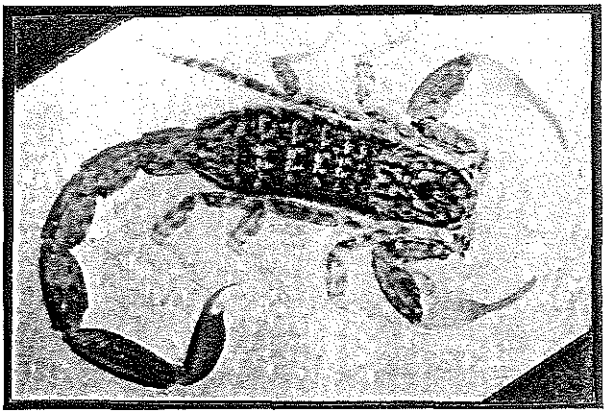
AUSTRALASIAN ARACHNOLOGY



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

Please send articles to the editor as :

i) email attachments, in text, or preferably MS Word, format to :

tracey.churchill@terc.csiro.au

ii) typed or legibly written articles on one side of A4 paper, or on disk (returned only upon request) to :

Dr Tracey Churchill
CSIRO Sustainable Ecosystems
PMB 44 Winnellie N.T. 0822.
Australia.

LIBRARY

The AAS has a large number of reference books, scientific journals and scientific 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 :

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COVER PHOTOGRAPH : *Lychas* sp.
by T. Churchill & G. Wanganeen

EDITORIAL

Another year has passed already! The celebrations seemed more subdued than last New Year's Eve but we are now definately part of the new millenium!

Our triennial international meeting will be held soon for those lucky enough to be able to go. Our hosts in South Africa offer an excellent location so be quick to book your tickest if you haven't already!

The next four issues require a new cover illustration and a harvestman is the preferred arachnid. So if any budding or established artists would like to contribute a drawing, or if someone has one that can be used – it would be most appreciated.

I look forward to receiving more of your interesting research updates and arachnological news in 2001!

.....Tracey

MEMBERSHIP CHANGES

Change of Address

Dr. Daiqin Li
Department of Biolological Sciences
The National University of Singapore
10 Kent Ridge Crescent
Singapore 119260

26-30 March 2001

Badplaas Aventura Conference Centre
South Africa

"Arachnology in the new millenium"

Get ready for the next arachnological congress about to be held at the luxurious Badplaas Aventura Holiday Resort.

Badplaas is a well-known resort in South Africa, and offers a peaceful and relaxed environment. It is situated in the 1500 ha Embuleni Private Nature Reserve, at the foot of the Hlumuhlumu Mountains.

Package accomodation deals are available to delegates, including cheaper options for students.

Topics for oral presentations will include systematics, medically important arachnids, ecology, biodiversity, behaviour, morphology and physiology.

Registration fees are R300 for ISA members (approx. A$64) and R330 for non-members (approx. A$70). Registration deadline is 15 January 2001.

Check out the website :
http://www.arc.agric.za/lnr/institutes/ppri/arachnology/conweb.htm

Sparassidae for Heteropodidae - a family name change.

Dr Peter Jäger

Institute for Zoology, Johannes Gutenberg-University, 55099 Mainz, Germany

Nomenclatural changes of the names of higher taxa are rarely made due to the principle of stability for frequently used names (ICZN 1999). Indeed, since Roewer's catalogue was published in 1954, the only change to the scientific name of a spider family has been to Heteropodidae from Sparassidae (Platnick & Levi, 1973) for the Huntsman or Giant Crab spiders. During recent times, the huntsman fauna has been well studied in Australia (thanks to the work of Valerie Davies and David Hirst), and so the name Heteropodidae has become familiar to many. I expect it will be difficult, therefore, for those interested in spiders to become familiar again with "Sparassidae" following a return to the original name (Jäger 1999). Here I wish to elucidate why this change has been made.

When I began to study spiders of the family Sparassidae in 1995, three scientific names was still in use: Sparassidae Bertkau 1872, Heteropodidae Thorell 1873 and Eusparassidae Jaervi 1912. Some additional combinations were also used as 'Sparassidae Simon 1874' or 'Heteropodidae Bertkau 1872'. Despite the stabilizing effect of Platnick's catalogues in favor of Heteropodidae, generally all three names must be considered, as they were all available following the rules of ICZN (1999).

In a superficial way, it seemed to be an easy case: Sparassidae Bertkau 1872 was the earliest available name and should therefore be the one to be used. However, Platnick & Levi (1973) pointed out that the type genus *Sparassus* Walckenaer 1805 was 'unrecognizable'and therefore Heteropodidae should be used, until a revision of the family was completed. So I focussed my work on this genus, its type species and its taxonomical identity.

It became clear, that *Sparassus* is a synonym of *Micrommata* Latreille 1804. This genus includes three species, of which the type species, *Micrommata virescens*, is distributed in the Palearctic region. From this and other facts discussed by Jäger (1999), Sparassidae Bertkau 1872 was recognized as the valid name. It is hoped that stability for the family name of the Huntsman spiders is now facilitated.

References

ICZN, 1999. International Code of Zoological Nomenclature. Fourth Edition. Internat. Trust Zool. Nomencl., La Gradangola, Padova (Italy), 306 pp.

Jäger, P., 1999. Sparassidae - the valid scientific name for the huntsman spider (Arachnida: Araneae). *Arachnologische Mitteilungen* 17: 1-10.

Platnick, N. I. & H. W. Levi, 1973. On family name of spiders. *Bulletin of the British Arachnological Society* 2 (8): 166-167.

BOOK REVIEWS

by **Dr Mark S. Harvey**

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The spiders of China

by Song Daxiang, Zhu Mingsheng & Chen Jun

Hebei Science and Technology Publishing House, Shijiazhung, 1999, 640 pp.
ISBN 7-5375-1892-0

Our understanding of the spider fauna of China has undergone an enormous transformation during the past decade with the publication of numerous papers and books devoted to the topic. Sadly, these papers are often difficult to obtain as many are published in little-known Chinese journals that are hard to access outside of China. However, help is at hand, with the publication of this book.

The spider fauna of the region is of fascination to all araneologists, as China spans an enormous area over many different climatic zones – the deserts and steppes of the east and north, the tropical forests of the south, and the temperate regions of the north-east. This climatic diversity, along with great topographic diversity, has produced an extremely rich spider fauna. With this in mind 'The spiders of China' has been produced as a primary tool for specialists by the authors who collated the relevant taxonomic data for each spider species recorded from China.

The book begins with a general account of spider morphology, internal structure, biology, ecology, and systematics. Each family is diagnosed, and a short section on the known diversity of the family, along with some biological notes, is provided. These diagnoses and notes are paraphrased from Dippenaar-Schoeman and Jocqué (1997).

Keys to suborders, infraorders, and families are provided, and colour photographs of several species are provided at the end of the volume. Data provided for each species includes the original reference, any subsequent citations relevant to the Chinese fauna, the known distribution, and illustrations of the epigyne and male palp.

The volume treats all known 2361 species, 450 genera and 56 families, and describes several new species, although there is no synopsis of these taxonomic acts.

Somewhat controversially, the authors have chosen to use numerous illustrations from the scientific literature which have not been credited to the original source. Whilst this may be the norm in China (where copyright regulations do not mirror those in most other parts of the world), it is a lazy and discourteous use of other people's work which any publisher in the 'West' would forbid. Jerzy Proszynski's impassioned cry (see *American Arachnology* 61, p. 11) summarises the frustration felt by scientists whose work has been 'borrowed' for this volume in such a fashion. Incidentally, and somewhat frustratingly, many of the plates

lack captions and one must search through the text to identify the species illustrated.

The volume is a very useful synopsis of the Chinese fauna, and documents a rich and fascinating fauna from a remarkable part of the world.

Reference

Dippenaar-Schoeman, A.S. and Jocqué, R. (1997). *African spiders – an identification manual.* Plant Protection Research Institute: Pretoria.

Miocene insects and spiders from Shanwang, Shandong

by

Zhang Junfeng, Sun Bo & Zhang Xiyu

Science Press, Beijing, 1994
ISBN 7-03-003785-5

China has become a major centre for the study of fossil faunae, with perhaps the most outstanding the spectacularly preserved vertebrates highlighted in the pages of *Nature* and *Science*. Less well known, however, are the plant and invertebrate fossils which have been described from the region. The present book is a further contribution to this discipline, with descriptions of numerous insects and spiders from the Miocene of Shandong Province. The fossils appear to be excellently preserved, and most are instantly recognisable as representing modern families.

The majority of the book comprises taxonomic descriptions of the fossils recovered from the site, with photographs and black and white interpretive illustrations of each species. The descriptions are given in Cantonese, and unfortunately only the descriptions of the new genera are translated into English. Introductory chapters on the composition and characteristics of the fauna are also translated into English.

The spider section deals with several new species, some of which are named in recent genera, such as *Dysdera*, *Araneus*, *Lycosa*. Five new genera are described: *Testudinaria* (Araneidae), *Dryadia* (Lycosidae), *Miothomisus* (Thomisidae), *Parvulus* (Thomisidae) and *Evagoratus* (Salticidae). The generic descriptions are not elaborate, and the taxa are distinguished on some very imprecise criteria such as the relative length of the legs and the ratio of the carapace. No attempt has been made to characterise or examine fine structures, which have been featured in some recent fossil spider discoveries.

The family-level classification used for the spiders is somewhat outdated, and appears to have been based upon Petrunkevitch (1955), as evidenced by the use of Drassodidae and Eusparassidae, names that are no longer in use at that level. Also, *Tetragnatha* is placed in the Araneidae, when most treatments for the past 20 years refer it to the Tetragnathidae.

A matter for some concern is the erection of generic names which are junior homonyms. For example, amongst the insects, *Dolichopoda* (Scarabaeidae) is preoccupied by the king cricket genus

Dolichopoda Bolivar, 1880, the cerambycids *Paraphilus* and *Hornia* are preoccupied by other beetles *Paraphilus* Gahan, 1893, *Hornia* Riley, 1878 and *Hornia* Raffray, 1901. Two of the spider genera are also preoccupied: *Parvulus* by *Parvulus* Lutz, 1930 (Amphibia) and *Testudinaria* by *Testudinaria* Taczanowski, 1880, a South American araneid.

Reference

Petrunkevitch, A. (1955). Arachnida. *In* R.C. Moore (ed.), *Treatise on Invertebrate Paleontology. P, Arthropoda*, Vol. 2: 42-162. University of Kansas Press: Lawrence.

Mound Spring Spiders of arid South Australia

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Spiders in artesian mound springs of the Great Artesian Basin have remained relatively unstudied until recent years with previous research at the springs concentrating on other endemic invertebrates, such as the hydrobiid snails (*Fonscochlea* and *Trochidrobia*). Early surveys recorded 15 species of spider (Greenslade 1985), with more recent surveys recording 38 species (David Hirst SA Museum and Darren Niejalke WMC, pers comm. 1995). Many of the spider species recorded in these later surveys are thought to be confined to the habitat provided by the springs where they rely on the permanent wetland habitats. These include species of Tetragnathidae, Lycosidae and Pisauridae.

The mound springs provide permanent wetland habitats more typical of high rainfall areas, rather than the arid centre. In the region of the Lake Eyre South mound springs there are no other permanent natural wetlands that are comparable. Many of the spider groups recorded do not occur or are rarely encountered at other wetlands in the arid zone although some species appear to have colonised the artificial wetlands associated with boredrains in the area. Species that appear to have evolved within these environments are considered to be of special significance as most have relatives that are largely or only found in high rainfall areas. These species include (David Hirst pers. comm. to Sally Abernathy 1996):

- *Dolomedes facetus* which has not been recorded in SA previously but is common in aquatic habitats in Queensland and New South Wales.
- *Clubiona* sp. which has not been collected previously in this region but whose relatives are common under the bark of mallee trees.
- *Bianor* sp. not normally in arid areas although more collections are needed to verify this.
- *Lycosa* and *Trochosa* spp, some of which appear confined to the springs and possibly even a group of springs. More collections are needed to confirm this.

- *Dunedinia* sp. may be a relictual species restricted to the springs.

- A Hahniid (*Alistra* sp.) which is thought to be relictual, is common in many springs along the Oodnadatta track. Surveys undertaken in September 1999 show this family is also present in springs in the Northern Flinders Ranges (Lamb and Niejalke, unpublished data).

Following the 1995 spider surveys, mound spring spiders were the main focus of an honours project aimed at determining grazing impacts on mound spring spiders (Lamb 1998, 1999). Differences in Lycosid assemblages between mound springs and bore drains have recently been the focus of an honours project (Gotch 2000).
Currently, a new study investigating the impacts of fire on species of mound spring invertebrates including spiders has been initiated. It is believed that fire was used in the past as a management tool by local aboriginals to gain better access to water in the springs. With permission and assistance from local aboriginal communities, fire will be applied to a small number of selected springs to determine impacts on endemic species of aquatic invertebrates and spiders.

Initial sampling for this project was conducted in July 2000 with burning to take place in late August 2000. Three springs in total will be burnt with a further 3 springs to be sampled as controls. Ground dwelling species of spiders are being sampled using pitfall traps, whilst vegetation dwelling species are being sampled using an adapted leaf vacuum. Further sampling will be conducted in early September, approximately two weeks after the fire, to determine initial impacts, and will continue at regular intervals until total regeneration of spring vegetation to determine full impacts.

Most of the spiders so far recorded appear to be undescribed. Priority for research in the near future needs to concentrate on the species systematics. Establishing a conservation priority for the mound springs is heavily reliant on an understanding of their biodiversity values. Understanding taxonomic relationships will also aid interpretation of ecological data. Partnerships for this work are sought and hopefully funding can be secured to enable this to begin.

References

Lamb K (1998). Cattle grazing impact on mound spring spider communities (Arachnida: Araneae). Unpublished honours thesis, Flinders University, SA.

Lamb K. (1999). Cattle grazing impacts on mound spring spider communities (Arachnida: Araneae). Abstract. Australasian Arachnology No. 55.

Gotch TB (2000). Wolf spider assemblages in the mound springs and bore drains of South Australia. Unpublished honours thesis, Adelaide University, SA.

Greenslade (1985). Terrestrial Invertebrates of the Mound Springs, Bores, Creek Beds and Other Habitats. In: South Australia's Mound Springs (Eds: J Greenslade, L Joseph and A Reeves). Pp. 64-77.

The Australian Biological Information Facility - a useful resource for arachnologists

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Have you ever needed to determine the correct spelling of a particular species? Well, help is now at hand, with the development of a new web-site by the Australian Biological Resources Study at **http://www.environment.gov.au/abrs**.

The site contains a series of databases compiled on behalf of the Australian Biological Resources Study in a taxonomic databasing tool, *Platypus*. ABRS intend to eventually cover all biological groups in Australia. The web-site replaces the *Zoological Catalogue of Australia* which have been published in book form since 1983. Volume 3 of that series covered some of the arachnids, including the mygalomorph spiders (Main, 1985), some of the araneomorph spiders (Davies, 1985; McKay, 1985), the pseudoscorpions (Harvey, 1985a), the amblypygids (Harvey, 1985b) and the palpigrades (Harvey, 1985c).

The arachnids are well represented on the web-site, with all of the smaller orders, plus some of the spiders, now included. There are plans to include the mites (Acari) and the remainder of the spiders at a later date. The spider section is particularly out-dated, as it represents the data included in the published catalogues of Davies (1985), McKay (1985) and Main (1985), and contains no new entries since that time. Nevertheless, it is a welcome addition to the electronic world - keep your web-browser pointed in that direction to see the latest developments.

The arachnid groups treated so far are:

- the scorpions (Scorpiones) by Mark Harvey and Erich Volschenk
- the spiders (Araneae) by Barbara Main, Valerie Davies & Rolly McKay
- the whip spiders (Amblypygi) by Mark Harvey
- the schizomids (Schizomida) by Mark Harvey
- the pseudoscorpions (Pseudoscorpiones) by Mark Harvey
- the daddy-long-legs (Opiliones) by Mark Harvey and Glenn Hunt
- the palpigrades (Palpigradi) by Mark Harvey.

For many groups, it is possible to obtain basic distributions, lists of type material, synonymies and more. Have fun!

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Davies, V.T. (1985). Arachnida: Araneomorphae (in part). *In* D.W. Walton (ed.), *Zoological Catalogue of Australia*, Vol. **3**: 49-125. Australian Government Publishing Service: Canberra.

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McKay, R.J. (1985). Arachnida: Araneomorphae: Lycosidae. *In* D.W. Walton (ed.), *Zoological Catalogue of Australia*, Vol. **3**: 73-88. Australian Government Publishing Service: Canberra.

A change of scorpion families

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The names of families of animals are often considered sacrosanct and should only be changed under extreme circumstances. However, changes do occur, either due to a modification in the perceived relationships of the organisms involved, or due to a nomenclatural amendment. Such a change has recently occurred which affects arachnologists in Australia.

Scorpions of the genus *Urodacus* have usually been placed within the Scorpionidae. Members of this genus are common throughout much of mainland Australia, and some 20 species are currently recognised (Koch, 1977; Volschenk *et al.*, 2000). As part of a world revision of the superfamily Scorpionoidea, Prendini (2000) found that *Urodacus* was so distinct that it could no longer be accommodated in the Scorpionidae, and placed it in its own family, Urodacidae.

Indeed, the results of the study showed that this family represented the sister-group to the peculiar family Heteroscorpionidae which is known only from Madagascar. This may point to an ancient relationship between the two families, dating back to when Africa, Madagascar and Australia were connected during the Cretaceous.

References

Koch, L.E. (1977). The taxonomy, geographic distribution and evolutionary radiation of Australo-Papuan scorpions. *Records of the Western Australian Museum* 5: 83-367.

Prendini, L. (2000). Phylogeny and classification of the superfamily Scorpionoidea Latreille 1802 (Chelicerata, Scorpiones): an exemplar approach. *Cladistics* 16: 1-78.

Volschenk, E.S., Smith, G.T. and Harvey, M.S. (2000). A new species of *Urodacus* from Western Australia, with descriptive notes on *Urodacus megamastigus* (Scorpiones: Urodacidae). *Records of the Western Australian Museum* 20: 57-68.

POSTGRADUATE PROJECTS

The successional response of spider (Araneae) communities to fire in a Western Australian Jarrah forest

Lachlan Ashby

Degree : Honours

Institutions : • School of Environmental Biology, Curtin University of Technology, Perth • Environmental Department, Alcoa World Alumina, Applecross, W.A.

Supervisors : Prof. Jonathan Majer, John Koch, Karl Brennan and Owen Nichols

Arachnological Support : Dr Mark Harvey and Julianne Waldock, Western Australian Museum

Submission Date : November 1998.

Abstract : The impact of prescribed autumn burning on spider communities was examined in remnant Jarrah forest at Jarrahdale, Western Australia. Spiders were sampled at sites representing a chronological sequence which follows prescription burning. Ages following burning were zero, three, six or nine years. The spiders which are ground dwelling species were sampled with pitfall traps and those species which inhabit the vegetation were sampled by means of suction sampling. The survey took place during April 1998.

One hundred and forty species comprising of thirty four families were recorded from the pitfall traps. Thirty seven species, constituting twenty seven families were collected by means of suction sampling.

Several of the more common species and families displayed distinct successional responses to fire, with numbers of individuals varying according to post-fire-period. At the community level, species diversity of ground and vegetation dwelling species and family abundance for the vegetation inhabiting species underwent a significant increase between zero and three years after a fire. Beyond three years, fire had little effect. There was a gradual increase in family diversity for the ground dwelling families, with family abundance not changing significantly from the initial burn until nine years after.

Regression analyses revealed a significant correlation between the post-fire-period and family diversity for up to nine years after a fire. However, species abundance was only significantly correlated with time up until three years after a fire. Vegetation cover density for lowest metre of the understorey and litter structure were both significantly correlated with the post-fire-period, with the more recent fires having a greater effect on these two habitat variables. The regression analyses indicated that the spider community was closely linked to habitat structure, and a disturbance such as fire, which can alter the condition of the habitat, may have an influence on the outcome of the post-fire succession.

Spider communities as bioindicators of rehabilitated mined sites subjected to fire

Melinda Moir

Degree : Honours

Institutions : • School of Environmental Biology, Curtin University of Technology, Perth • Environmental Department, Alcoa World Alumina, Applecross, W.A.

Supervisors : Prof. Jonathan Majer, John Koch, Karl Brennan and Owen Nichols

Arachnological Support : Dr Mark Harvey and Julianne Waldock, Western Australian Museum

Submission Date : November 1999.

Abstract : Recently, fire has been incorporated as a management practice into the rehabilitation of bauxite mined sites. This has been undertaken to facilitate the return of flora to a state more similar to surrounding Jarrah forest. Currently, the effect on fauna of burning mined sites is being investigated. This study utilised spiders as bioindicators to determine the likely effect of burning at Alcoa of Australia's Jarrahdale Mine, Western Australia.

Three treatments were studied; Jarrah forest (*Eucalyptus marginata*) burnt in either 1988 or 1994 (4 sites), 16 to 18 year old rehabilitated mined sites (6 sites) and 16 to 18 year old rehabilitated mined sites burnt in 1994 (6 sites). The over-storey of burnt and unburnt mined sites was dominated by non-native *Eucalyptus* species.

Distinct habitat differences were found between treatments; litter weight, litter depth, vegetation structure, percentage canopy cover and percentage ground cover (rocks, green vegetation, soil and leaf litter). Habitat variables were used to explain differences in spider communities between treatments. The most important characteristics appeared to be:

- Jarrah forest - low growing shrubs and herbs, lack of mid-storey and low levels of litter accumulation;
- unburnt mined sites - dense senescing *Acacia* mid-storey, low densities of live vegetation and high levels of litter accumulation; and
- burnt mined sites - high percentage rock cover on the ground, low levels of litter accumulation and regeneration of plant species in the mid-storey between 100-200 cm high.

Spiders were surveyed by pitfall trapping, suction sampling and litter sampling in April 1999. In total 3692 spiders were captured, representing 39 families and 182 species. Spider communities at each site consisted of two distinct faunas; ground dwelling or foliage dwelling. The most abundant ground dwelling families (in decreasing order) were Zoridae, Zodariidae, Corinnidae, Gnaphosidae and Salticidae. The most abundant foliage dwelling spiders (in decreasing order) were Theridiidae and Araneidae.
Burnt mined sites displayed the highest species richness and the highest proportion of 'rare' species in the pitfall traps. Both the burnt mined sites and

Jarrah sites had higher proportions of spiders requiring specific habitat variables. This was attributed to greater habitat heterogeneity in the burnt mined sites and forest. Unburnt mined sites displayed more habitat homogeneity resulting from the lack of live vegetation and high proportion of dead vegetation. For example, Thomisidae (flower spiders), Oxyopidae (lynx spiders) and Linyphiidae (sheet web spiders) were in highest abundances at Jarrah forest (1994 burnt sites) and burnt mined sites. The presence of these families may be associated with flowering plants, regenerating live vegetation and low growing shrubs respectively.

Detrended Correspondence Analysis (DCA) revealed Jarrah forest sites clustered separately from mined sites in terms of spider composition. All mined sites (burnt and unburnt) were grouped together, however, 1983 mined sites clustered separately to sites mined in 1981 and 1982. This separation may represent the difference in seed mix used in rehabilitation. After removal of 1983 mined sites from the data set, unburnt mined sites formed a 'wedge' between Jarrah forest sites and burnt mined sites. This result was repeated in all data set combinations; families or species, pitfall trapped or suction sampled, and presence/absence or abundance.

It was concluded that burnt mined sites were moving towards a spider community with a new composition, compared to Jarrah forest or unburnt mined sites, most likely as a result of habitat changes brought about by burning.

Do Spiders Make You Laugh?

According to an American survey, nearly 70% of all respondents feared public speaking more than they feared spiders. Now it's hard to believe that Americans are ever stuck for words, but maybe they have no idea of the vast range of spiders living on the Australian continent. There are few people who really like spiders. When confronted by a spider, the majority of people experience anxiety, panic attacks and fear.

Fortunately, these perilous events do not happen everyday. There are, however, countless spider stories which make other people laugh, usually at the expense of the storyteller. I am currently writing a book about Australian spiders. One section of the book has been devoted to humourous experiences that people have had with spiders. Have you an amusing and lively story to tell? Each contribution will be acknowledged in the book.

Please forward your story (approximately 250 words) to:

Graham Wilce
P.O. Box 175
Glenhuntly
Victoria 3163.