



May  
2010  
  
*Issue*  
*No. 591*

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, 5<sup>th</sup> May 2010

### DAWSON'S BURROWING BEE

**Warrick Angus**

Manager of the Australian Fauna Precinct  
Taronga Conservation Society Australia

Many of you would have heard of the latest BBC wildlife series - "Life". This acclaimed series which focuses on extreme animal behaviour follows the visual masterpieces of its predecessor "Planet Earth". Narrated by Sir David Attenborough, "Life" is a ten part series with each episode focusing on a particular wildlife taxa. Episode 6 is "The Insects" and features a short but stunning look at one of Australia's unique bees - Dawson's Burrowing Bee.

Warrick Angus was fortunate enough to assist with the filming of this bee in 2007 near Carnarvon in Western Australia. At this talk Warrick will give a brief overview of the bee's natural history and then present a Behind the Scenes look at how they filmed these fascinating bees.



# Reports from AGM 2010

## FINANCE & MEMBERSHIP

Ted Taylor

**THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES INC**  
STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDED 31 DECEMBER 2009

**GENERAL FUND**

INCOME

Members subscriptions received and receivable	\$3,750.00	
Bank Interest	\$553.41	
Donations	\$210.00	\$4,513.41

PAYMENTS

Web Site Hire	\$220.00	
Insurance – Public liability	\$771.01	
Meeting Room hire	\$230.85	
Ent. Soc. of Australia affiliation fee	\$57.75	
Incorporation Statement lodgement fee	\$45.00	
Supper expenses	\$27.59	
Speakers' Gifts	\$55.99	
10 copies of insect book	\$87.50	
Postage expenses	\$17.25	\$1,512.94
	<b>Result for 2009</b>	<b>\$3,000.47</b>

**PUBLICATION FUND**

INCOME

Journal income received and receivable		\$3,085.00
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Less: Cost of Journal

Opening stock at Committee's valuation	\$4,320.00	
Journal postage and stationary	\$372.60	
Printing J. Vol. 37	\$3,206.61	\$7,899.21

Plus:

Closing stock at Committee's valuation	\$3,320.00	
Company Associate Members	\$120.00	
Bank Interest	\$8.55	\$3,448.55
	<b>Result for 2008</b>	<b>(\$1,365.66)</b>

**BALANCE SHEET AS AT 31 DECEMBER 2009**

ACCUMULATED FUNDS

Balance to 31 December 2008		\$19,242.69
Results for the year	General Fund	\$3,000.47
	Publication Fund	(\$1,365.66)
		\$1,634.81
Balance to 31 December 2009		<b>\$20,877.50</b>

**REPRESENTED BY:**

Cash at Bank	General Fund	\$7,537.42	
	Publication Fund	\$1,500.63	
	Term Deposit	\$7,000.00	\$16,038.05

Cash on hand		\$200.00
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Stock of Journals at Committee's valuation		\$3,320.00
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Debtors	Members subscription arrears	\$700.00	
	Journal payment arrears	\$1,600.00	\$2,300.00
			<b>\$21,858.05</b>

Less:

CURRENT LIABILITIES

Subscriptions in advance	\$615.00	
Uncashed Cheques	\$365.55	\$980.55
		<b>\$20,877.50</b>

# THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES

## Membership at 31 December 2009

<u>CATEGORY</u>	<u>FINANCIAL</u>	<u>UNFINANCIAL</u>	<u>2009 TOTALS</u>	<u>(2008) (TOTALS)</u>
Ordinary	69	10	79	78
Special (retired)	4	0	4	3
Student	1	1	2	5
Corporate	1	3	4	4
Company Associate	2	0	2	2
Honorary Life	<u>2</u>	<u>-</u>	<u>2</u>	<u>2</u>
<b>Totals</b>	<b>79</b>	<b>14</b>	<b>93</b>	<b>94</b>

### New Members

Houshiar F. Azar  
Skye Blackburn  
Dr David Emery  
Dr Markus Riegler  
Walter Southwell

### Lapsed Members

Dr Vic Edge  
Marnie Holmes  
Anna Marcoora (Stud.)  
Lucie Nedved (Stud.)  
Celia Symonds (Stud.)

### Resigned Members

Judy McMaugh

## SECRETARIES REPORT

Dr Mary-Ann Terras

### **The 56th Report of the Council of the Entomological Society of New South Wales Inc**

#### **1. The Council for 2009 was:**

Honorary President	Mr Robin Parsons
Honorary Vice President	Mr Martin Horwood
Honorary Secretary	Dr Mary Ann Terras
Honorary Treasurer	Mr Ted Taylor
Honorary Business Manager	G. Strid-Nwulaekwe
Honorary Public Officer	Dr Mary Ann Terras
Honorary Editor	Dr Garry Levot
Honorary Circular Editor	Mr Graeme Smith
Councillors	Barbara May

**2. Membership** as of 31<sup>st</sup> December 2009 was 79 financial and 14 unfinancial members. We said farewell to 5 lapsed and 1 resigned, however welcomed 5 new members.

**3. Council Members:** Council met on 5 occasions between March 2009 and March 2010. Members attended: Levot 3, Taylor 4, Strid-Nwulaekwe 1, May 4, Terras 4, Horwood 1, Smith 4, Parsons 5

**4. Society Meetings:** Meetings have continued at the Ermington Community Centre. We had a wide range of interesting speakers. However, on some occasions attendance was less than expected. The society appreciates the contribution of time and effort made by our monthly speakers.

Date	Topic	Speaker
4 <sup>th</sup> March	Invasive Ants Why bother? - A tale of public health and environmental disaster	Garry Webb
6 <sup>th</sup> May	Bugs In Backyards And In Streetscapes	Deborah S. Kent
1 <sup>st</sup> July	Show and Tell	Various
2 <sup>nd</sup> September	Integrated Flea Contro	Bryce Peters
4 <sup>th</sup> November	Probing Spider Venoms As Sources Of Therapeutics And Insecticides	Assoc.Prof. Graham Nicholson

**5. The 56<sup>th</sup> AGM** was held at the Ermington Community Centre on the 4<sup>th</sup> March 2009.

**6. Volume 38 of *General and Applied Entomology*** was published and distributed to all members mid year. Thank you to Garry Levot for his continued excellent work in publishing our Journal. As Garry is retiring from this the Hon Editors position the Council thanks him for the excellence of the publications over the past years.

**7. Circulars:** Tarsus (no's 585 to 590) were published between March 2009 and February 2010. The circular was distributed by posting on our Web page and by email only to members with hard copies being made available at meetings. Thank you to Graeme for undertaking this major means of communication within the Society and all the contributors that helped make this very interesting.

**8. Society Emblem:** The emblem for 2009 was Lord Howe Island Stick Insect this was used on the cover of Vol 38 *General and Applied Entomology*.

**9. Other Activities:**

- Graeme Smith has continued to run the Societies Web Page. Thank you to Graeme for including a wide variety of interesting features.
- Gith Strid-Nwulaekwe co-ordinated our 15<sup>th</sup> year at the Ku-ring-gai Wildflower festival. This year the festival was held on one day only. Several members attended hosting bug walks, showing live and pinned specimens and talking to the public.

A special meeting was organized in February 2010 at Reckitt–Benckiser to discuss the future of the Society, in particular strategies attract members to be more active in the Society Council. Twenty members attended this meeting and the results are to be brought to the AGM for comments/action. A special thank-you to all involved especially to Graeme for organizing the venue and recording possible actions.

**10. Annual Dinner** was held in December at The Boatshed La Perouse. Thank you to Ted for organizing this pleasant venue. It was enjoyed by all that attended.

Dr Mary Ann Terras

# Public contact with our web site

[www.entsocnsw.org.au](http://www.entsocnsw.org.au)

We are receiving a lot more enquiries from the general public (and even journalists) via our contact details on the web site. I certainly struggle to answer their questions so I will now post some of these in the Circular so that members can make contact direct with these people if they have information or are interested in their observations

## Reply from Dinah Hales to Mr Hagerty

### Prawns Related to Flying Insects?

In the March *Tarsus*, we had a challenge from a reader to comment on the possible close relationship between flying insects and prawns. Well, I used to teach invertebrate zoology for many years so I thought maybe I should try to answer this and found that the field of research has galloped ahead since I retired. It's exciting! But it may be a bit hard to follow if you don't know the language of this kind of work – I'll try to make it clear as possible.

The deep evolutionary relationships of the arthropods (i.e. animals with a chitin-containing jointed exoskeleton – insects, crustaceans, spider/scorpion group, millipede/centipede group and others) have exercised the minds of biologists ever since the time of Darwin or earlier and the last 60 years have seen many new experimental and descriptive techniques brought to bear. The result has been that nearly every possible combination of sister groups has been suggested and it's only this year that something which may prove to be definitive has

been published, in the prestigious British scientific journal *Nature*. The references below are to a blog about the paper and the paper itself, and another account with the same conclusions. It would be a good idea to open another tab with the phylogenetic tree on it, or print out a copy to follow through as you read this. The analysis is based on DNA and amino acid sequence within 62 genes and 75 representatives of the different arthropod groups and the results are quite shocking! not only are prawns (crustaceans) and flying insects related, but flying insects ARE crustaceans! Insects and crustaceans should be placed, according to these authors, in an assemblage called the Pancrustacea.

If you look at the evolutionary tree in the references below, you see that the first major branch of the arthropod tree includes the chelicerates – scorpions, spiders, horseshoe crabs, ticks and mites. Even on old-style studies of structure, this makes sense, because the chelicerates don't have antennae, and their mouth structures (fangs etc) are very different in arrangement from those of other arthropods. These others all have MANDIBLES and are grouped together as the Mandibulata. The next branch takes out the millipede/centipede group, leaving us with a huge group called the Pancrustacea: it includes all the crustaceans from the familiar crabs, prawns and barnacles to some weird and wonderful parasitic forms AND it includes all the insects. Our next two splits take out all the familiar and parasitic crustaceans and leaves us with the hexapods (all the insects including springtails and diplurans) and (this is one of the exciting parts) the Xenocarida, which used to be considered as simple primitive crustaceans and ancestors to the modern crustaceans.

Now, if you have stayed with me this far, you may be thinking that our reader's surmise that prawns and flying insects are related is a pretty good one, and closer to the mark than a great deal of what has been taught in invertebrate zoology courses in the last 60 years. But the time scale still needs to be considered. The divergence of insects and familiar crustaceans started probably more than 550 million years ago, somewhere around the time of the earliest life on land (another account says 660 million years), so the common ancestor is back then. The easily observed points of similarity between flying insects and prawns are really not very many – they both have the segmented body and jointed exoskeleton, they have the transversely biting mandibles, and they have antennae. The prawns, representing crustaceans (in the old sense) don't have anything related to wings, they don't have Malpighian tubules as excretory organs, and they don't have a watertight layer on their exoskeleton. You can probably think of other differences. When you think about similarities, you need to be very careful to compare like with like. For example, you might look at the carapace of a prawn (that's the shield



This example shows how close the Thailand prawn can be to the flying insects or bugs.

over the front of its back) and imagine that it looks as if it could develop into wings, but it's really quite a different structure developing from a skin fold on the back of the neck.

Thanks for the question – I learned a lot from looking into it and I think many of the professional entomologists in the society will also be surprised and pleased to discover this new analysis.

<http://myrmecos.wordpress.com/2010/02/11/the-most-ambitious-arthropod-phylogeny-yet/>

Regier et al 2010. [Arthropod relationships revealed by phylogenomic analysis of nuclear protein-coding sequences](#). Nature doi:10.1038/nature08742

<http://decapoda.nhm.org/outreach/InsectCrustaceaNHM.pdf>

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## GENETIC INVESTIGATION OF *Petalura gigantea*

Hi Chris Herden here.

I teach science and am undertaking a Masters in Nat. Res. at UNE focusing on recovery plan for giant dragonfly (*Petalura gigantea*). I require info/contacts on techniques/methods for genetic investigations with this animal.

Your thoughts please

cheers Chris  
[cherden2@une.edu.au](mailto:cherden2@une.edu.au)

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## AUTOBIOGRAPHY OF M.I. NIKITIN

Dear Colleagues,

Best regards from Old North Wales !

Let me please introduce myself. My name is Jevgeni (Eugene) Shergalin. I am Russian zoologist from Estonia, 48 years old, who last 5 years lives and works in Wales, UK.

Together with friend of mine, Mr. Eugene Novomodnyi of Khabarovsk, the Russian Far East (I make CC of this letter to him) we are working on biographies of some entomologists and zoologists of the Russian Far East and Manchuria (China). I help Eugene with western literature and he helps me with Russian literature for our searches of materials on the history of zoology.

We are very interested in autobiography of entomologist M I. Nikitin published in 1986 in several issues of Circular of the Entomological Society of New South Wales **359**: 7-22, **361**: 30-48, **363**: 57-62, **365**: 64-80.

Is it any chance to get these material in any form: in word, pdf, scanned or photocopied form for our work and archives?

Any help and advice will be appreciated very much. In our turn we will be happy to help you.

With best regards

Mr. Jevgeni Shergalin  
Flat 1, 109 Lammas Street,  
Carmarthen,  
SA31 3AP Wales, UK.

## Insect of the Month

### Eucalyptus Stem Borers

Around 15 years ago the New South Wales State Government launched an initiative to increase the number of hardwood plantations to help bridge the gap between the demand for hardwood timber products and the supply that was available from native forests. As a result there are now many hardwood plantations of varying sizes scattered throughout NSW, with most located in the northeast of the state. Growing trees in that part of NSW should be easy. After all, the environment is comparatively warm and moist, and the existing native stands are impressive, suggesting the area is well suited to growing trees. Unfortunately tree plantations are also prey to some of the pitfalls that beset other monoculture crops. One of the more significant of these is the emergence of once incidental insect pests as serious pests.

In NSW, stem borers have emerged as a serious pest of eucalypt plantations. In susceptible species the rate of infestation by borers may be as high as 60% which can lead to a serious downgrade in wood quality. Where the downgrade is severe, the timber is sold as pulp rather than as saw-logs, greatly reducing the return to the grower. Severe infestation by stem borers has called into question the viability of growing some eucalypt species, which in terms of their growth rate, form and timber quality would otherwise be an excellent choice for plantations.

The main stem borers attacking eucalyptus trees in NSW are cerambycid beetles (longhorn or longicorn beetles belonging to the Family Cerambycidae) and moths belonging to the Family Cossidae. Amongst the cerambycid beetles the most common are the bulls-eye borer, *Phoracantha acanthocera* (Fig. 1) and the two-hole borer, *Phoracantha solida* (Fig. 2). Both species earn their common names from the appearance of the damage they cause on the trunk of their hosts. The giant wood moth, *Endoxyla cinereus* (Fig. 3), is the most common lepidopterous borer found in eucalypt plantations.

Smooth-barked eucalypts including flooded gum, *Eucalyptus grandis*, and Sydney blue gum, *E. saligna*, appear to be the most prone to attack by stem borers. Over the life of a plantation almost all the trees of these two species will have been infested by a stem borer at some time or other. This creates serious concerns about the quality of the timber that will be harvested from heavily infested plantations.

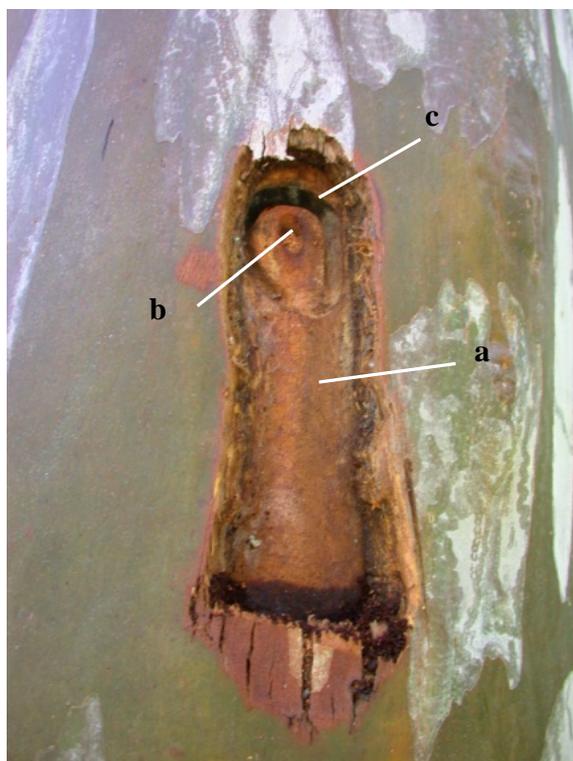


Figure 1. Bulls-eye borer scar. The borer larva feeds on the cambium producing the elongated scar (a). It pupates inside the tree (b) after excavating a groove (c) to divert the flow of sap around the hole.



Figure 2. Two hole borer damage. The openings inside the scar (marked) are emergence holes. The tree shown has been infested by this borer on two occasions.

Once a plantation is established there are limited options available to reduce the impact of stem borers. It is currently not feasible to use chemical control in plantations because tree crops can take 20-30 years to mature and the cost of protection over this period would be excessively high. Research is currently being conducted to determine the impact of thinning and other silvicultural practices on borer infestations but at the present time their effectiveness is not known. The only practical measure currently available for managing stem borer infestations is to use less susceptible species at the outset, such as black butt, *E. pilularis*, and Gympie messmate, *E. cloeziana*.



Figure 3. Giant wood moth larva exposed in a eucalypt.

Martin Horwood

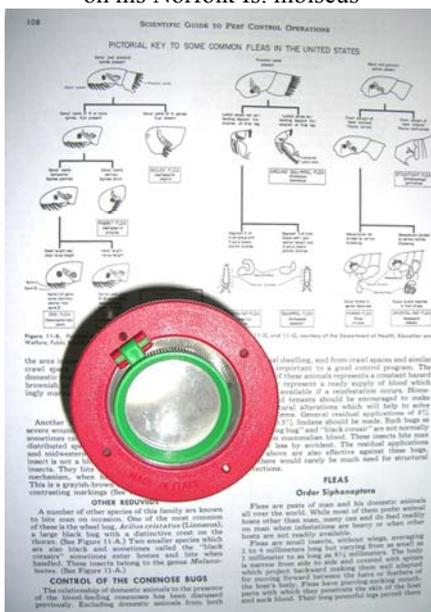
## Show & Tell – March Meeting



Ted Taylor accompanied by home work on the Cotton Harlequin bug on his Norfolk Is. hibiscus



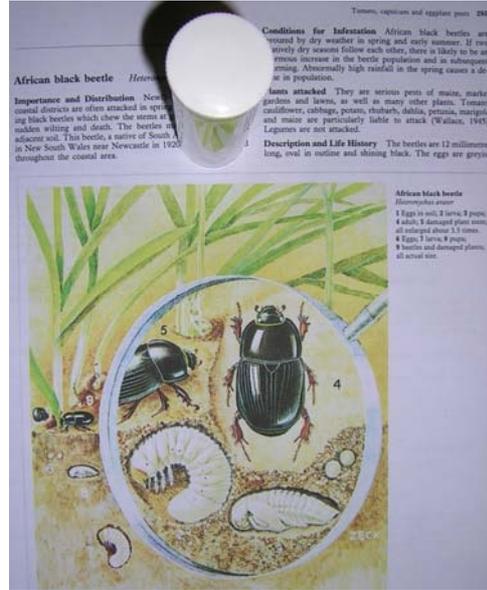
These are Scutellerids which have no split in scutum so have to lift the whole thing to fly. The female lays eggs then guards them, caring for their offspring. The ♂ and ♀ look quite different (♂ blue, ♀ orange).



Ted brought some cat fleas from a dog with pictorial key to fleas in homes. One identifies fleas by the presence of combs and width of head. They are resistant to many chemicals especially pyrethroids and also some spot-on treatments. Ted has had some good success with Capstar- fast results, fleas come to surface and can be combed off, but no residual action. Fleas lay eggs on the animal which fall off where they spend most of their time eg, where they jump off a lounge. Pupae display diapause and lie dormant in unoccupied dwelling waiting for mammal activity (vibrations?) which leads to mass emergence and attack on an unwary visitor. Diapause is apparently common to many parasites allowing them to survive between hosts.



Barbara May brought some Hippoboscid flies collected from somebody's shoulder at Barrington Tops. They are very flat, have large eyes and abdomen. They lay mature young which immediately pupate.



African Black beetle found feeding on kikuyu. Ted wondered aloud whether this species is as common as it was when he was a pest control operator controlling infestations with chlordane.



Barbara also showed some Hawk Moth larvae from New Guinea impatiens

Marcus Riegler sent along some brown scarabs asking if they were Argentinian scarabs. We were unable to answer



Dinah Hales showed some damaged green bean pods thinking it may be due to Lycenids. Holes were obvious through the bean and the seeds had been destroyed. Consensus was moving towards a Bruchid as the culprit. She also bought some small green chironomids and some longicorns which were probably Fig or Pittosporum longicorn

## Bi-monthly Meetings

The Society meets **BI-MONTHLY** unless otherwise advertised. General meetings with a speaker will generally be held only on the “odd numbered” months (March, May, July, September, November) while the Council will meet more frequently. Speakers tentatively scheduled for the coming general meetings are shown below.

This timing allows us to alternate meetings with the Society for Insect Studies (SFIS) which meets at the Australian Museum at 7.30 on the second Tuesday of the “even numbered” months.

### Future Events

Date	Speaker	Title
5 <sup>th</sup> May, 2010	Warrick Angus	Burrowing Bees
1 <sup>st</sup> July, 2010	Andrew Beattie	On the origins of citrus, and huanglongbing and its vectors

#### Venue:

Meeting Room 2  
Ermington Community Centre  
10 River Road Ermington

#### Meetings start at 7:30 p.m. (directly following the Council meeting)

Talks run for around 45 minutes, with 10 minutes for questions, followed by a light supper. 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.

#### SOCIETY POSTAL ADDRESS

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

#### MEMBERSHIP FEES 2009

ORDINARY MEMBERS	\$50
COMPANY ASSOCIATES	\$60
STUDENT MEMBERS	\$25
CORPORATE MEMBERS	\$50

#### OFFICIALS

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