

Australasian Arachnology

Price \$3
ISSN 0811-3696

Number 78
January 2008



Newsletter of the Australasian Arachnological Society

THE AUSTRALASIAN ARACHNOLOGICAL SOCIETY

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

MEMBERSHIP

Membership is open to amateurs, students and professionals, and is managed by our Administrator:

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Members will receive a PDF-version of *Australasian Arachnology* (hardcopies for long-standing individual members, libraries and societies in exchange). Members will be notified by mail and email when their subscription has expired.

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

ARTICLES

The newsletter depends on your contributions! We encourage articles on a range of topics including current research activities, student projects, upcoming events or behavioural observations.

Please send articles to the editor:

Volker Framenau
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Western Australian Museum
Locked Bag 49
Welshpool, W.A. 6986, Australia.

volker.framenau@museum.wa.gov.au

Format: i) typed or legibly printed on A4 paper or ii) as text or MS Word file on CD, 3½ floppy disk, or via email.

LIBRARY

The AAS has a large number of reference books, scientific journals and papers available for loan or as photocopies, for those members who do not have access to a scientific library. Professional members are encouraged to send in their arachnological reprints.

Contact our librarian:

Jean-Claude Herremans
PO Box 291
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Australia

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COVER ILLUSTRATION:

Female *Missulena granulosa* from Western Australia.
By Volker Framenau

EDITORIAL



No, you have not missed an issue! I admit, it's been a while! So far, I have managed to edit one issue of *Australasian Arachnology* in April, August and December each year since I started my editorial duties in 2004. This current issue was due in August 2007 and I apologize for its delay.



Male of '*Araneus*' *senicaudatus* Simon, 1908 from Perth.

Attending the 17th International Congress of Arachnology in São Pedro/ Brazil in August and the Combined Invertebrate Biodiversity and Conservation Conference/Society of Australian Systematic Biologist Meeting in Brisbane in December (the latter with a symposium on "Spiders as Bioindicators" organized by Barbara Baehr) in combination with a lack of articles I was not able to keep up the regular turn-around for *Australasian Arachnology*. Luckily I received conference reports for the two above meetings. Thanks to Anna Cutler for a report on the Brazil meeting and Helen Smith for a report on the Canberra conference. In addition, you will find an update on Helen's 3-year hadrotarsine project and a thesis abstract of Sydney Jordan's Ph.D. thesis on burrowing behaviour in mygalomorph spiders.

On behalf of the Australasian Arachnological Society I would like to congratulate Sydney and Helen for completing their Ph.D.s. Helen's thesis titled "The systematics and biology of the genus *Poltys* (Araneae: Araneidae) in Australasia" is available online at:

<http://hdl.handle.net/2123/2058>

Please consider sending me articles and photographs for the next issue, otherwise it might be a while again until *Australasian Arachnology* 79 will come out. All the best for 2008,

Cheers,

Volker

**MEMBERSHIP
UPDATES**
New Members
Jackie Manning

Park Ave
Walpole, WA 6398
manninggib@westnet.com.au

Change of Address
Judy Grimshaw

PO Box 1356
Toowoong, Qld 4066

Lisa Joy Boutin is currently completing her studies on Australian and New Caledonian *Clubiona*. She is looking for some employment in the area of arachnology. Please contact her if you have some work for her:
lisajoyb@yahoo.com

Preliminary Report on the Australian Hadrotarsinae Project (Araneae: Theridiidae) and a Call for Specimens

by **Helen Smith**, Australian Museum, Sydney, hsmith@austmus.gov.au

In June 2007 I (Helen Smith, Australian Museum) and joint investigators Ingi Agnarsson (University of Akron), Greg Anderson (Queensland Institute of Medical Research), and Mark Harvey (Western Australian Museum), began a 3 year, ABRS-funded project working on the theridiid subfamily Hadrotarsinae.

This subfamily, which was previously considered a family in its own right, is a diverse, yet largely unknown group within the family Theridiidae. Hadrotarsine genera are currently divided into two tribes: the Euryopini includes genera such as *Dipoena*, *Euryopis* and *Phycosoma* (*Trigonobothrys*) whilst the Hadrotarsini includes those genera with kidney-shaped posterior median eyes, such as *Hadrotarsus*.

Hadrotarsines, especially those with hard scuta, are commonly found in litter and regularly turn up in pitfall traps. However, some taxa are primarily found on tree trunks and amongst foliage, and one small group (probably representing a good genus) is exclusively represented from sweeping samples. It is likely that all hadrotarsine species are myrmecophilous, and most have abandoned web-use.

The subfamily has several distinctive autapomorphies that may prove to be of evolutionary significance within the Araneoidea. So far however, the phylogenetic placement of hadrotarsines within the family Theridiidae has proved

elusive, with the morphological (Agnarsson 2004) and molecular (Arnedo *et al.* 2004) studies in disagreement. A wider representative sample of taxa is needed to resolve this issue, but progress has been hampered because the subfamily is currently in taxonomic chaos. The situation in Australia exemplifies this problem: only 15 species are described (Platnick 2008) and these are almost invariably misplaced generically.

The aims of his project are to develop a generic classification of the non reniform-eyed hadrotarsines (Mark Harvey and Julianne Waldock have a generic revision of the Hadrotarsini already in progress), and to produce a molecular and morphological map of the entire subfamily in an attempt to elucidate the position of the hadrotarsines within the family Theridiidae. Of course we will also treat some key genera at the specific level, feeding information into national information schemes such as the ABRS Australian Faunal Directory.

The project started a little slowly, requiring me to get set up and learn a variety of new tools (still ongoing). But now the initial sort through of the first batch of specimens housed at the Australian Museum in Sydney is almost complete and nine groupings (which may or may not prove to be discrete genera) have been identified amongst the Euryopini. I will soon be traveling to other Australian museums to work through their collections, and planning fieldwork for next season to plug the gaps in geographic coverage.

In the meantime we would appreciate any specimens from *Australasian Arachnology* readers or your students and colleagues. In particular we now need fresh specimens (alive would be best) for DNA work. If you think you can help

please contact me to discuss the best way to get your specimens to us. I will be happy to reimburse postage costs.

Helen Smith: Arachnology Section, Australian Museum, 6 College St, Sydney NSW 2010. Ph. 02 9320 6458. Email helen.smith@austmus.gov.au, or if you get an "out of office" reply try hadrotarsines@gmail.com.

References

Agnarsson I. 2004. Morphological phylogeny of cobweb spiders and their relatives (Araneae, Araneoidea, Theridiidae). *Zoological Journal of the Linnean Society* **141**, 447–626.

Arnedo, M. A., Coddington, J., Agnarsson, I. & Gillespie, R. G. 2004. From a comb to a tree: phylogenetic relationships of the comb-footed spiders (Araneae, Theridiidae) inferred from nuclear and mitochondrial genes. *Molecular Phylogenetics and Evolution* **31**, 225–245.

Platnick, N. I. 2008. The world spider catalog, version 8.5. American Museum of Natural History, online at <http://research.amnh.org/entomology/spiders/catalog/index.html>



Tetralycosa alteripa (McKay, 1979) from salt lakes in Western Australia.

CONFERENCE REVIEW



17th International Congress of Arachnology

São Pedro, Brazil, August 2007

by **Anna Cutler**, University of Melbourne, annarecutler@hotmail.com

When I heard that the 2007 International Congress of Arachnology was to be held in Brazil, my first thought was "awesome," closely followed by, "and where do I sign up?" I am thrilled to report that not only did I make it to Brazil; I also had a fabulous time.

Being scheduled near the end of my Ph.D. on spiders in wheat agroecosystems, Brazil was perfectly timed for me to present some of my findings. However, being my first ICA, I had no idea what to expect. Perhaps intimidating experts asking difficult questions after a terrifying oral presentation? Or being lost in a sea of brilliant scientists ready to point out anything stupid that slips out of my mouth? Boring talks and bad coffee? Well, be assured I found nothing of the sort... even the coffee was reasonable. What I actually found was 320 warm and

welcoming arachnologists from 34 countries presenting a vast array of interesting arachno-research over 5 days, 259 posters and 115 talks...

The Australian contingency comprised of: the WA Museum Gang (I could tell they were a gang because they were wearing matching t-shirts) Mark Harvey, Volker Framenau, Julianne Waldock, Erich Volschenk, Mike Rix, Karen Edwards & honorary Brazilian Ricardo Ott; Monica "Trapdoors R US" Russel (WA); Barbara "Goblin" Baehr & Rob "The Trapdoor" Raven (Qld); Mary "Cavorting in Cotton" Whitehouse (NSW); Macquarie Uni behaviour trio Aaron "Climbing Ladders" Harmer, Dinesh "Jumping through Hoops" Rao & Anne "Spider Assassin" Wignall; and the Elgar Lab Girls Claire "Do I **Have** to do Fieldwork?" D'Alberto, Leo "I go all the Way to Mexico for Fieldwork" Ceballos & Anna "There's a Spider in My Wheaties" Cutler.

With so many people to have deep and intellectual debates with (or should I say talk bollocks over "is there a more deadly drink" caiparinha and beer), one action-packed week is barely enough. Of course, one sure-fire way to extend your productive time is to stay up really late every night. This proved to be remarkably easy, given: copious caiparinhas (Brazilian fire-water cocktails) on the first night; a Vodka and caviar-infused Russian party the next night; an energetic Brazilian arachno-band the next night; a dance-tastic disco the next night; and an outdoor Brazilian BBQ on the last night. Unfortunately the early morning plenary sessions sometimes fell by the wayside in exchange for one more hour on the dance floor.

In summary, although the talks and posters were both interesting and thought-

provoking, the real benefit in attending an ICA conference lies in catching up with distant friends and colleagues, meeting new ones, and turning strangers or the faceless authors of your favourite articles into firm friends in one short week. In every regard my expectations were blown away (or should I say ballooned away?) by my first International Congress of Arachnology, and I'm already looking forward to Poland 2010 – don't miss it!

Pictures of the conference can be found at:

<http://picasaweb.google.com/isa17th>

**PH.D. THESIS
ABSTRACT**



**Burrowing Behaviour in the
Australian Mygalomorphae**

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Armadale, New South Wales.
sljarach@hotmail.com

Supervisors: Mary Notestine (UNE),
Robert Raven (QM), Nigel Andrew (UNE)

This study provides the most comprehensive description to date of burrowing behaviour in the Mygalomorphae. Specimens representing 11 genera from six Australian families (Actinopodidae, Cyrtaucheniidae, Idiopidae, Hexathelidae, Nemesiidae and Theraphosidae) were recorded excavating

burrows. This resulted in 4,884 hours of recordings containing 722 hours of burrowing activity and 222 hours of useable burrowing sequences.

Twelve distinct burrowing behaviours were identified and described in detail, including the first description of Cartwheel Silking; all other behaviours have been previously reported in other studies.

Sequences of behaviour were constructed to illustrate how individual behaviours were combined to excavate a burrow. These sequences were then compared in order to discover whether patterns of behaviour existed for any group (species, genus or family). No patterns were found and even conspecifics were not observed to use the same sequences. The results of this study suggest that an individual spider is able to vary the sequence of behaviours utilised during burrow excavation, indicating plasticity in burrowing behaviour.



Figure: Raking behaviour showing the fang cutting into the soil. The rastellar surface makes no contact with the soil during the raking motion.

Descriptions are also provided for aerial tube construction in *Misgolas*

robertsi and door construction for *Euoplos variabilis*.

The rastellum is widely reported to play a major role in burrow excavation in mygalomorphs. Video footage obtained from this study suggested this is not the case. The fangs followed by the tarsal claws of the pedipalps were the major structures utilised during burrow excavation. The rastellum may play a role in behaviours used to compact the soil of the burrow wall.

Many spiders were maintained for lengthy periods which permitted observations of burrow structure and burrow use under laboratory conditions. The results presented here are for those spiders collected in the field (where burrow structure was observed) or where specimens were identified to genus or species, allowing comparisons to the available literature. Both similarities and differences are described, again indicating the flexibility or adaptive nature of behaviours involved in burrow excavation and use.

The results of a cladistic analysis indicate that behavioural characters related to burrow excavation are not useful in phylogenetic reconstruction for establishing relationships within the Mygalomorphae.

CONFERENCE REVIEW



Combined Invertebrate Biodiversity and Conservation Conference/Society of Australian Systematic Biologists Meeting

Brisbane, December 2007

by **Helen Smith**, Australian Museum,
Sydney, hsmith@austrmus.gov.au

The week was kicked off in style on Sunday evening with a welcoming reception in the foyer of the Queensland Museum. After an hour or two of frantically trying to “catch up” with long-lost friends and acquaintances, interspersed with nibbles, drinks and speeches, the participants meandered homewards or were taken to their accommodation for the week. As part of the spider contingent, I was honoured to be invited to stay with Barbara Baehr and Robert Raven, along with Rosemary Gillespie, Volker Framenau and Matthew Bulbert (an honorary arachnologist for the week).

Weekday sessions all started at 8.30am, which sometimes proved a bit of a challenge for those of us not at our best in the mornings. The conference opened with a welcome from Robert Raven and an opening plenary on spatial distribution of tropical insects by Nigel Stork. The morning session on Monday was the rainforest symposium and a general

session, with most of the rest of the day taken up with a series of presentations in the New Caledonia symposium (including an entertaining disagreement on the interpretation of some recent geological data). By the lunchtime break most of the posters had arrived; the only one focusing on arachnids introduced the BugWise Web2Spider guide (Helen Smith *et al*).

Tuesday morning produced a wide variety of parasitology topics, finishing with talks on the habits and diversity of *Parobia* leaf beetle mites (Owen Seeman), and a phylogeny of laelapid mites (Matthew Shaw). The afternoon canvassed mitochondria and chloroplasts and included a single arachnid talk on barcoding oribatid mites (Maria Minor) [an admission, I missed this talk – sorry Maria!].

Jumping to Thursday, the symposium topic was “Systematics of Australian Invertebrates: think globally act locally”. After an introductory plenary from Cameron Slatyer on the future of ABRIS, the morning included a number of presentations about some of the internationally funded projects that encompass Australian faunas and an update on the progress of spider systematics in Australia (Robert Raven). Unfortunately, on this very day that it would have been good to run over time into lunch and have a robust discussion about some big issues, the lecture theatre was booked by another group at lunchtime, so there was no time for group discourse. Thursday afternoon focused on the effect of fire on invertebrates, including soil mite assemblages in the Northern Territory (Stephen Beyer) and finished with a general session. On Thursday evening we all gathered for the conference dinner at a swish venue on the South Bank. We happily talked, ate and drank the night away in typical

conference style, and some progressed (or maybe regressed would be more apt) on to other venues to continue the fun.

On Friday morning there were a few early departures (and possibly a few conference dinner casualties), but most were able to enjoy the marine megadiversity symposium, including a talk on a molecular phylogeny of the Pycnogonida (Claudia Arango) before the closing valediction, a final lunch, and departure.

You may notice I missed Wednesday, and that is because I am saving it for special mention, as it was The Big Day as far as I was concerned. Wednesday morning started with our spider symposium: "Spiders as Bioindicators". Rosemary Gillespie started the ball rolling with a fascinating insight into speciation on remote Pacific islands. Focusing especially on *Tetragnatha* on the Hawaiian Islands, we learned that the independent evolution of similar morphs recurred as each new island became colonised. There is an excellent fit of the colonisation and speciation data to evolutionary models. Rosie's talk was followed by talks on *Toxopsoidea* (Helen Smith) and updates on major faunal projects on Araneidae (Volker Framenau), and Oonopidae (Barbara Baehr). Behaviour and foraging in the Argyrodinae (Mary Whitehouse), weather and the activity of *Nephila* species (Liu Shi Yang) and funnel web spider biogeography (Amber Beavis) completed the spider symposium. After lunch there followed the survival in suburbia/conservation symposium, where there were two further spider-related talks. We saw video footage of the advancing wave of arachnids coming in response to the sturdy thump of a running diesel engine (the legendary "vibration method") (Robert Raven and David Hirst), and learnt about

the development of a community friendly monitoring tool that uses spider web diversity as a surrogate for spider diversity (Matthew Bulbert). After lunch the invertebrate salvage symposium included a talk on how the Western Australian Environmental Impact Assessment process has helped provide habitat information on an endangered trapdoor spider (Jarrad Clark). Official sessions for the day finished with Invasive species and general topics. After the official sessions, participants gathered again for drinks, nibbles and the Digital Image Competition, organised by Barbara Baehr (with help from daughter Johanna). Judging was by the volume of applause, and responses ranged from a few polite claps to enthusiastic cheers and great acclaim. The deserving winners received prizes of certificates, some of Barbara's prints of her lovely spider paintings, and bottles of wine.

Overall it was a great week. The attendance was lower than in 2005, at least partly due to the Ecological Society of Australia meeting being held in Perth during the preceding week. I for once thought this worked in the conference's favour – with no need for parallel sessions everyone was able to attend all the talks they wanted, and there was slightly less pressure to keep slavishly to a tight schedule. At many conferences the group tends to split at lunchtime, when people disperse to different food outlets. But here lunch was provided each day in the room where posters were displayed and this kept people together, reading and talking, which I thought was a nice touch. A good diversity of people were able to attend and there was no shortage of opportunities for talking, or just listening in on the edges of many and varied interesting discussions. Many thanks are due to the organising committee of

Christine Lambkin, Robert Raven and Peter Davie, to Sally Brown Conference Connections, and to all the other people who contributed towards a great event.

Recent Australasian Arachnological Publications

This column aims to collate arachnological publications that were issued (but not yet those 'in press') since the last volume of *Australasian Arachnology*. These include:

- Ø papers on Australasian arachnology and
- Ø papers written by Australasian arachnologists (including non-arachnid papers).

I am particularly interested in listing entries of publications that are not easily traceable through the common library search engines, including theses and abstracts of theses. Please send me information on your latest publications for the next issue.

Arango, C. P. and Krapp, F. 2007. A new species of *Anoplodactylus* (Arthropoda: Pycnogonida) from the Great Barrier Reef and discussion on the *A. tenuicarpus*-complex. *Zootaxa* **1435**, 19-24.

Arango, C. P. and Wheeler, W. C. 2007. Phylogeny of the sea spiders (Arthropoda, Pycnogonida) based on direct optimization of six loci and morphology. *Cladistics* **23**, 255–293.

Boyer, S. L. and Giribet, G. 2007. A new model Gondwanan taxon: systematics and biogeography of the harvestman family Pettalidae (Arachnida, Opiliones, Cyphophthalmi), with a taxonomic revision of genera from Australia and New Zealand. *Cladistics* **23**, 337-361.

Clouse, R. M and Giribet, G. 2007. Across Lydekker's Line – first report of mite harvestmen (Opiliones: Cyphophthalmi: Stylocellidae) from New Guinea. *Invertebrate Systematics* **21**, 207-227.

Framenau, V.W. 2007. Erratum to: Framenau, V. W. 2006: The wolf spider genus *Venatrix*: new species, synonymies and generic transfers (Araneae, Lycosidae). *Records of the Western Australian Museum* **23**: 417.

Framenau, V.W. and Baehr, B.C. 2007. Revision of the Australian wolf spider genus *Dingosa* (Araneae, Lycosidae). *Journal of Natural History* **41**, 1603-1629.

Halliday, R. B. and Lindquist, E. E. 2007. Nomenclatural notes on the names *Gaeolaelaps* and *Geolaelaps* (Acari: Laelapidae). *Zootaxa* **1621**, 65-67.

Harvey, M. S. and Volschenk, E. S. 2007. Systematics of the Gondwanan pseudoscorpion family Hyidae (Pseudoscorpiones: Neobisioidea): new data and a revised phylogenetic hypothesis. *Invertebrate Systematics* **21**, 365-406.

Harvey, M. S., Austin, A. D. and Adams, M. 2007. The systematics and biology of the spider genus *Nephila* (Araneae: Nephilidae) in the Australasian region. *Invertebrate Systematics* **21**, 407-451.

- Harvey, M. S., Waldock, J., Teale, R. J. and Webber, J. 2007.** New distribution records of the intertidal pseudoscorpion *Parahya submersa* (Pseudoscorpiones: Parahyidae), *Records of the Western Australian Museum* **23**, 393-395.
- Harvey, M.S. 2007.** The smaller arachnid orders: diversity, descriptions and distributions from Linnaeus to the present (1758 to 2007). *Zootaxa* **1668**, 363-380.
- Hebets, E. A. and Vink, C. J. 2007.** Experience leads to preference: experienced females prefer brush-legged males in a population of syntopic wolf spiders. *Behavioral Ecology* **18**, 1010-1020.
- Hodge, S. and Vink, C. J. 2007.** Do epigeal spiders show a spatial association with patches of rotting fruit? *Newsletter of the British arachnological Society* **109**, 7-10.
- Kasumovic, M. M., Bruce, M. J., Herberstein, M. E. and Andrade, M. C. B. 2007.** Risky mate search and mate preference in the golden orb-web spider (*Nephila plumipes*). *Behavioural Ecology* **18**, 189-195.
- Sharp, H. E. & Rowell, D. M. 2007.** Unprecedented chromosomal diversity and behaviour modify linkage patterns and speciation potential: structural heterozygosity in an Australian spider. *Journal of Evolutionary Biology* **20**, 2427-2439.
- Sharp, H. H. and Rowell, D. M. 2007.** Unprecedented chromosomal diversity and behaviour modify linkage patterns and speciation processes: structural heterozygosity in an Australian spider. *Journal of Evolutionary Biology* **20**, 2427-2439.
- Smit, H. 2008.** Australian *Unionicola* (Acari: Hydrachnidia: Unionicolidae), with the description of two new subgenera and eight new species. *Zootaxa* **1674**, 1-26.
- Whitehouse M. E. A. and Grimshaw J. 2007.** Distinguishing between lynx spiders (Oxyopidae) relevant to IPM in Namoi Valley cotton. *The Australian Entomologist* **34**, 97-106.
- Whitehouse M. E. A., Wilson L. J. and Constable G. 2007.** Target and non-target effects on the invertebrate community of Vip cotton, a new insecticidal transgenic. *Australian Journal of Agricultural Research* **58**, 273-285.

Conference:

The Entomological Society of Southern Africa hosts the

XXII International Congress of Entomology at the International Convention Centre in Durban, South Africa from 6-11 July 2008.

<http://www.ice2008.org.za>



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Issue 78
January 2008

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