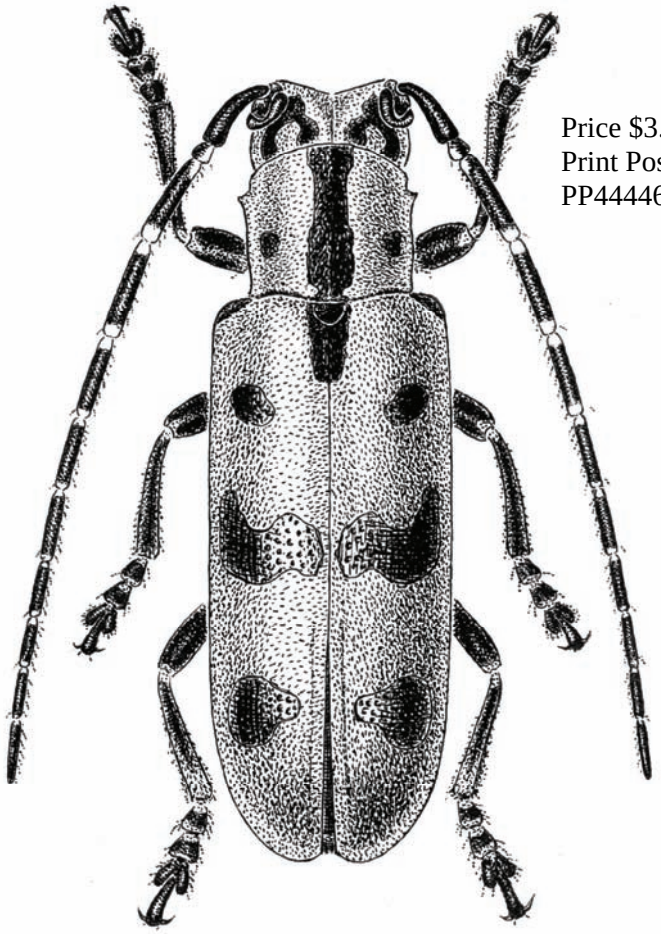
ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

NEWS BULLETIN



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THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

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Front cover illustration: Habitus of *Zygrita diva* Thomson (Coleoptera: Cerambycidae), the lucern crownborer—artist William Manley, scanned from original illustration ©Queensland Department of Employment, Economic Development and Innovation

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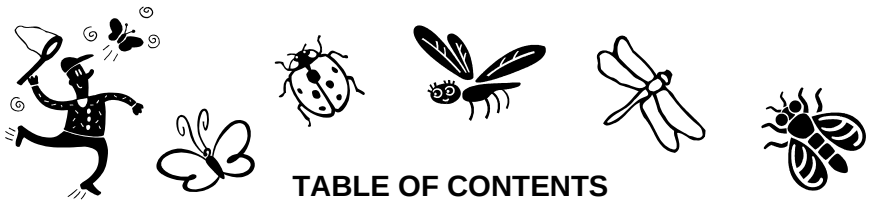

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The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has striven to promote the development of pure and applied entomological research in Australia, particularly in Queensland. The Society promotes liaison among entomologists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

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 (Coleoptera). Its magnificent purple and green colouration makes it one of the most attractive beetle species in Australia. It is restricted to the rainforests of northern Queensland.

Minutes of General Meeting

Held in the Large Conference Room, CSIRO Entomology, Long Pocket Labs, 120 Meiers Road, Indooroopilly, on Monday September 13, 2010.

Chair: Matt Purcell

Attendance, Murdoch De Baar, Anne Bourne, Alejandro Costamagna, Tim Heard, Lynita Howie, Andrew Hulthen, Ross Kendall, Judy King, Penny Mills, Geoff Monteith, Justine Murray, Matt Purcell, Don Sands, Nancy Schellhorn, S. Schooler, Richard Zietek.

Visitors: Purwatiningsih, Yusup Hidayat.

Apologies: Justin Bartlett, Richard Bull, Lyn Cook, Gio Fichera, Christine Lambkin, Geoff Thompson, Desley Tree, Federica Turco.

Minutes: The minutes of the last General Meeting were circulated in News Bulletin Vol. 38, Issue 5, August .2010.
Moved the minutes be accepted as a true record: Geoff Monteith.
Seconded: Penny Mills.

Nominations for Membership:
The following nominations for general membership were received and approved by Council, and are presented for election:
General Membership: Mr Alex Stolarski, Tailem Bend, S.A. 5260. Nominated by Don Sands, Seconded by Geoff Monteith.
Dr Sarah Boyer, Biology Department, Macalester College, St Paul, Minnesota USA 55105. Nominated by Owen Seeman, seconded by Robert Raven.
Dr Dan Bickel of the Australian Museum. Nominated Christine Lambkin, Seconded Geoff Monteith.
All were elected unanimously by show of hands.

General Business:
1. The President congratulated Dr Don Sands on being awarded the 2010 Australian Natural History Medallion, which is conferred annually by the Field Naturalists Society of Victoria. The Medal was awarded to Don for his contribution to biodiversity conservation and education.
2. Geoff Monteith advised members that the next Bug Catch will be held on October 9th at Bribie Island. Members wanting to take part should contact Geoff for details.

Main Business

The role of insects in the breakdown of leaf litter and its implications for fire management and weed control.

Dr Don Sands, CSIRO Research Fellow

Many African grasses were introduced into Australia to increase the biomass of pastures for livestock and for drought tolerance. They also benefited pastures by reducing soil erosion (greatly assisted by dung beetles!) and competed with unwanted species including toxic weeds. When evaluated for introductions, they were not expected to move from pastures or rangelands, invade ecosystems or affect fire regimes on rural lands. However, since they became established, many African grasses have become invasive and, as a result, have displaced indigenous plants, destabilised ecosystems and increased the flammability of the sub-surface and lower-canopy plant communities. Some species may even reduce pasture quality (e.g. love grass) and others restrict livestock location ('round-ups') on farms; observing animals made almost impossible by the taller species (e.g. Gamba grass).

In subtropical Queensland more than 7 species of invasive African grasses have led to progressive losses of ecosystem components by displacing indigenous plants. Small poorly-mobile animals

(especially birds, reptiles and invertebrates) have also been extirpated by exposures to frequent and unseasonal fires in the grass-invaded systems. The worst affected areas are western grasslands but inland and coastal woodlands and wetlands are also invaded; for example, old-growth brigalow, rainforest and wet woodland ecosystems. African grasses not only invade the understory but some ascend into canopies and change flammability. For example, buffel grass has displaced many "non-flammable" or "weakly-flammable" inland ecosystems and converted them into highly flammable plant communities with flammable corridors. In northern Australia, Gamba grass increases the height and intensity of fires in woodlands, killing all shrubs and lower plant layers as well as trees forming canopies. In sub-tropical and temperate eastern regions, invasive grasses are not so well recognised but molasses, signal and green panic grasses have become seriously invasive in woodlands and are displacing plant communities and increasing the threats of fire to whole ecosystems.

Detritivores reduce flammability. The flammability of African grasses in Australia may, in part, be attributable to the few Australian herbivores and detritivores that have adapted to feed on them. Australian grasses by comparison are hosts for many Orders of insects and the breakdown of leaf-litter is accompanied by the diversity of insect groups. Decomposers of leaves reduce leaf accumulation and with fungi, products bind sub-surface organics within soils to help prevent erosion, re-cycle nutrients and breakdown surface tension in soils. Leaf-decomposing insects are also essential in the food chains for small animal insectivores but effective leaf-litter break-down and the flow-on nutrient benefits of recycling is reduced by frequent burning (Zborowski and Edwards 2007). Dead-leaf shredders include springtails (Collembola), Protura, Diplura, moths - Oecophoridae, Tortricidae and Hepialidae, beetles - Clytrinae (*Cryptocephalus*), Cockroaches (Blattodea) and Termites (Isoptera). Major detritivores within particular plant communities include: (i) dry eucalypt woodlands - moths (Oecophoridae; many genera & spp., Tortricidae: Epitymbiini), leaf beetles (Cryptocephalini) and Isoptera (*Microcerotermes*, *Ephelotermes*, *Hesperotermes*, *Nasutitermes)*; (ii) in rainforests & moist forests - cockroaches (Blattoidea; *Geoscapheus*, *Cryptocercus*) and moths (Oecophoridae: *Barea*), (iii) in grasslands - moths (Oecophoridae) and termites (Isoptera: *Drepanotermes*, *Lophotermes*, *Nasutitermes*, *Tumulitermes*) and (iv) in heathlands - moths (Oecophoridae & Tortricidae); Isoptera & others that are not well documented.

Insect conservation. The following extracts are courtesy of M. Horak & E. Edwards (pers. comm.): "Oecophorid moths make up 20% of Australian Lepidoptera species (*ca* total - 22,600 spp., ca 11,000 moths, 400 butterflies described) with 250 oecophorid genera and at least 5,000 moth species occur in Australia. Their ecological niches are mostly very narrow (e.g. eucalypts, Myrtaceae & native grasses) with up to 400 species per ecosystem. Oecophorid moths are winter breeders; the moths are poorly mobile and susceptible to extirpation from frequent burning practices. Without these moths, leaf litter & 'fuel' builds up rapidly. Most feed on dead myrtaceous plants, breaking down the whole leaf, the first step in nutrient recycling. Most pupate in sub-surface litter – a few underground - and they breed in the cooler the winter months (moths most selected for "cool burns"!)." They can survive only if some of their refuges are excluded from burning and representing each ecosystem. Oecophorids are primary nutrient re-cyclers from dead leaves and provide a reservoir of prey for small animal insectivores in Australia (and some in New Zealand).

Fig. 1. Gunba grass: invades and displaces northern pastures, prevents livestock observation, creates poor quality pasture and is extremely flammable.

Fig. 2. Infestations of Signal Grass spread from roadsides after fire and open up the forest to light.

Fig. 3. Guinea Grass, *Panicum maximum* : invasive on east coast; edge effects and canopy invasion.

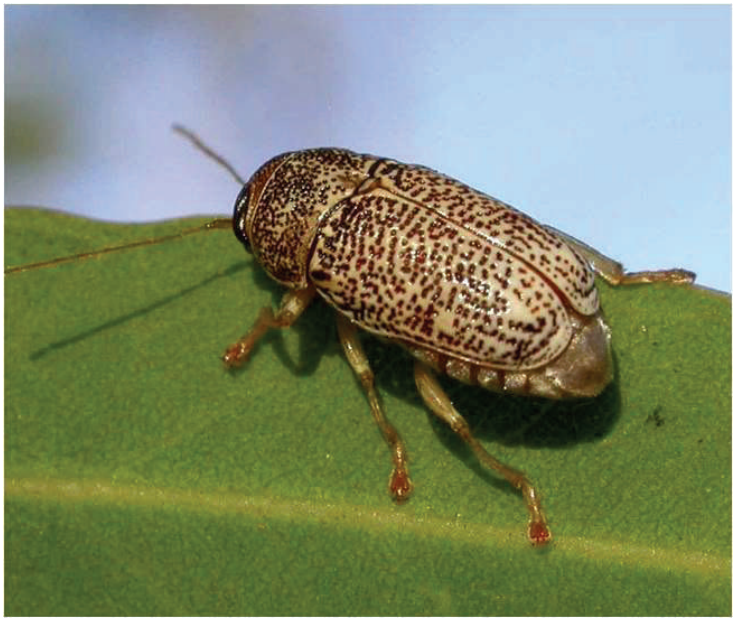

Fig. 4. Detritivore of Australian *Eucalyptus* : cryptocephaline beetle (Coleoptera: Chrysomelidae).

Fig. 5. Detritivore of Australian *Eucalyptus* : Larva of oecophorine moth (Lepidoptera: Oecophoridae).

Indigenous plants, African grasses and fire. In natural ecosystems some, *but not all*, plants can survive being burnt by regenerating from roots, stems, seeds in soils or seeds freed from capsules that open after fires, or open on senescing stems (e.g banksias, some hakeas etc). Some plants may "benefit" from fires – e.g. seeds germinate and stems regrow but many plants are easily exterminated if fire frequencies increase (e.g ground orchids) and seed recruitment (e.g. by birds) is prevented. Ecosystems affected by fire are frequently judged "healthy" by their visual apparency but regrowth of vigorous and abundant fire-adapted species after a fire can confuse judgement by the observers who may not have seen the original biodiversity.

The failure to recover after fires and proliferation of African grasses obscures the recovery process and rate of regeneration by indigenous species. Smaller, rarer or less-apparent plants and animals, especially sedentary invertebrates with specific insect food plants are easily overlooked. Native grasses, sedges, orchids (and their insect pollinators), small and ground-cover shrubs are particularly vulnerable, as well soil invertebrate biodiversity, including detritivores. In healthy ecosystems the lower layers in woodlands support the highest insect biodiversity and these communities are also vulnerable to African grass invasions accompanied by frequent fires.

Increasing fire frequencies in woodlands promotes growth of fire-adapted plants and invasive grasses, preventing shrubs from maturing, producing seeds or accumulating of seed banks – all items essential to maintain insect biodiversity and part of food-chains. Short-lived plants (e.g acacias) may not have time to senesce or develop the architecture for those herbivorous insects such as stem borers or species adapted to old-growth vegetation. With increased fire frequencies, plants seeds carried by birds may not have sufficient time for re-introductions but no ecosystems can be sustained in the presence of invasive flammable grasses when accompanied by frequent burning schedules. Sub-surface invertebrates are particularly susceptible.

The question of how to control of unwanted African grasses and to prevent them from invading Australian ecosystems is a serious challenge for future managers. First, costs and benefits of control measures will be needed to assess the overall advantages of keeping such vigorous invaders in their current densities. Next, what are the chances of finding control measures that do not have unwanted and unexpected impacts? Is there potential to find sufficiently specific agents that could be introduced to control the grasses without detriment to the livestock industries and equestrian parties? Based on knowledge of Australian detritivores are there potential agents that could reduce the build-up of dry leaf litter from African grasses? Ultimately, biological control could be a safe way to reduce the vigour of these invasive African grasses, to benefit ecosystem recovery without affecting the grazing industry. Meanwhile, invasive and flammable African grasses have rapidly become *major threatening processes* affecting all terrestrial ecosystems in Australia.

Reference

Zborowski, P. and Edwards, E. (2007). A guide to Australian moths. CSIRO Publishing.

Vote of Thanks: Tim Heard

The Chair advised members that the next General Meeting will be on Monday October 11 at 12 noon at CSIRO.

Notice of Next Meeting

Monday 11th October, 2010, 12pm

~

‘The Evolution of a Bbutterfly Farmer”

a presentation by

Ross Kendal

Butterfly Encounters Pty Ltd

~

Large Conference Room
CSIRO Long Pocket Laboratories
120 Meiers Rd, Indooroopilly

ALL WELCOME
(please sign in at reception before meeting)

News from USDA ARS Australian Biological Control Laboratory

Anne-Marie MacKinnon has joined the ABCL group for a one year term while finishing of her UQ masters thesis. Anne-Marie will help out with the impending move to Boggo Road and will assist with the genetic characterisation of several insect groups of interest to ABCL. **Jeff Makinson** and **Brad Brown** conducted collection surveys of the *Lygodium microphyllum* stem-boring moth in Hong Kong in August/September. Hong Kong has extensive national parks and natural areas where *Lygodium* is quite abundant. Stem-boring larvae collected from the field have been reared to adult in quarantine in Australia and have subsequently oviposited on potted plants. **Gio Fichera** has also joined the USDA team full-time for a short period (until November) and has been assisting with rearing of the Melaleuca bud weevil, *Haplonyx multicolor*, which was then shipped to quarantine facilities in Florida for testing as a biological control agent of *Melaleuca quinquenervia*.

NOTICES

Insect rearing cages to give away

A number of ex Queensland Forestry insect rearing cages are available to give away.

Pick-up only from 80 Meiers Road, Indooroopilly, during working hours, before 15th October.

Contact Manon Griffiths: 0407 670 731
manon.griffiths@deedi.qld.gov.au

Description:

- Aluminium insect cages
- 650mm X 650mm X 650mm
- Solid base, top and sides
- Front and back with screen (front removable for access)
- Internal removable shelf

Strictly limited number available!

Upcoming Entomology Course

entomology Curriculum australia

Summer Semester 2010

Distance based online (29 Nov - 14 Jan)
Plus
Residential component (17 - 21 Jan 2011)
The University of Queensland, St Lucia

BIOL 3232 Insect Identification & Taxonomy

Learn to identify insects for:

- biosecurity & quarantine
- environmental monitoring
- biocontrol & pest management
- biodiversity assessment
- conservation management
- personal interest

Enrolment Due
October 31st 2010

Cross-institutional enrolments
- Enroll as a part of your degree at any university

Non-award
- Enrol for professional development or personal interest

For more information and how to enrol:
www.entomology.edu.au
Or contact:
Rebecca Morley
r.morley@uq.edu.au
(07)3365 2656

Entomological Society of Queensland
Nomination for Membership Form

www.esq.org.au

Title________ First name________________________________

Surname ____

Email ____

Address____

___________________________postcode_____________Date_______________

Nominated by ____

Seconded by ____

☐ General membership **$30 AUD**	I would like to receive my News Bulletin
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or Please charge my : ☐ Bankcard ☐ Visa ☐ Mastercard

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Entomological Society of Queensland
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Indooroopilly
Qld. 4068

Please retain the receipt below for your records

Entomological Society of Queensland—Receipt for payment of membership fees

Name ______________________________________ Date ____________

Amount paid $_________________ for year/s ______________

DIARY DATES 2010

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

MAR—Monday 8th	Dr Chris Lambkin (QM)	Presidential Address & AGM
APR—Monday 12th	Dr Nancy Schellhorn (CSIRO)	Landscape Scale Pest Management in Vegetable Crops
MAY—Monday 10th	Dr Martin Shivas (BCC)	Brisbane's mangrove-breeding pest midge *Culicoides ornatus*
JUN—Tuesday 15th	Student Award + Notes and Exhibits Session	
AUG—Monday 9th	Dr Alejandro Costamanga (CSIRO Post Doc)	Impacts of established natural enemy assemblages on soybean aphid in Nth America
SEP—Monday 13th	Don Sands	The role of insects in the breakdown of leaf litter: implications for fire management and weed control
OCT—Monday 11th	Ross Kendal (Butterfly Encounters Pty Ltd)	The Evolution of a Butterfly Farmer
NOV—Monday 8th	Bill Crowe (AQIS)	Australia's Most Unwanted
DEC—Monday 13th	Notes and Exhibits + BBQ	

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.

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	Institutions	**AU$37pa**
ASIA/PACIFIC:	Individuals	**AU$40pa**
	Institutions	**AU$45pa**
ELSEWHERE:	Individuals	**AU$45pa**
	Institutions	**AU$50pa**

Subscriptions should be sent to the Business Manager,
The Australian Entomologist PO Box 537, Indooroopilly QLD 4068.

THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

NEXT MEETING

12:00pm ~ MONDAY 11th October
Large Conference Room
CSIRO Long Pocket laboratories
120 Meiers Road Indooroopilly

Main Business:

'The Evolution of a Butterfly Farmer'

a presentation by

Ross Kendal

Butterfly Encounters Pty Ltd

VISITORS WELCOME
(please sign in at reception before meeting)

NEXT NEWS BULLETIN

Volume 38, Issue 7 (October 2010)
due early November

CONTRIBUTIONS WELCOME

DEADLINE - Thursday 21st October
Send your news/stories/notices to the editor
(justin.bartlett@deedi.qld.gov.au)