Australasian Arachnology

Price \$3 ISSN 0811-3696 Number 81 February 2011



Newsletter of the Australasian Arachnological Society

THE AUSTRALASIAN ARACHNOLOGICAL SOCIETY

www.australasian-arachnology.org

Acari – Araneae – Amblypygi – Opiliones – Palpigradi – Pseudoscorpiones – Pycnogonida – Schizomida – Scorpiones – Uropygi

The aim of the society is to promote interest in the ecology, behaviour and taxonomy of arachnids of the Australasian region.

MEMBERSHIP

Membership is open to all who have an interest in arachnids – amateurs, students and professionals – and is managed by our Administrator (**note new address**):

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Membership fees in Australian dollars (per 4 issues):

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Cheques are payable in Australian dollars to "Australasian Arachnological Society". Any number of issues can be paid for in advance, and receipts can be issued upon request.

Members will receive a **PDF version*** of the newsletter *Australasian Arachnology*, with hard-copies available for libraries and societies. Members will be notified by email when their subscription has expired.

*NOTE. PDF-only as of Issue 80

ARTICLES

The newsletter *Australasian Arachnology* depends on the contributions of members. Please send articles to the Editor:

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Articles should be typed and saved as a Microsoft Word document, with text in Times New Roman 12-point font. Only electronic email (preferred) or posted CD-ROM submissions will be accepted.

Previous issues of the newsletter are available at http://www.australasian-arachnology.org/newsletter/issues.

LIBRARY

For those members who do not have access to a scientific library, the society has a large number of reference books, scientific journals and paper reprints available, either for loan or as photocopies. For all enquiries concerning publications please contact our Librarian:

Jean-Claude Herremans P.O. Box 291

Manly, New South Wales 1655

Email: jclh@ihug.com.au

Professional members are encouraged to send in their arachnological reprints as they become available.

COVER ILLUSTRATIONS

Spiders from tropical north Queensland (clockwise from top-left): **Theridiidae sp.** with egg sac (ant-mimic of *Oecophylla*); **Cosmophasis sp.** (Salticidae); **Tetragnatha sp.** (Tetragnathidae); **Gasteracantha**

quadrispinosa (Araneidae). Images by Greg Anderson

EDITORIAL...

Welcome to Issue 81 οf Australasian Arachnology. I would like to begin this editorial by congratulating, on behalf of the Australasian Arachnological Society, Dr Barbara York Main O.A.M. on her recognition in the Australia Day 2011 Honours list "for service to science and conservation as a researcher and educator in the field of arachnology, and to the community of Western Australia". Barbara's ongoing contributions enormous and arachnology, taxonomy, conservation biology, science and science education - over a career spanning nearly six decades - have been recognised by scientists and the community of Western Australia in numerous forums over many years. Her recognition at this highest national level is testament to her many and varied achievements, not least her pioneering research contributions to Australasian arachnology, and especially to our understanding of Australian Mygalomorphae. Congratulations Barbara, and as Mark Harvey fittingly wrote in a special honorary supplement of the *Records of* the Western Australian Museum in September 1994, thanks for promoting arachnology in all forms. through vour numerous of its publications on taxonomy, general biology, conservation biology and history.

I would also like to take this opportunity to congratulate Dr Valerie Todd Davies – former curator of arachnids at the Queensland Museum, Brisbane – for receiving the International Society of Arachnology's Eugene Simon Award for lifetime achievement, at the International Congress of Arachnology in Siedlce Poland. Robert Raven accepted the award on behalf of Val, who is unwell.

There are more announcements to make as 2011 kicks into action, and on behalf of the Society I would like to further wish Dr Volker Framenau all the very best, as he leaves the Western Australian Museum and commences life at Phoenix Environmental Sciences, based in

Perth. Volker has been at the W.A. Museum for over eight years, and served as the Society's newsletter editor between 2005 and 2008. Volker will continue to be a research associate at the Museum and to serve as the Society's membership and website Administrator, but we otherwise wish him well in his future pursuits!

In this issue Steve Nunn documents a fascinating case of egg sac parasitism of a tarantula by a mantispid lacewing, Robert Whyte highlights the breeding behaviour of female salticids in the fruiting bodies of *Lomandra* matrushes, and Julianne Waldock reviews the book *Arachnids* by Jan Beccaloni. We also feature the stunning macrophotography of Greg Anderson, with a number of images taken during a recent trip to the Wet Tropics of Queensland. Thanks Greg for allowing these images to be reproduced in the newsletter.



Opiliones sp. from north of Kuranda, Queensland. Image by Greg Anderson.

And to all of those members who may have been affected by floods, fires or cyclones over the course of this extraordinary 'summer of disasters', I hope the process of rebuilding and recovery is quick and not too traumatic for all involved. Please consider contributing articles for inclusion in future editions and I wish all members the very best for the rest of 2011.

Cheers,



MEMBERSHIP UPDATES

New Members:

Edward L. White Beerwah, Queensland 4519

Mieke Burger Booragoon, Western Australia 6154

General Announcements

The AAS Librarian, Jean-Claude Herremans, offers the following journals for sale:

- Australian Journal of Entomology (Volume 1 to Volume 40, in wrappers as issued);
- New Zealand Entomologist (Volume 1 to Volume 20, in wrappers as issued).
- Bulletin of the Natural History Museum, Tokyo (Volume 1 to Volume 10, bound; Volume 11 to Volume 20, in wrappers, as issued).

Please contact Jean-Claude directly if you are interested in purchasing these items (see page 2 for contact details).

Jean-Claude would also like to thank Dr Wilson Lourenço for sending in 20 of his own reprints.

Female *Rhomphaea* sp. (Theridiidae) from Julatten, north-eastern Queensland. Image by Greg Anderson.

Observations on the predatory behaviour of the mantisfly *Campion tenuistrigus* (Neuroptera: Mantispidae) parasitising a tarantula egg sac (Araneae: Theraphosidae)

by Steven C. Nunn

Sarina, Queensland 4737, Australia

On 22 November 2009 I was contacted by a spider enthusiast who had collected some wild theraphosid spiders from his property at Grasstree Beach, on the central Queensland coast. The spiders were identified as an undescribed Phlogius species, known by local tarantula keepers as Phlogius sp. 'hirsutus' (Fig. 2), a large fossorial mygalomorph reaching up to 65 mm in body length with a leg-span of up to 160 mm. Three adult females had egg sacs, and these were removed from the spiders to incubate in captivity. Upon opening the egg sacs, two were found to have several lethargic, free-roaming insect larvae living among the post-embryonic theraphosid young. All larvae were ~12 mm in length. One egg sac also contained a strange, yellow, loosely-built ovular silken cocoon, 11 mm in length (Fig. 4).

Having detected several larvae in more than one egg sac, the yellow cocoon was placed in a separate container and incubated to determine the identity of the spider parasite. On 19 December, the post-embryonic spiderlings had moulted into second instars. and the unidentified animal had emerged from the cocoon as a fully developed 'Mantisfly' (order Neuroptera, family Mantispidae) (Figs 1, 3, 5-8). The spider, spider egg sac, pupa and adult mantispid were shipped to the Queensland Museum where Dr Chris Burwell tentatively identified the specimen as Campion tenuistrigus (Gerstaecker, 1885) a widely distributed species that occurs in all Australian mainland states and territories (Lambkin, 1986) with a single record from Tasmania (Lambkin, 1987).

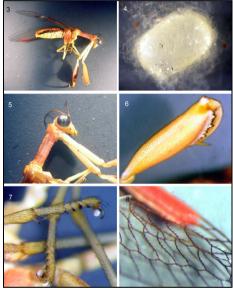


Figures 1-2. Adult Mantispidae species *Campion rubellus* Navás, 1914 (Fig. 1) and adult female *Phlogius* species (Fig. 2).

Image 1 by Jiri Lochman (used with permission).

Image 2 by Steven Nunn.

The genus Campion contains eight described Australian species (Lambkin, 1986; Lambkin and New, 1994; New, 1996). The biology and hosts of most species, including C. tenuistrigus, unknown. There is, however, some information on the biology and hosts of C. australasiae, and Lambkin (1986) lists the following larval host records for this species: large lycosid spiders (Tillyard, 1926); a trapdoor spider (Gallard, 1936); 'Lycosa perinflata' (=Hoggicosa castanea) and an 'Isopeda' sp. (McKeown and Mincham, 1948). Amongst the C. australasiae that he examined, Lambkin (1986) lists a male (plus pupal shell) from Kenthurst (NSW) in the Australian Museum. originally from the Gallard Collection, which is presumably the specimen upon which the record from a "trapdoor spider" is based (C. Burwell, pers. comm.). This specimen was apparently taken as a pupa from the egg capsule of a trapdoor spider and emerged the following day. Given that this mantispid has also been recorded attacking lycosid spiders, it is difficult to be sure whether the Gallard (1936) specimen is truly from a mygalomorph spider, or rather from a lycosid with a 'trapdoor' burrow (C. Burwell, pers. comm.). Unfortunately, the spider was not collected to confirm the identification.



Figures 3-8. Campion tenuistrigus (Gerstaecker, 1885), showing: lateral habitus (Fig. 3); pupal cocoon found within tarantula egg sac (Fig. 4); head and thorax, lateral view (Fig. 5); modified, raptorial leg I (Fig. 6); right and left tarsus II (Fig. 7); and detail of spiniform wing structure (Fig. 8).

Images by Steven Nunn.

Numerous from the subfamily species Mantispinae are obligate predators of spider eggs (Redborg, 1983), while others are known to parasitise wasp nests (Buys, 2007). While there are numerous records of Mantispidae parasitising multiple families from the infraorder Araneomorphae (including Araneidae, Gnaphosidae, Lycosidae, Mimetidae, Scytodidae, Sparassidae Salticidae.

Tetragnathidae), this behaviour has never previously been associated with the Mygalomorphae (K. Redborg, pers. comm.). Although artificially resembling praying mantids (see Fig. 1), mantispids are actually neuropteran lacewings with a holometabolous life-history. The life cycle of the mantispid lacewing begins as the female lays eggs either on bark or other such surfaces, usually in clusters (Rice and Peck, 1991). First instar larvae are highly mobile (Gilbert and Rayor, 1983) and are known to enter the sac either after it is made (Redborg and MacLeod, 1984), or to climb onto the adult spider and drop into the sac as it is being constructed (Redborg, 1988). In those examples where the larvae climb onto the spider, it is believed they feed on haemolymph prior to dropping into an egg sac (Redborg and MacLeod, 1984), and first instar young are often located around the pedicel or booklung regions of their hosts (K. Redborg, pers. comm.). Subsequent instars become sedentary display distinct limb reduction and simplification of most external structures (Gilbert and Rayor, 1983). They are nonetheless able to feed easily on spider eggs by draining contents through modified mandibles and maxillae that form a hypodermic needle-like apparatus (Redborg, 1998).

In previously recorded cases of mantispid parasitism, most of the spider eggs were eaten, with few to no surviving spiders (Valerio, 1971; Killebrew, 1981; Gilbert and Rayor, 1983). However, Rice (1985) noted a high survival rate for 'Lycosa' rabida spiderlings in an egg sac parasitised by Mantispa interrupta. But, how do mantispids avoid predation by adult spiders upon emergence from an egg sac? There is at least one recorded example of the parent spider (a Scytodes sp.) predating upon an emerging mantispid (Gilbert and Rayor, 1983), but as to the survival rate of emerging mantispids, no collective data have as yet been obtained in any spider species.

The above account is the first confirmed record

of predation on a mygalomorph spider by a mantispid lacewing, and also the first record of predatory behaviour in the species *Campion tenuistrigus*. Due to the large range of *C. tenuistrigus*, it is likely that this mantispid species is not a specialised predator of any one tarantula species, although it is currently unclear as to whether this species is a specialist on mygalomorph spiders more generally.

Acknowledgements

Thanks to Dr Kurt Redborg and Dr Chris Burwell for assistance with general information and identification on Mantispidae species. Thanks also to Jiri Lochman of Lochman Transparencies for the habitus image of *Campion rubellus*, and thanks to Dr Owen Seeman for assistance in transporting material.

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Rice, M.E. (1985). Spiderling survival in a *Mantispa* (Neuroptera, Mantispidae) infested egg sac. *Journal of Arachnology* **13**, 139-140.

Rice, M.E. and Peck, W.B. 1991. *Mantispa sayi* (Neuroptera: Mantispidae) parasitism on spiders (Araneae) in Texas, with observations on oviposition and larval survivorship. *Annals of the Entomological Society of America* **84**, 52-57.

Tillyard, R.H. (1926). *The Insects of Australia and New Zealand*. Angus and Robertson, Sydney.

Valerio, C. (1971). Parasitismo en huevos de araña *Achaearanea tepidariorum* (Koch) (Aranea: Theridiidae) en Costa Rica. *Revista de Biología Tropical* **18**, 99-106.



Female jumping spider (Salticidae) from Big Mitchell Creek, north-eastern Queensland. Image by Greg Anderson.

Observations on Lycidas scutulatus breeding in Lomandra hystrix

by Robert Whyte

The Gap, Queensland 4061, Australia

Recently, while winding down into the Christmas break, I made a completely unexpected discovery. While I was gathering matrush (*Lomandra hystrix*) fruit for propagation in our nursery, I noticed several silken retreats in amongst the fruit clusters (Fig. 1). They were about 10 mm x 7 mm, with quite firm silk, nestled within the fruit clusters against the main stem of the plant.



Figure 1. Maternal retreat of female *Lycidas* scutulatus on fruiting cluster of *Lomandra hystrix*. Image by Robert Whyte.

I opened the retreats to see what they contained, and each contained an adult female jumping spider (*Lycidas scutulatus*; Fig. 2) and a mass of about 30 greenish eggs (Fig. 3). The eggs were about 0.4 mm in diameter. In one case a subadult female was in a retreat with no eggs. This suggests the females make their retreats as a safe haven even before their final moult. I inspected about 12 retreats, and they all had *Lycidas scutulatus* females in them.



Figure 2. Female Lycidas scutulatus (Salticidae), collected from a retreat on Lomandra hystrix.

Image by Robert Whyte.

Lomandra fruit clusters seem reasonable locations for egg sacs as they are dense and protected with long spines ('hystrix' means sharp or spiny). They may use similar plants elsewhere.



Figure 3. Opened maternal retreat of *Lycidas scutulatus*, showing cluster of eggs.

Image by Robert Whyte.

So far I have not found a male of this species in amongst the *Lomandra*, despite the presence of sub-adult females. The hunt continues...

Book Review

by Julianne Waldock

Western Australian Museum, 49 Kew Street, Welshpool, Western Australia 6106, Australia

Arachnids by Jan Beccaloni

Published by CSIRO Publishing, Collingwood, Victoria, 2009, ISBN 9780643096974 Hardback, 320 pages, AU\$69.95



Despite the stunning front cover image of Nephila clavipes, this book does not just deal with spiders, but is unique in that it covers the entire gamut of animals recognised within the class Arachnida. The first chapter outlines the group by summarising the key morphological characteristics of arachnids, and attempts to untangle some of the relationships between the different orders. This is where the reader is first introduced to the fascinating diversity within the Arachnida, as well as the ongoing difficulties this group of animals have posed to systematists and phylogeneticists. The ancient origin of the Arachnida is highlighted throughout the text, and extinct fossil taxa are described, although the latter section explaining fossil arachnid systematics is somewhat confusing.

The chapter on spiders (Chapter 2) is very informative for general readers, with a discussion on the major lineages and family groups, a section on anatomy and morphology, and a more detailed exploration of spider biology and life-histories. Some interesting

lesser-known facts are mentioned, such as the modification of web-building behaviour by certain parasitoid wasps. The information presented here is generally accurate and informative, although there is one misleading comment given for the distribution of the infamous Sydney Funnel-Web, *Atrax robustus*. The distribution for this spider is given as Victoria and New South Wales (see pp. 30, 65) when it is actually only found in New South Wales, specifically in the Sydney region.

The following five chapters cover the lesser-known arachnid orders, the Amblypygi, Uropygi, Palpigradi, Schizomida and Ricinulei. All of these groups have a tropical distribution and/or contain small, cryptic animals that are generally unfamiliar to most people. Most are also unlikely to enter human habitation, and are rarely featured in general texts. Beccaloni has, however, covered these groups as thoroughly as possible by discussing each order under similar topics as for the spiders. In this manner she has highlighted the significant differences between the groups and also indicated the lack of knowledge concerning some of their structures and behaviours.

One of the largest chapters (Chapter 8) is devoted to the Acari, the mites. This is a very difficult group as they seem to excel in diversity and ecological variability! Some mite taxa are specialist ectoparasites (e.g. the ticks), others are herbivores, while others are detritivores. Mites can have specialist parasitic larval forms with adults being herbivorous (e.g. velvet mites), and there are also entirely aquatic groups in freshwater or salt water. Beccaloni has attempted to introduce the reader to all of this amazing variation, while also covering the mites of medical importance. Within the confines of a single chapter she has succeeded in summarising a mega-diverse lineage clearly and efficiently.

The chapter on Opiliones (Chapter 9) is quite comprehensive and attempts to cover the

amazing diversity of this group by recognising the unique characteristics and fascinating behavioural features of many species. Pictures showing vibrant body colours, weird shapes, mating, sociality and even parental care hint at the morphological and biological variation within the order. Common names are listed, including both 'daddy longlegs' and 'daddy longlegs spiders', although it is important to mention that the term 'daddy longlegs spiders' has come into use in many parts of the world (including Australia) to denote (and avoid confusion with) true spiders of the family Pholoidae.

Almost as well-recognised as spiders are the scorpions, which are covered in Chapter 10. Although not as stunningly colourful as spiders or Opiliones, scorpions are impressive and ancient arachnids. They are also significant in their potential danger to humans, although as with most arachnids, the majority of species are harmless. Interesting facts from this chapter include the peculiar fluorescent characteristic of scorpion cuticle under ultra-violet light, and the parental care shown by females while carrying young on their backs.

The chapter on pseudoscorpions (Chapter 11) is one of the shortest, but again Beccaloni has attempted to create an interesting subject and show the peculiar habits, shapes, features and life-history characteristics of this group. Peculiarities within this arachnid group include the ability of some taxa to spin silk or produce venom from glands in the pedipalpal chelae (or 'claws').

The chapter on Solifugae (Chapter 12) completes the taxonomic overview of the Arachnida, and once again attempts to summarise the unique characteristics and ecology of these impressive cursorial predators. Huge chelicerae dominate the mouths of solifuges, and descriptions of "fast and furious foraging" behaviour and "cheliceral mills"

(whereby prey items are macerated back-andforth across the chelicerae) are apt.

A useful list of references (by chapter) is given at the back of the book, but not all subjects are adequately referenced. The index is also very incomplete, with several genera mentioned in the text not found in the index. Overall, this is an informative, beautifully illustrated and fascinating overview of an often maligned group of animals. Hopefully it will lead to greater interest in arachnids, their biology, ecology, behaviour and unique features, not to mention their antiquity and continuing scientific interest to taxonomists, systematists and other researchers.

Recent Australasian Arachnological Publications

This column provides an informal list of arachnological publications issued since the last edition of *Australasian Arachnology*. These include publications on Australasian arachnids or papers written by Australasian arachnologists. If members would like to see their publications listed here please feel free to send me reference lists for the next edition.

Ceccarelli, F.S. (2010). New species of antmimicking jumping spiders of the genus *Myrmarachne* MacLeay, 1839 (Araneae: Salticidae) from north Queensland, Australia. *Australian Journal* of Entomology 49, 245-255.

Durrant, B.J., Harvey, M.S., Framenau, V.W., Ott, R. and Waldock, J.M. (2010). Patterns in the composition of ground-dwelling spider communities in the Pilbara bioregion, Western Australia. *Records of the Western Australian Museum Supplement* 78, 185-204.

Harvey, M.S. (2010). Redescription of *Geogarypus irrugatus* from Sumatra (Pseudoscorpiones: Geogarypidae). *Journal of Arachnology* **38**, 383-386.

Harvey, M.S. (2011). Two new species of Synsphyronus (Pseudoscorpiones: Garypidae) from

southern Western Australian granite landforms. Records of the Western Australian Museum 26, 11-22.

Harvey, M.S. and Štáhlavský, F. (2010). A review of the pseudoscorpion genus *Oreolpium* (Pseudoscorpiones: Garypinidae), with remarks on the composition of the Garypinidae and on pseudoscorpions with bipolar distributions. *Journal of Arachnology* **38**, 294-308.

Main, B.Y. (2010). Interactions of water, plants and ground-dwelling fauna: water harvesting and tapping by trapdoor spiders. *Landscapes* **4**, 1-18. **Editor's Note (via the author): The 'Abstract' of this article is actually a taxonomic summary.*

Monteith, G.B. (2009). Moths eating moths in spider webs. *News Bulletin of the Entomological Society of Oueensland* **37.** 63-65.

Rix, M.G., Harvey, M.S. and Roberts, J.D. (2010). A revision of the textricellin spider genus *Raveniella* (Araneae: Araneoidea: Micropholcommatidae): exploring patterns of phylogeny and biogeography in an Australian biodiversity hotspot. *Invertebrate Systematics* **24**, 209-237.

Smith, H.M. and Levi, H.W. (2010). Review of the genus *Micropoltys* (Chelicerata: Araneae: Araneidae). *Arthropod Systematics and Phylogeny* **68**, 291-307.

Vink, C.J., Derraik, J.G.B., Phillips, C.B. and Sirvid, P.J. (2011). The invasive Australian redback spider, *Latrodectus hasseltii* Thorell 1870 (Araneae: Theridiidae): current and potential distributions, and likely impacts. *Biological Invasions* in press.

Vink, C.J., Fitzgerald, B.M., Sirvid, P.J. and Dupérré, N. (2011). Reuniting males and females: redescriptions of *Nuisiana arboris* (Marples 1959) and *Cambridgea reinga* Forster & Wilton 1973 (Araneae: Desidae, Stiphidiidae). *Zootaxa* **2739**, 41-50.

Wojcieszek, J.M., Harvey, M.S. and Rix, M.G. (2011). Optimised captive husbandry conditions for the Western Australian 'Marri Millipede' Antichiropus variabilis (Diplopoda: Polydesmida: Paradoxosomatidae), with notes on natural history and tissue preservation techniques. Records of the Western Australian Museum 26, 87-93.

Conferences



The 3rd Combined Australian and New Zealand Entomological Societies Conference

Where: Lincoln University, Christchurch, New

Zealand

When: 28 August – 1 September 2011

http://ento.org.nz/conference/





There will be an **Arachnology Symposium** as part of the combined conference of the Australian and New Zealand Entomological societies to be held at Lincoln University, New Zealand from Sunday 28th August 2011 to Thursday 1st September 2011. The likely date for this symposium is Wednesday, August 31st. There will be up to four invited presentations, which be followed by regular presentations. Invited presentations are still to be finalised, but given the theme of the conference is "The Status of Australasian Entomology", the invited talks will likely be on the status of Australasian arachnology (perhaps systematics, behaviour and ecology).

Information on the conference can be found at the above website, and abstracts can now be submitted at:

http://ento.org.nz/conference/abstractsubmission/. If you are submitting an abstract, be sure to select "Arachnology" in the dropdown box for your first topic choice. Abstract submissions close 30 April 2011.

Conference registration costs will be: Early Bird Registration (before 30 June 2011) – NZ\$450

Student/Retiree/unwaged – NZ\$300 Late registration (after 30 June 2011) – NZ\$525 (NZ\$350 student/retiree/unwaged).

There will be a prize of NZ\$150 for the best student talk on spiders, which is funded by the author profits from sales of the "Spiders of New Zealand: Annotated Family Key & Species List"

(www.mwpress.co.nz/store/viewItem.asp?idPro duct=911).

Dr Cor Vink Biosecurity Group AgResearch New Zealand



35th Annual Meeting of the American Arachnological Society

Where: Lewis and Clark College, Portland,

Oregon, U.S.A.

When: 8-12 July 2011

http://aas.biology.pdx.edu/index.html#

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Wolf spider (Lycosidae) from Charleville, Queensland. Image by Greg Anderson.