae. multiplex* (17.5%), *Ae. kochi* (8.3%) and *Cx. annulirostris* (8.3%) the predominant species. Around 340 pools of mosquitoes will be tested for the presence of arbovirus using culture techniques.

Another of the main projects being undertaken in the department is the evaluation of personal protection measures against mosquitoes and other vectors of disease. The ADF currently recommends for protection against

mosquitoes that soldiers: 1. wear their uniforms correctly, including long sleeved shirts, long trousers and covered shoes, especially between dusk and dawn when mosquitoes are active, 2. have their uniforms and bednet treated with an emulsion of permethrin, 3. sleep under a permethrin-treated bednet, and 4. apply insect repellent containing 35% diethyl methyl benzamide (known as deet) to the exposed skin. A large number of laboratory and field studies have been conducted to determine the protection provided by various repellent formulations against different mosquito species.

Fig 2. Conducting laboratory assays of mosquito repellents



It was known that the response of a single species of mosquito to a repellent active ingredient is not always how other species would respond. Laboratory and field studies have shown that most repellent active ingredients and formulations provide a shorter duration of protection against *Anopheles* sp. mosquitoes than is provided against culicine mosquitoes such as *Culex* and *Aedes* sp. Field tests showed that the ADF deet repellent provided only 1-2 hours protection against *Anopheles* sp. mosquitoes, compared with 7 or more hours protection against *Cx. annulirostris* and *Verrallina lineata*. During the same tests, a new active ingredient called Picaridin was shown to provide similar protection against mosquitoes as deet formulations (Frances et al. 2004b).

An important issue in the effectiveness of insect repellents is the user acceptability of formulations. In 2001, it was shown that only 20% of soldiers used the ADF deet formulation, and they preferred commercially available formulations. Using funds from a small grant from Queensland Health, a comparative evaluation of commercially available formulations was conducted. Laboratory and field evaluation of 8 commercial formulations, 2 military formulations and 3 simple solutions were tested in the laboratory against 4 mosquito species, *An. farauti*, *Ae. aegypti*, *Ae. vigilax* and *Cx. annulirostris*. The results showed a differential response between species, with the shortest protection time provided against *An.*

farauti, then slightly longer protection against *Ae. aegypti* and the longest protection against *Ae. vigilax* and *Cx. annulirostris*. Six formulations were tested at Redcliffe airport.

Fig 3. Field evaluation of mosquito repellents, Mt. Bunday, NT, March 2003.



These were Skintastic (containing 7% deet), RID (10% deet), Aerogard (12% deet), Autan Repel (9.3% Picaridin), Autan Army (19.2% Picaridin) and Bushman (80% deet). The main species of mosquito collected during the trials was *Cx. annulirostris*. Bushman provided >8 hours of protection against mosquitoes, while RID (5hr), Aerogard (5hr), Skintastic (4hr) and Autan repel (3hr) provided shorter protection. The study showed that commercial repellents provided good protection against *Cx. annulirostris*, an important vector of arboviruses in Australia (Frances et al. 2005).

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People and Projects

Department of Primary Industries and Fisheries, Forest Entomology

Ross Wylie and **Murdoch De Baar** have accepted Voluntary Early Retirement (VER) packages effective immediately.

Ross spent seven years as a Forest Entomologist in Papua New Guinea before commencing in the Queensland Department of Forestry in 1974. The University of Queensland awarded him a PhD for his thesis 'Native tree dieback in southern Queensland: its occurrence, severity and aetiology' in 1987. He is the patron saint of koalas! **Ross** was involved in large-scale salvage operations to inhibit degrade of fire-damaged logs by insects and fungi in 1995. He has worked extensively in the Asia/Pacific region on numerous aspects of Forest Entomology, including pests and diseases of acacias and eucalypts, biosecurity, and management of mahogany shoot borers. He was President of the Entomological Society of Queensland in 1979 and Chaired the Scientific Advisory Panel for Fire Ant. **Ross** received the Australia Day Medal for achievement in 1999.

Murdoch commenced in the Department of Forestry in 1965 as a Forest Trainee and retires as a Senior Forest Entomology Technician. He has been Curator of the Queensland Forest Insect Collection (QFIC) since 1974. **Murdoch** is a great naturalist with extensive knowledge of the pests of standing trees and timber. He has specialist experience with mistletoe and mangrove insects and a passion for Lepidoptera taxonomy (Papilionoidea and Hesperioidea). He was Councillor for the Entomological Society of Queensland for the years 1984 to 1988.

Brenton PETERS



The 8th Invertebrate Biodiversity & Conservation Conference 2007 will be held at the Queensland Museum, Brisbane, Queensland, Australia
3-7 December 2007.

The overall theme is **“Pacific Priorities”**, with subthemes of:

1. ‘New Caledonia’
2. ‘Fire’
3. ‘Marine Megadiversity’
4. ‘Survival in Suburbia’
5. ‘Mine Site Restoration’

To ensure you receive more information as it becomes available please register your interest on www.ibcc2007.org/.

Or contact Sally Brown, 8IBCC Conference Secretariat
PO Box 108, Kenmore, QLD 4069, Australia
Sally.brown@uq.net.au



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Yours sincerely

Matthew Purcell (Hon. Treasurer)

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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.

Back cover gives contact details of individual council members.

NOTICE OF NEXT MEETING

The next meeting of the Society will be held at **5:30 pm** on Monday, 13th November in Room 388, GODDARD Building, University of Qld. The main business will be a talk by Scott O'Neill entitled "Population age structure and modulating the transmission of dengue by *Aedes aegypti*".

VISITORS ARE WELCOME

This precedes a lecture by Professor Paul Erlich in the IMB Building University of Queensland at 7 pm

DIARY DATES 2006

Meetings held usually every 2nd Monday of the Month

13 Nov Scott O'Neill Population age structure and modulating the transmission of dengue by *Aedes aegypti* **5:30pm start!!!**

11 Dec Notes and Exhibits

HONORARY LIFE MEMBERS OF THE SOCIETY

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