



# Tarsus

June  
2006

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CIRCULAR OF THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES Inc

## Next Meeting of the Entomological Society of NSW Inc

**Where:** Meeting Room 2, Ermington Community Centre, River Road, Ermington

**When:** 7.30 pm on Wednesday, 7 June 2006

**Speaker:** Mark Greco, Centre for Plant and Food Science, UWS

**Title:** Management of Australian Stingless Bees in Greenhouse Environment

Australian stingless bees exhibit polylecty, floral constancy, opportunistic feeding and are stingless which makes them ideal candidates for working together with humans and for improving crop yields. Studies to determine the potential of *Trigona carbonaria* and *Austroplebeia australis* have been undertaken to determine their potential as pollinators within the greenhouses environment. It was found that these species use different foraging strategies that impact on their ability to pollinate crops. *T. carbonaria* forage continuously all day, whereas *A. australis* forage intensively for short intervals throughout the day.

*T. carbonaria* will commence foraging at a light intensity of 208 Lx, whereas *A. australis* will not commence foraging until light intensity has reached 4000 Lx. Foraging temperatures for *T. carbonaria* and *A. australis* ranged from 19 °-31 °C and 26 °-30 °C, respectively.

*T. carbonaria*'s foraging strategy improved the fruit yield of *Capsicum annuum* plants grown in greenhouses by more than 18%, whereas no improvement in yield resulted from the use of *A. australis*. Microscopy of flowers pollinated by *T. carbonaria* showed styles with more pollen tubes in them than in those of flowers pollinated by *A. australis*. Also, flowers pollinated by *A. australis* had stigmas that were



damaged from over-foraging. Improved hive designs that emulate natural nests and that are easy to handle are being evaluated for their effects on colony health and honey production. Improvements in hive designs will allow managed *T. carbonaria* colonies to better cope in a greater range of Australian climates and should allow honey production in greenhouses to continue all year as it does in the tropics. Macro-X-ray CT has been shown to be an effective, non-invasive method for visualising internal nest contents thereby allowing colony health and honey production to be monitored. Research continues on 3D visualisation of Australian stingless bees using micro- and nano-CT scanning. These techniques will provide new information on the morphology of Australian stingless bees.

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NOTICE: Statements made in the Circular do not necessarily represent the views of the Entomological Society of New South Wales Inc.

TARSUS is prepared for ESNW by Simone McMonigal Email: [smcmonigal@hotmail.com](mailto:smcmonigal@hotmail.com)

## PRESIDENT'S MESSAGE

The 35th edition of General and Applied Entomology will be published in the next month or two. Thanks are due to members that forwarded articles for publication and to the Society's Journal Editor, Garry Levot, who managed the complicated task of producing the Journal.

At our most recent Council meeting, the need to update the constitution was identified as a major priority. The last version was produced in 1995. Whilst most of the document remains relevant, a number of pressing changes need to be made. One of these is the requirement to obtain an external audit each year of our financial affairs. In times when there were fewer pressures on our finances, the cost of an audit, now around \$500, was manageable. Now however, in addition to new costs such as venue hire and public liability insurance, we can ill-afford the expense. The intention is to delete the need for an external audit from the Constitution.

Changing the Society's audit requirements was just one amendments that was identified. When Council has put together a list of amendments they will be placed in TARSUS for your consideration, prior to being voted upon at the 2007 Annual General Meeting.

Martin Horwood  
President

## LAST MEETING



Dinah Hales with some rose aphids found on a recently purchased seedling



Close up of the rose aphids



Ted Taylor with Singapore ants found at his local hairdresser



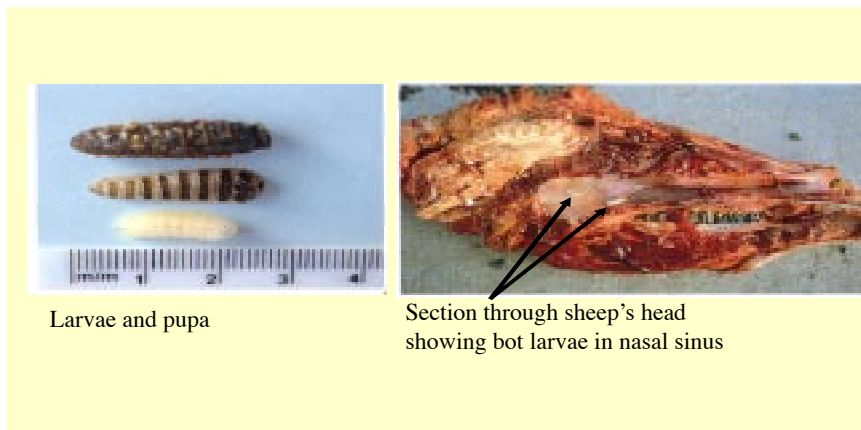
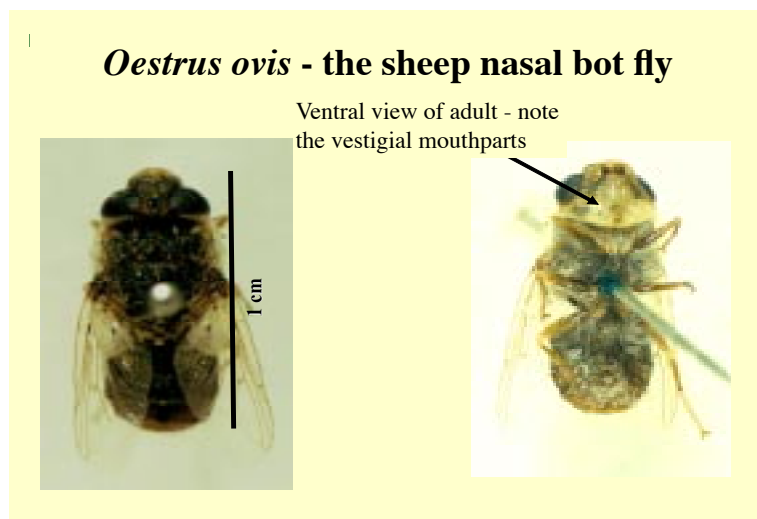
Wood billets taken from *E. nicholi*, showing damage from a cossid moth and longicorn beetle.

# INSECT OF THE MONTH

## *Oestrus ovis* – Garry Levot

A glance at the family listings under Diptera in *Insects of Australia* reveals that only three species of oestrid flies are found in Australia and two of them are introduced. One is the native *Tracheomyia macropi* - a nasal bot that infests macropods. The second is the seductively named *Cephalopina titillator* which infests feral camels and the other is the introduced sheep nasal bot fly, *Oestrus ovis*. This fly exists throughout Australia wherever sheep are farmed. It causes little production loss and is rarely a serious disease but larvae can cause sheep much discomfort and the activity of the adult flies certainly stirs up the stock when they are about.

The adult, like other bots has vestigial mouthparts and consequently does not feed. During its short life the female must mate and lay if she is to contribute her genes into the next generation. Females are ovoviviparous (lay eggs capable of hatching immediately) onto the nostrils of sheep. I've observed the sheep to become agitated and put their noses on the ground when the drone of nasal bot flies was heard. Clearly this is not completely effective and the young larvae deposited around the nose migrate inside the nostrils to the sinuses where they attach themselves to the mucous membranes by strong mouth hooks. Here the larvae remain for several months. Up to two dozen of the 20 mm long larvae have been recorded from a single host. When full size the larvae detach and are 'sneezed' out. It is quite an alarming sight to see these fat larvae in sheep snot! The adult flies are most active during the summer months and during the winter the population mostly comprises of larvae.



The photographs of the adult fly were taken by Lowan Turton.  
The lower two photographs are from A. Brightling – Sheep Diseases, Inkara Press.

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# TIMELINE OF ENTOMOLOGY

## 1700–1750

### The development of entomology in the 18th century

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In the 18th century three kinds of entomological text appeared. Firstly there were illustrative works — showy insects often beautifully coloured whose purpose was sensual. An example is afforded by Maria von Merian's *Metamorphosis Insectorum Surinamensis* (1705).

Secondly were descriptive and systematic (classificatory) works usually confined to what are now known as the Insecta. Of the second kind Carl von Linne's *Systema Naturae* published in 1758 at Uppsala stands proud. In this work the binomial system was finally settled on.

Thirdly were works on developmental biology (life cycles), internal anatomy, physiology and so on. These often covered other invertebrate groups. An example is René Antoine Ferchault de Réaumur's *Memoires pour Servir a L'Histoire des Insectes*.



René Antoine Ferchault de Réaumur.

1702

James Petiver publishes a celebrated butterfly work *Lepidoptera of the Philippine Islands*.

1702 is also the date of the world's oldest pinned insect specimen; a Bath White butterfly preserved in Oxford University Museum.

1705

Maria Sybilla Merian Wikisite in German *Metamorphosis Insectorum Surinamensis* (Transformations of the insects of Surinam) published by G. Valck in Amsterdam. It is a masterpiece of both art and science and Maria Merian, "the mother of entomology", was the first to record the full life cycle of many species of butterflies and moths.

John Ray publishes *Methodus Insectorum*.

1710

John Ray publishes *Historia insectorum* in English, *Study of Insects*. This is the first attempt at a systematic classification of insect species.

Francois Xavier Bon de Saint Hilaire writes on the use of spider silk as a textile. This was the first such research.

1717

James Petiver publishes a book on British butterflies entitled *Papilionum Britanniae*.

1720

Eleazar Albin publishes *A Natural History of English Insects*.

Charles de Geer born

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## TIMELINE OF ENTOMOLOGY CONT.

1730

Maria Sybilla Merian publishes *Die Europäische Insecten*

Moses Harris (1730–1788) born in England. Harris was a pioneer of the use of wing venation in insect systematics.

1731

Mark Catesby publishes part one of *The Natural History of Carolina, Florida and the Bahama Islands*.

1734

Scientist René Antoine Ferchault de Réaumur publishes the first *Mémoires pour Servir à L'Histoire des Insectes* in English, “Memoirs Serving as a Natural History of Insects”. This is a founding work of entomology, and one of the most important of all zoological works of the 18th century.

1737

Microscopist Jan Swammerdam’s *Biblia naturae* or “Book of Nature” is reissued. Describing his studies of insects, it is a founding work of entomology.

1738

Adolph Modeer born.

1739

Zoologist John K’Eogh publishes *Zoologica Medicinalis Hibernica*, in English, “Zoological Medicine in Ireland”.

1745

Johann Christian Fabricius (1745–1808) is born. Fabricius worked on all insect orders.

Charles Bonnet published his first work on entomology. Entitled *Traité d’insectologie*, it collected together his various discoveries regarding insects.

1746

August Johann Rosel van Rosenhof publishes *Insecten-Belustigung*, in English, “Insect Entertainment”.

1748

Georg Dionysus Ehret publishes first part of *Plantae et Papiliones Depictae*.

James Dufield publishes *English Moths and Butterflies*.

1749

Benjamin Wilkes publishes *English Moths and Butterflies*.

Georges-Louis Leclerc, Comte de Buffon *Histoire naturelle, générale et particulière* (1749–1788) commenced— 36 volumes and 8 additional volumes published after his death by Bernard Germain Étienne comte de La Ville-sur-Ilлон La Cépède. Until the publication of this encyclopedia it was thought that all animals were created together by God about 6,000 years ago. Not only did this 44 volume encyclopedia contain all biological knowledge of its time, it offered a different theory. 100 years before Darwin, Buffon claimed that man and ape might have a common ancestor. His work also had significant impact on ecology.

# SEMINAR SERIES 2006

Date	Speaker	Title
7 June	Mark Greco Centre for Plant and Food Science UWS	Application and management of Australian Stingless Bees
5 July	To be advised	
2 August	To be advised	
6 September	Greg Holwell Behaviour Ecology Lab Department of Biological Sciences Macquarie University	Mating behaviour in <i>Ciulfina</i> praying mantids: Who needs cannibalism?
4 October	To be advised	
1 November	Dr Cameron Webb Medical Entomology Department Westmead Hospital	Mosquito Surveillance Techniques
6 December	To be advised	

## Venue:

Meeting Room 2  
Ermington Community Centre  
10 River Road, Ermington

## Meetings start at 7.30pm

Talks run for around 45 minutes, with 10 minutes for questions.

Afterwards a supper is provided.

Guests are most welcome.

## Getting there:

**By Car:** From Victoria Rd turn into Spurway St (head towards Parramatta River). Turn right into Jackson St then left into River Rd. If heading north on Silverwater Rd, turn right into Victoria Rd then proceed as above. If heading south on Silverwater Rd take the Parramatta off ramp, cross Victoria Rd and proceed into River Rd. If you miss the off ramp, turn left into South St, then left into River Rd.

**By Bus:** Routes 525, 523 and L20 depart from Argyle St near Westfield shopping centre near Parramatta station. Routes 523 and L20 depart from West Ryde station. Get off at the Ermington shops. River Rd passes between the supermarket and the hotel.

(Information: Martin Horwood [martinh@sf.nsw.gov.au](mailto:martinh@sf.nsw.gov.au) phone 02 9872 0111)

# COUNCIL MEMBER PROFILE

## Mark Greco - Councillor

Mark K. Greco, BSc, PhD candidate  
Centre for Plant and Food Science,  
UWS (Hawkesbury Campus), Richmond, NSW



Mark is a member of the Australian and N.S.W. Entomological Societies and has been involved in the management and application of Australian stingless bees and *Apis mellifera* since 1995. As member of the Macarthur Bee Keepers Association, Mark was a past newsletter editor and still keeps two hives of *Apis mellifera* at his residence. As an undergraduate his major work was on the uses of Australian stingless bees in agriculture. Mark was an active participant in the first survey of Australian stingless beekeepers in 1999 and has contributed to the Whitley award winning field guide 'Native bees of the Sydney region' by Anne Dollin, Michael Batley, Martyn Robinson and Brian Faulkner. As part of his current research on Australian native bees, Mark has had a paper published in the international Journal of Apicultural Research on stingless bee colony health using x-ray computerised tomography (CT) and has had a second paper accepted for publication on the management of bluebanded bees using CT as a diagnostic tool in the prestigious journal "*Entomologia Experimentalis et Applicata*". As a member of the Australian Native Bee Research Centre, he continues to manage stingless bee hives for the propagation and preservation of the species.

### **2006 COUNCIL MEMBERS**

President - Martin Horwood  
Vice President - Barbara May  
Secretary - Mary Ann Terras  
Treasurer - Ted Taylor  
Business Manager - Gith Strid-Nwulaekwe  
Public Officer - Mary Ann Terras  
Editor - Garry Levot  
Circular Editor - Simone McMonigal  
Councillors - Graeme Smith, Robin Parsons,  
Warrick Angus and Mark Greco

### **SOCIETY POSTAL ADDRESS**

C/- ENTOMOLOGY DEPARTMENT  
THE AUSTRALIAN MUSEUM  
6 COLLEGE STREET  
SYDNEY NSW 2000

### **WEB ADDRESS**

<http://www.entsoctsw.netfirms.com>

**COMPETITION!**

**"UP CLOSE AND SPINELESS"**

AUSTRALIAN MUSEUM'S PHOTOGRAPHIC  
COMPETITION  
(SEE ATTACHED BROCHURE  
FOR DETAILS)

### **MEMBERSHIP FEES 2007**

ORDINARY MEMBERS	\$50 (\$45 if paid by 1/1/07)
COMPANY ASSOCIATES	\$60
STUDENT MEMBERS	\$25 (\$20 if paid by 1/1/07)
CORPORATE MEMBERS	\$30

Title photo: David Ivan Mesa Jaen