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THE AUSTRALASIAN ARACHNOLOGICAL SOCIETY

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

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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:

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COVER ILLUSTRATION:

A mimetid spider feeding on theriidid prey.
By Danilo Harms

EDITORIAL

Again, this issue is a bit late (September instead of August) but I hope the diverse and exciting contents will make up for the delay. As per usual, the Australian Arachnological Society is grateful to all who contributed to this issue! More excitingly, I already have articles for the December issue. Stay tuned for an update on the taxonomy of Australian jumping spiders by Marek Zabka.

The date for the 17th International Congress of Arachnology in São Pedro, São Paulo, Brazil was announced recently. The meeting takes place from 5 – 10 August 2007. Don't miss out on early registration for this exciting event (<http://www.ib.usp.br/~ricrocha/ISA17/ISA17.htm>). I have already bought a travel guide for Brazil and am taking Salsa lessons in preparation!

Congratulations to Erik Volschenk and Mark Harvey who snatched up a 3-year grant from the Australian Biological Resources Study (ABRS) for a project called 'Systematic revision of the endemic Australian scorpion genus *Urodacus* (Scorpiones: Urodacidae)'. Erik will return to the Western Australian Museum towards the end of this year after a stint at the American Museum of Natural History. Owen Seeman, Queensland Museum, also pulled some money from ABRS for his project 'Systematics of Australian native and exotic *Tetranychus* spider mites (Acari: Tetranychidae)'. Congratulations!

Keep the contributions rolling in (deadline for the next issue: 30 November 2006). Cheers for now

Volker

MEMBERSHIP UPDATES**New Members****Allen Rix**

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Spiders of the Pilbara, Western Australia

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Since 2003, the Pilbara region of Western Australia has been the focus of a major biological survey being carried out by the Western Australian Department of Environment and Conservation (formerly CALM) with assistance from the Western Australian Museum. The survey is aimed at providing detailed systematic information on the biodiversity of the region. This knowledge can then be used to better understand biogeographic patterning and ultimately improve the approach and handling of conservation in the region. There are five major components of the survey:

- Terrestrial fauna: vertebrates and invertebrates
- Terrestrial flora
- Wetland fauna: invertebrates and waterbirds
- Wetland flora
- Stygofauna

Focal groups of the terrestrial invertebrate fauna are ground-dwelling spiders, scorpions, beetles, bugs, ants and isopods.

Throughout the 19 million hectares of the Pilbara (almost the size of Victoria) 306 sites were chosen representing a cross-section of soil, climate and vegetation types (Fig. 1). Five ethylene glycol pitfall traps were installed at each site to sample the invertebrate fauna over

a twelve month period. The samples were then sorted to major groups and the various components identified to species level.

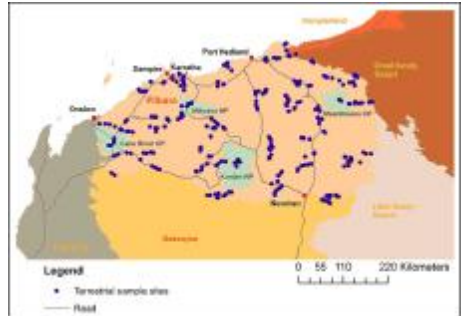


Fig. 1: The Pilbara region with the 306 terrestrial sites.

The task of identifying is obviously a mammoth one. The Western Australian Museum (Mark Harvey, Julianne Waldoek and Volker Framenau) will be identifying Oonopidae, Salticidae, and Lycosidae and the Queensland Museum (Robert Raven) is providing taxonomic assistance with Miturgidae. The American Museum of Natural History will be helping out with the soon to be released (and much anticipated) revision of the Australian Gnaphosidae (Vladimir Ovtsharenko) and the recently published revision of the Australasian Prodidomidae (Platnick and Baehr 2006).

The ground-dwelling spider component is currently represented by 20 families, dominated by Gnaphosidae, Zodariidae and Zoridae (Table 1). It is anticipated that the final number will be around 450-500 species, with around 80-90% of these unknown to science. Each site is expected to yield around 25-40 species.

Table 1: Pilbara ground-dwelling spider families and their current proportions of species.

(Number of species in the Lycosidae and Salticidae still unknown.)

<i>Family</i>	<i>Species</i>
Gnaphosidae	64
Zodariidae	60
Zoridae	37
Prodidomidae	29
Lamponidae	18
Miturgidae	18
Barychelidae	12
others	29

We still have a long way to go but we envisage all our identifications will be completed in the first half of 2007, followed by data analyses and lots of writing. Any taxonomic information that anyone feels may be of help to us would be greatly welcomed and if anyone has any questions please feel free to contact me.

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Check

http://www.naturebase.net/science/pilbara_biosurvey.html

for more details on the Pilbara Survey of the WA Department of Environment and Conservation.

POSTGRADUATE PROJECTS



Systematics of the Western Australian Pirate Spiders (Arachnida, Mimetidae)

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The Mimetidae, often referred to as Pirate Spiders due to the araneophagic behaviour of most species, are an enigmatic spider group with about 150 described species in twelve genera and a worldwide distribution (Platnick 2006). The Australian fauna is rich in species but is poorly known, both taxonomically and ecologically. Aggressive mimicry is part of the prey-catching behaviour of some Queensland *Australomimetes* Heimer, 1986. It is characterised by a diverse array of vibratory behaviours to invade the webs of other spiders (Jackson and Whitehouse 1986). Like most Mimetidae, Australian species prey mainly on Comb-footed (Theridiidae) and Orb-weaving Spiders (Araneidae) (Figure on title page of this issue), although insects may occasionally form part of their prey. Mimetidae build a typical, drop-like eggsac (Fig. 1) and a careful search nearby may lead to finding the mother of the clutch. Mimetidae are easily recognized by their cryptic behaviour, resting with the forelegs angled forward and the hind legs attached to the substrate.

Although mimetids can be relatively abundant in suitable habitats, they are generally collected only as single specimens in pitfall traps or vacuum samples. Turning over rocks or fallen bark may also yield mimetids in areas where their prey spiders are abundant. However, the best way to collect males, usually the sex that allows accurate species identification, is at night when they are wandering around in search of a mate and may be found entering webs in trees or on walls.



Fig. 1: Eggsac of *Ero arphana*.

Systematic position of the Mimetidae

The systematic position of the Mimetidae within a phylogenetic system of spiders has been subject to a long and vehement dispute. The Mimetidae have long been regarded as a member of the Araneoidea and have been placed near a variety of spider families or subfamilies, such as the Linyphiidae (Archer 1950), Cyatholipidae (Heimer and Nentwig 1982), Malkaridae (Wunderlich 1986) and Metinae (Davies 1988). Finally, Forster and Platnick (1984) transferred four families previously placed in the Araneoidea (Mimetidae, Micropholcommatidae, Tetricellidae, and Archaeidae) to an enlarged Palpimanoidea which are defined on the basis of two putative synapomorphic characters: the presence of peg teeth on the promargin of the cheliceral furrow, and the presence of an elevation on the chelicerae which is punctured by presumptively glandular pores. The placement of the Mimetidae within and as the sister group to the remaining palpimanooids was supported by some studies (Coddington 1990; Platnick *et al.* 1991) but rejected by many authors (e.g., Wunderlich 1986; Lehtinen 1996; Schütt 2000). Recent and comprehensive phylogenetic analyses of the Araneoidea provided convincing support for a placement of the Mimetidae within the Araneoidea (Schütt 2000, 2003). However, the debate about the systematic placement of the Mimetidae is far from over and additional studies incorporating molecular and ultrastructural data appear to be required to shed more light on the true phylogenetic position of this fascinating spider family.

Intrafamilial Relationships

Controversies in placing the Mimetidae into a phylogenetic framework reflect the taxonomic problems within the family. Whilst "some araneid taxa may also belong to the Mimetidae" (Scharff and Coddington 1997), some genera currently listed within the Mimetidae, such as *Kratochvilla* Strand, 1934 and *Melaenosia* Simon, 1906 may not belong there; they lack some of the typical mimetid autapomorphies, most prominent the fused chelicerae and the spination patterns on the forelegs (Platnick and Shadab 1993). Other genera may not be valid; they seem to represent junior synonyms (e.g., *Arochoides* Mello-Leitão, 1935 for *Gelanor* Thorell, 1869). The type species of *Reo* Brignoli, 1979, *R. latro* Brignoli, 1979, shows remarkable similarities with *Mimetus laevigatus* (Keyserling, 1863) from Eurasia, in particular in genital structure. Likewise, *Reo eutypus* (Chamberlin and Ivie, 1935) from North America appears to be a typical *Mimetus* Hentz, 1832. Brignoli (1979) transferred this species from *Mimetus* but it seems obvious that he never compared the genital structures of these taxa. Definitions and limitations of the major mimetid genera *Ero* C.L. Koch, 1836 and *Mimetus*, which contain the largest numbers of species, are poor. The monophyly of these taxa might only withstand a cladistic analysis in the case of *Ero* (Platnick and Shadab 1993), since pedipalp morphology differs a lot between the many species of *Mimetus*. Confusion is rising as every new mimetid species with an elongated opisthosoma that lacks humps and slender first and second legs is dumped into *Mimetus*, whereas new species with humped, stout opisthosoma

and overall plumb habitus are described as *Ero*.

The Australian Mimetidae

Twenty-three species of the Mimetidae are described from Queensland, New South Wales and Tasmania (Hickman 1929; Heimer 1986, 1989). The endemic Australian genus *Australomimetus* (18 species) is based on at least one apomorphic character, the lack of a shovel-like appendage on the dorsal side of the male cymbium, in comparison to the South-American *Gelanor* and *Mimetus laevigatus* from Eurasia (Heimer, 1986). With the description of two species in the genus *Mimetus* from Queensland (shovel-like appendage present), the notion of a quasi-endemic Australian mimetid clade became doubtful (Heimer 1989). Two mimetid species described by Hickman (1929) remained in *Mimetus* although they show typical *Australomimetus* pedipalp and epigyne morphologies. No further records or descriptions of the Mimetidae were published after 1989.

Earlier, the Australasian genus *Arkys* Walckenaer, 1837 was transferred from the Araneidae to the Mimetidae (Heimer 1984), but ultrastructural studies on spinnerets and spigot structure as well as the lack of mimetid autapomorphies revealed *Arkys* as a member of the Araneidae (Platnick and Shadab 1993, Scharff and Coddington 1997). The concept of the Australian Mimetidae including the validity of the genus *Australomimetus* was never questioned (Davies 1988; Platnick *et al.* 1991; Platnick and Shadab 1993; Schütt 2000; Wunderlich 2004), however it appears that the fauna requires rigorous revision since *Mimetus laevigatus* (Keyserling, 1863), the species Heimer (1986, 1989)

based the taxonomy of the Australian Mimetidae on, itself does not resemble the type species *Mimetus syllepsicus* Hentz, 1832 from North America in either pedipalp or somatic morphology. In addition, Heimer's (1986, 1989) presumed synapomorphy, a 'shovel-like appendage' of the male pedipalp, represents very different structures in several species which can hardly be homologous. As apomorphies fade, the validity of *Australomimetus* and the division of the genus in a "*spinusus*"- and "*maculosus*"-group must be questioned.

Project description

With at least 15 species, Mimetidae are well represented in the collection of the Western Australian Museum.

The aim of my studies towards a M.Sc. degree is to test the validity of *Australomimetus* within a phylogenetic framework of the Mimetidae, including exemplar taxa from all over the world. As part of this study, I will describe all sampled *Australomimetus* species from Western Australia and a further species from Victoria and Tasmania and discuss their biogeographic history in Australia. It is beyond the scope of this study to cover the whole Australian fauna that is estimated to include 40-50 species.

Acknowledgements

I am grateful to all colleagues around the globe for providing invaluable material: Jason Dunlop and Shahin Nawai (Berlin), Norman Platnick (New York), Paula Cushing and Heather Thorwald (Denver), Ansie Dippenaar-Schoeman and Annette van den Berg (Pretoria), Rudi Jocqué (Tervuren), Michael Rix (Perth), Peter Schwendinger (Geneva), Hirotsugu Ono (Tokyo), Christine Rollard (Paris) and

Laura Leibensperger (Harvard). Dan Mott (Texas) made a copy of his unpublished Ph.D. thesis on North-American Mimetidae available.

Finally, much is owed to Julianne Waldo and Mark Harvey (Perth) for collecting most of the specimens (and species!!!) from Western Australia.

Call for material: Mimetidae

I am extremely interested in obtaining new material from Australia and around the globe to solve some of the difficult problems we are facing in this remarkable spider family.

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wet sclerophyll forest and rainforest. Along the banks, *Nephila plumipes* (Latreille, 1804) is common where the canopy is not closed. *Nephila pilipes* (Fabricius, 1793) is also very common at this site. *Megadolomedes australianus* (L. Koch, 1865) are frequently seen in the creekside vegetation which is dominated by *Lomandra* sp. and *Carex* sp.

Predation on *Nephila* sp. by *Megadolomedes australianus* (Araneae, Pisauridae)

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The most water-loving spiders in the family Pisauridae are called 'Fishing Spiders', because they catch prey on the surface of the water, or they dive beneath water to avoid predators or catch prey. While several pisaurid species are functionally suited to capturing prey in this manner, ecological shifts have occurred within this family either to or from aquatic hunting. For instance, *Dolomedes minor* L. Koch, 1876 hunts in paddocks, and *Inola* spp. build capture webs. Another type of ecological shift occurs during development in *Dolomedes triton* (Walckenaer, 1837) with females becoming active foragers upon attaining reproductive maturity, whereas juveniles are fairly sedentary (Kreiter and Wise 1996).

Northbrook Creek (27°18'16.8" S, 152°42'34.3"E) is a narrow creek in Brisbane Forest Park, running through



Fig. 1: *Megadolomedes australianus* feeding on *Nephila*.

On the 12th of February 2006 at 1:00pm, I observed a large *M. australianus* consuming a female *Nephila* sp., presumed to be *N. plumipes* (Fig. 1). The feasting *M. australianus* was on the periphery of the web in an exposed location. A short distance away, another *M. australianus* was observed in an exposed location on the periphery of a small *Nephila* web, and the builder of this web was absent.

On a second visit to the site on 6 March 2006, *Nephila* and *M. australianus* were plentiful but no further instances of predation by *M. australianus* on *Nephila* were observed. One female *M. australianus* was observed carrying an egg-sac.

It would be interesting to discover if capture of web-inhabiting spiders by *M. australianus* is exceptional or not.

I am grateful to Dr Robert Raven for identifying *M. australianus*.

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The Huntsman Spiders (Sparassidae) of New Zealand

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The spider family Sparassidae, commonly known as huntsman spiders, is

not native to New Zealand. However, over the years following European colonisation there has been a steady stream of imports of foreign species, mostly from the eastern coast of Australia. At least one of these species, *Delena cancerides* Walckenaer, 1837 (Fig. 1), has become established.

Delena cancerides was illustrated in Ray Forster's 'Spiders of New Zealand, Part 1' (Forster 1967), but then misidentified as *Isopeda* (now *Holconia*) *insignis* (Thorell, 1870). It was used in the movie "Arachnophobia" because of its unusual propensity to tolerate the close proximity of other members of the species. Locally, this spider is known as the 'Avondale Spider', after the area of Auckland where it was established in the early 1920's (Hall 1988). The first specimen was found in 1924 and is thought to have been introduced with wood for railway sleepers. Riparian bush of introduced wattle (*Acacia* spp.) is the most common habitat in which the spider is found. *Delena* is well established in wild areas that contain mature, introduced black wattle trees, *Acacia mearnsii*, with heavy undergrowth near small freshwater creeks. At least five colonies of about 500 spiders are known in the Avondale Blockhouse Bay area of Auckland. In the past these spiders were commonly found around houses, but with increased clearing of areas of old wattles for housing subdivisions such encounters are becoming less frequent. Males are more likely to wander into houses during their search for females.

Over recent years, one of us (DH) has been receiving regular inquiries from authorities in New Zealand to identify arrivals of huntsman spiders from either

digital images or of the actual specimens (Table 1).



Fig. 1: *Delena cancerides* (male)

Photo: D. Hirst

Many of these arrivals have not become established. This may be due to an unfavourable climate. For example, representatives of *Heteropoda* ('banana spiders') are generally introduced from tropical environments including the Pacific Islands, Philippines and Ecuador which export bananas to New Zealand. It may simply be too cold for these spiders to survive. Others, such as the Badge Huntsmen, *Neosparassus* spp., from Australia, may require more arid conditions.

Table 1. Sparassidae established and intercepted in New Zealand (nomenclature after Platnick 2006)

Known natural distribution in parentheses: Aust. – Australia, NSW – New South Wales, Qld – Queensland, SA – South Australia, Tas – Tasmania, Vic – Victoria, WA – Western Australia; * = data from New Zealand Ministry of Agriculture and Forestry databases (STARS, PPIN). Specimens held in PANZ and PCNZ collections.

Established (? = possibly established)

Delena cancerides Walckenaer, 1837*
(Aust., Tas)

? *Isopeda villosa* L. Koch, 1875* (NSW)

? *Isopedella victorialis* Hirst, 1993* (Vic)

Intercepted

Heteropoda crediton Davies, 1994 (Qld)*

H. jugulans (L. Koch, 1876) (Qld) *

H. venatoria (Linnaeus, 1767)
(pantropical)*

Heteropoda sp.*

Holconia immanis (L. Koch, 1867)
(Aust.)*

Isopeda echuca Hirst, 1992 (NSW, Vic)

I. leishmanni Hogg 1903 (WA, SA, Vic)

I. woodwardi Hogg, 1903 (SA)*

Isopedella flavida (L. Koch, 1875) (Qld, NSW)

I. frenchi (Hogg, 1903) (Vic, SA)

I. pessleri (Thorell, 1870)* (NSW, Vic)

Isopedella sp.* [unconfirmed, DH]

Neosparassus punctatus (L. Koch, 1865)
(Aust.)

N. diana (L. Koch, 1875)* (WA, Vic, Tas)

Neosparassus sp.* [unconfirmed, DH]

Olios sp.* [ex: car import from Asia, SB]

Finding a foothold in New Zealand may just be a matter of time with other Huntsman Spiders, such as *Isopeda villosa* L. Koch, 1875, a native to coastal

New South Wales and the Great Dividing Range. A single gravid female escaping into suitable habitat could lead to a new addition to the sparassid fauna of New Zealand. Indeed, *I. villosa* has been collected from several localities around Auckland over the years (six since 2001) without direct links to recent imports. This suggests that this species may be locally established. It was initially reported from Takapuna, Auckland in 1995 (GH) and a second specimen was found in the same area in 1996. Subsequently, records from Panmure (1992), Helensville (1994) and Otahuhu (1999) became available (GH).



Fig. 1: *Isopeda villosa* from Batemans Bay (New South Wales, Australia).

Photo: D. Hirst

Isopedella victorialis Hirst, 1993 may also be in the process of establishing itself, as three specimens were found in close proximity in the Hoon Hay area of Christchurch between December 2005 and January 2006. However, no further specimens have been reported to date. *Isopeda villosa* and *I. victorialis*, with less critical habitat preferences as *Delena*, may be more likely to adapt to living in houses.

The above records and observations suggest that New Zealand now has at least one species of Huntsman Spider

firmly established. So far there is no indication that representatives of this family are a threat to the native fauna as they seem to be closely associated with environments that are modified by humans.

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See also:

- Hall, G. 1996. Meet Taka, a fat spotty softy from the Shore. *NZ Herald Saturday* September 7, 1996.
- Hall, G. 1996. Aussie invader one of a nicer kind of spider. *North Shore Times Advertiser*, September 17, 1996.

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 provide me with information on your latest publications for the next issue.

- Agnarsson, I. 2006.** A revision of the New World *eximius* lineage of *Anelosimus* (Araneae, Theridiidae) and a phylogenetic analysis using worldwide exemplars. *Zoological Journal of the Linnean Society* **146**, 453-593.
- Dankittipakul, P. and Jocqué, R. 2006.** Two new species of *Cydrrela* Thorell (Araneae: Zodariidae) from Thailand. *Raffles Bulletin of Zoology* **54**, 93-101 (available online at <http://rmbn.nus.edu.sg/rbz/biblio/>).
- Framenau, V.W. 2006.** The wolf spider genus *Venatrix* Roewer: new species, synonymies and generic transfers. *Records of the Western Australian Museum* **23**, 145-166.
- Framenau, V.W. 2006.** Revision of the Australian wolf spider genus *Anomalosa* Roewer, 1960 (Araneae, Lycosidae). *Zootaxa* **1304**, 1-20.
- Framenau, V.W. 2006.** *Knoelle*, a new monotypic wolf spider genus from Australia (Araneae, Lycosidae). *Zootaxa* **1281**, 55-67.
- Framenau, V.W. 2006.** *Mainosa*, a new genus for the Australian 'shuttlecock wolf spider' (Araneae, Lycosidae). *Journal of Arachnology* **34**, 206-213.
- Framenau, V.W. and Yoo, J.-S. 2006.** Systematics of the new Australian wolf spider genus *Tuberculosa* (Araneae: Lycosidae). *Invertebrate Systematics* **20**, 185-202.
- Framenau, V.W., Gotch, T.B. and Austin, A.D. 2006.** The wolf spiders of artesian springs in arid South Australia, with a revalidation of *Tetrallycosa* (Araneae, Lycosidae). *Journal of Arachnology* **34**, 1-36.
- Harvey, M.S. 2006.** New species and records of the pseudoscorpion family Menthidae (Pseudoscorpiones). *Records of the Western Australian Museum* **23**, 167-174.
- Harvey, M.S. and Mould, L.G. 2006.** A new troglomorphic species of *Austrochthonius* (Pseudoscorpiones: Chthoniidae) from Australia, with remarks on *Chthonius caecus*. *Records of the Western Australian Museum* **23**, 205-211.
- Harvey, M.S. and Mahnert, V. 2006.** The systematic position of the Amazonian species of *Albiorix* (Pseudoscorpiones, Ideoroncidae). *Journal of Arachnology* **34**, 227-230.
- Harvey, M.S., Štáhlavský, F. and Theron, P.D. 2006.** The distribution of *Eukoenenia mirabilis* (Palpigradi: Eukoeneniidae): a widespread tramp. *Records of the Western Australian Museum* **23**, 199-204.
- Langlands P.R., Brennan K.E.C. and Pearson D.J. 2006.** Spiders, spinifex, rainfall and fire: Long-term changes in

- an arid spider assemblage. *Journal of Arid Environments* **67**, 36-59.
- Kim, D.-H., Lee, J.-W. and Kim, J.-P.** 2006. Checklist of Korean Opiliones. *Korean Arachnology* **22**, 31-38.
- Li, D. and Kuan J.Y.X.** 2006. Natal dispersal and breeding dispersal of a subsocial spitting spider (*Scytodes pallida*) (Araneae: Scytodidae) from Singapore. *Journal of Zoology, London* **268**, 121-126.
- Platnick, N.I. and Baehr, B.C.** 2006. A revision of the Australasian ground spiders of the family Prodidomidae (Araneae: Gnaphosoidea). *Bulletin of the American Museum of Natural History* **298**, 1-287 (available online at <http://digitallibrary.amnh.org/dspace/>)
- Rix, M.G.** 2006. Systematics of the Australasian spider family Pararchaeidae (Arachnida: Araneae). *Invertebrate Systematics* **20**, 203-254.
- Smith, H.** 2006. A revision of the genus *Poltys* in Australasia (Araneae: Araneidae). *Records of the Australian Museum* **58**, 43-96.
- Tu, L. and Li, S.** 2006. Three new and four newly recorded species of Linyphiinae and Micronetinae spiders (Araneae: Linyphiidae) from Northern Vietnam. *Raffles Bulletin of Zoology* **54**, 103-117 (available online at <http://rmbn.nus.edu.sg/rbz/biblio/>)
- Wishart, G.** 2006. Trapdoor spiders of the genus *Misgolas* (Mygalomorphae: Idiopidae) in the Sydney region, Australia, with notes on synonymies attributed to *M. rapax*. *Records of the Australian Museum* **58**, 1-18.
- Woodman, J.D., Ash, J.E. and Rowell, D.M.** 2006. Population structure in a saproxylic funnelweb spider (Hexathelidae: *Hadronyche*) along a forested rainfall gradient. *Journal of Zoology, London* **268**, 325-333.
- Yang, Z.-Z., Zhu, M.-S. and Song, D.-X.** 2006. A newly recorded genus and a new species of the spider family Pimoidae from Yunna, China (Arachnida: Araneae). *Raffles Journal of Zoology* **54**, 235-239 (available online at <http://rmbn.nus.edu.sg/rbz/biblio/>).
- Zhu, M.-S., Zhang J. X. and Zhang, F.** 2006. Rare spiders of the genus *Cyclocosmia* (Arachnida: Araneae: Ctenizidae) from tropical and subtropical China. *Raffles Bulletin of Zoology* **54**, 119-124 (available online at <http://rmbn.nus.edu.sg/rbz/biblio/>).
- Zhang, C., Song, D. X. and Kim, J.-P.** 2006. A new species of the spider genus *Araneus* from Tibet, China (Araneae: Araneidae). *Korean Arachnology* **22**, 1-6.
- Zhang, J.X. Woon J.R.W. and Li, D.** 2006. A new genus and species of jumping spiders (Araneae: Salticidae: Spartaestinae) from Malaysia. *Raffles Bulletin of Zoology* **54**, 241-244 (available online at <http://rmbn.nus.edu.sg/rbz/biblio/>).